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Compensation and Prevention of Damage Resulting from Offshore Drilling in China

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Faculty of Law, Maastricht University

A thesis submitted for the degree of

Doctor of Philosophy at Maastricht University

23rd November, 2022

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DISSERTATION

to obtain the degree of Doctor at the Maastricht University,
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Prof.dr. Pamela Habibović
in accordance with the decision of the Board of Deans,
to be defended in public
on **Wednesday 23rd of November 2022**, at **10.00** hours

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Contents

Acknowledgements	i
List of abbreviations	x
Chapter 1 Introduction	1
1. Background	1
1.1 Chinese offshore oil industry	1
1.2 The history of oil spills in China	2
1.3 Rules concerning offshore oil pollution in the Chinese legal system	4
1.4 Heads of damage arising from offshore oil pollution	5
2. Research question	5
3. Methodology	7
3.1 The doctrinal approach	7
3.2 Law and economics	8
3.3 The use of a case study	9
3.4 Functional comparative approach	9
4. Structure	10
Chapter 2 Legal background of the Chinese offshore industry	13
1. Legal framework concerning damage resulting from offshore drilling	13
1.1 The hierarchy of the Chinese legal system	13
1.2 Legal instruments related to damage caused by offshore drilling	20
1.2.1 The <i>Constitution</i>	20
1.2.2 Laws	21
1.2.3 Administrative regulations	23
1.2.4 Administrative measures	24
1.2.5 SPC Interpretations	24
1.2.6 Other non-formal sources of law	25
2. Rules addressing the offshore oil industry in China	26
2.1 Industrial background of offshore drilling in China	26
2.1.1 Terminology	26
2.1.2 Offshore oil resources in China	28
2.2 Offshore drilling development in China	30
2.2.1 Offshore oil industry before 1982	30
2.2.2 The offshore oil industry after 1982	32
2.3 Industrial structure of offshore drilling	36
2.3.1 A contract-based approach	36
2.3.2 Stakeholders	39
2.3.3 The independence of the CNOOC	40
2.4 Incentives for joint development	42
2.4.1 Technical reasons	42
2.4.1.1 Uncertainty in the offshore drilling industry	42
2.4.1.2 Deepwater drilling in the South China Sea	44
2.4.2 Economic reasons for joint development	47
2.5 Risks related to offshore operations	50
2.5.1 Various risks stemming from offshore drilling	50
2.5.2 Offshore drilling accidents in the world	52
2.5.3 Risks caused by offshore drilling in China	54

3. Summary	56
Chapter 3 Substantive rules concerning damage resulting from offshore drilling in China	59
1. Definition of ‘damage resulting from offshore drilling’	60
2. Rules addressing liability for damage resulting from offshore drilling	61
2.1 Basis of liability	61
2.1.1 Liability rules before 2021	61
2.1.2 Liability rules after 2021	63
2.1.3 Rules under the MEPL	64
2.1.4 A confusion between strict liability and no-fault regarding environmental damage in China	65
2.2 Requirements for liability	68
2.2.1 Determination of the act of pollution	68
2.2.2 Determination of the fact of damage	69
2.2.3 Determination of the causation - presumption of causation	70
2.3 Moving beyond the original polluter	71
2.3.1 Joint and several liability	71
2.3.2 A third party’s fault	73
2.3.3 Liability relating to platform workers	77
2.4 Defences to (civil) liability	80
2.5 Legal Remedies	82
2.5.1 Eliminating the damage	83
2.5.2 Monetary compensation	85
2.5.3 Restoring the <i>status quo ante</i>	86
2.5.4 Punitive damages	87
3. Various types of damages arising from offshore drilling.....	88
3.1 Traditional damage	89
3.2 Personal injury, physical injury and emotional damage	90
3.2.1 Rules under the <i>Civil Code</i> , <i>GPCL</i> and <i>Tort Law</i>	91
3.2.2 Rules given by two <i>SPC Interpretations</i>	92
3.2.2.1 Personal injury under the <i>SPC Interpretation on PI</i>	92
3.2.2.2 Emotional injury under the <i>SPC Interpretation on ED</i>	93
3.3 Property damage	96
3.4 Economic loss apart from property damage	97
3.4.1 Direct and indirect loss	97
3.4.2 Pure economic loss arising from ‘vessel-induced’ pollution	98
3.5 Loss in the fishing sector	100
3.5.1 Fishery loss under the <i>Civil Code</i> and the <i>Fishery Law</i>	102
3.5.2 The coverage of fishery loss	103
3.6 Ecological damage to the (marine) environment	104
3.6.1 The (marine) ecological protection	105
3.6.1.1 Ecological protection under the EPL	105
A. Ecological compensation mechanism	105
B. Ecological protection plan	105
C. Protecting the marine environment	106
3.6.1.2 Ecological protection under the MEPL	107
A. Marine ecological compensation mechanism	107
B. Other preventive measures	107
3.6.2 Rules relating to the (marine) ecological damage	109
3.6.2.1 Ecological damage to the environment before 2021	110

3.6.2.2 Ecological damage to the environment after 2021	113
3.6.2.3 Marine ecological damage under the MEPL	114
3.6.2.4 Compensation for marine ecological damage under the <i>2014 Measure</i>	115
3.6.2.5 Compensation for marine ecological damage under the <i>2018 SPC Interpretation</i>	117
3.7 Types of damages resulting from offshore drilling under the <i>2016 Measure</i>	118
4. Summary	122
Chapter 4 Extent and means of compensation of types of loss.....	125
1. Personal injury - two <i>SPC Interpretations</i>	125
1.1 Types of indemnities stemming from personal injuries	125
A. Medical treatment expenses	125
B. Losses of income due to missed working time	126
C. Food allowances in hospital	126
D. Expenses for nutrition.....	127
E. Nursing expenses	128
F. Cost of assistant equipment.....	129
G. Compensation for disability.....	129
H. Compensation for death.....	131
I. Funeral expenses	132
J. Loss of maintenance	132
K. Payment for emotional damage	133
1.2 Two specific examples	137
1.3 Types of payment	139
2. Property damage and economic loss.....	141
2.1 Calculating property damage under the <i>2014 Recommendation Methods</i> ..	141
2.2 Pure economic loss - lessons from vessel-induced pollution	142
3. Loss to the fishing sector	143
3.1 Evaluating the quality of fishing waters	143
3.1.1 Standards of fishing waters	144
3.1.2 Standards of some marine creature.....	146
3.1.3 National standards under the <i>Standardisation Law</i>	147
3.2 Estimating fishery loss	148
3.2.1 Independent accreditation institute.....	149
3.2.2 The <i>2018 Standard</i> assessing the fishery loss	150
A. Estimating the extent of losses of fishery resources.....	150
B. Calculating the economic losses	150
4. Marine Ecological damage.....	153
4.1 A three-tier compensation scheme under the <i>2018 SPC Interpretation</i>	154
4.1.1 The first-tier compensation.....	154
4.1.2 The second-tier compensation	155
4.1.3 The third-tier compensation	155
4.2 Assessing marine ecological damage under the <i>2014 Measure</i> and two <i>Guidelines</i>	156
5. Summary	158
Chapter 5 Procedural rules concerning damage resulting from offshore drilling in China	161
1. Legitimate victims and claimants.....	161

1.1 Personal injury.....	161
1.1.1 Standing in personal injury cases	162
1.1.2 Standing in emotional damage cases	163
1.2 Economic loss - fishery loss	163
1.2.1 Certificate for using sea areas.....	164
1.2.2 Using sea areas under a functional division system	165
1.2.3 Certificate of fishery or aquaculture.....	165
1.3 Marine ecological damage.....	168
1.3.1 Marine administrative department.....	168
1.3.1.1 Article 89 (2) of the MEPL	168
1.3.1.2 Article 2 of the <i>2014 Measure</i>	171
1.3.2 Social organisations.....	173
1.3.2.1 Article 55(1) of the CPL.....	174
1.3.2.2 Article 58 of the EPL.....	175
1.3.2.3 Rules in the judicial documents by the SPC.....	176
1.3.2.4 Problems associated with the requirements of standing.....	178
1.3.2.5 The inconsistency of rules in terms of standing	181
1.3.3 People's Procuratorate.....	184
1.3.3.1 Article 55 (2) of the CPL.....	185
1.3.3.2 Article 25 of the ALL	186
1.3.4 No standing for individuals	187
2. Claim settlement	189
2.1 Approaches to claiming compensation for injuries and economic loss	189
2.1.1 Administrative management.....	189
A. Three types of Statement regarding compensation liability	189
B. Three procedural devices against administrative errors.....	190
2.1.2 Judicial adjudication.....	194
2.1.3 Judicial mediation.....	195
2.1.4 Arbitration	197
2.2 Approaches to claiming compensation for marine ecological damage	197
2.2.1 Marine administrative agency	198
2.2.2 Social organisations and procuratorates via EPIL.....	199
2.2.3 Claiming remediation: restoration or monetary compensation	200
3. Shifting the burden of proof concerning causation	203
3.1 The victim: to prove a certain probability of causation	204
3.2 The polluter: to overturn the presumption of causation	205
4. Summary	207
Chapter 6 The impact of insurance on compensation for damage resulting from offshore drilling in China.....	209
1. Risks arising from offshore drilling activities	209
1.1 Insurance risks in offshore drilling.....	209
1.2 Insurance coverage	212
1.3 First- and third-party insurance	213
2. Are offshore operators required to purchase insurance?	214
3. All-risk offshore insurance	218
3.1 All-risk insurance for platforms and MOUs.....	218
3.2 Compensation liability of the insurer	219
3.2.1 Insured property.....	219
3.2.2 Coverage.....	220
3.3.3 Exclusions.....	221

3.3.4 Liability limit.....	223
3.3.5 Deductible.....	225
3.3.6 Sue and labour expenses.....	226
3.3.7 Collision liability.....	227
4. Well control insurance	228
4.1 Blowout and well control	229
4.2 Policies of well control insurance.....	230
4.2.1 Insurance coverage of well control.....	231
A. Control of a well.....	231
B. Re-drilling.....	232
C. Seepage and pollution.....	233
4.2.2 Liability limits.....	234
5. Occupational injury insurance and employers' liability insurance.....	234
5.1 Occupational injury insurance.....	235
5.2 Employers' liability insurance.....	237
5.3 The interplay between occupational injury insurance and employers' liability insurance.....	238
5.4 Concurrence between the insurance and compensation liability.....	240
5.4.1 Concurrent liability under the <i>Occupational Injury Law</i> and <i>Work Safety Law</i>	240
5.4.2 Employers' injury insurance fund under the <i>Social Insurance Law</i>	241
5.4.3 Concurrent liability under two SPC interpretations.....	241
6. Environmental pollution liability insurance	244
6.1 Rules addressing pollution insurance in China.....	245
6.1.1 Pollution insurance under three laws.....	245
6.1.2 Pollution insurance rules under two regulations.....	247
6.2 Will compulsory pollution insurance be introduced in China?.....	248
6.2.1 A pilot programme of pollution insurance.....	248
6.2.2 Compulsory pollution insurance for marine pollution (excluding the offshore oil industry).....	251
6.2.3 After the <i>EPL of 2015: the 2017 Draft</i>	252
6.3 Pollution insurance products.....	254
7. Safety liability insurance.....	255
7.1 Safety liability insurance under the <i>Safety Insurance Measure</i> and the <i>2020 Specification</i>	255
7.2 The role of safety regulations in insurance.....	259
8. Fishery mutual insurance	261
9. Additional risk management techniques	263
9.1 Reinsurance.....	263
9.2 Self-insurance.....	265
9.3 Compensation fund.....	269
10. Summary	271
Chapter 7 Safety regulations concerning offshore drilling in China.....	277
1. Introduction	277
2. The authority in charge of safe operations in the offshore oil industry	278
2.1 The OOOSO and its agencies.....	278
2.2 The SOA and its branches.....	280
3. The requirements for offshore oil operations	280
3.1 Before offshore oil operations.....	281
3.1.1 The threshold for entering the offshore oil industry.....	281

A. Making a contract with the CNOOC	282
B. Obtaining a safety production license.....	282
C. Passing the environmental impact assessment.....	284
3.1.2 Intervention of the authority	286
3.2 During offshore operations.....	287
3.2.1 Safety requirements applicable to offshore oil companies.....	287
A. Strengthening safety in daily maintenance.....	288
B. Discharging pollutants under specific standards	288
C. Formulating emergency plans.....	289
D. Capacity building.....	290
3.2.2 Intervention of the authority.....	292
3.3 Post-accident response.....	292
3.3.1 The duty to report based on the classification system	293
A. Classification of marine oil spills under the <i>2016 Measure</i>	293
B. Classification of the safety of a production accident under the <i>RID</i> <i>Regulation</i>	294
C. Classification of environmental emergency under the <i>Environmental</i> <i>Emergency Measure</i>	295
3.3.2 Intervention of the authority	297
A. Accident reporting	297
B. Accident investigation	300
4. Internal compliance mechanisms of Chinese offshore oil companies	301
4.1 Internal rules for preventing occupational risks	303
4.1.1 Occupational safety of offshore employees	303
4.1.2 Capacity building for safe production	305
4.2 Internal rules for preventing marine pollution.....	307
4.2.1 Emergency response system.....	307
4.2.2 Using technology to improve safety in the workplace	309
5. Safety performance in Chinese offshore drilling in practice.....	311
5.1 Statistics of workplace safety performance in the offshore oil industry	311
5.2 Evaluation of the Chinese offshore oil safety statistics.....	316
5.3 Procedures for offshore safety inspection	320
5.3.1 Two administrative organs in charge of offshore safety inspection	320
5.3.2 Specific procedures of safety inspection	322
6. Summary	323
Chapter 8 Critical analysis of the compensation and regulation of offshore oil damage in China	327
1. Introduction	327
2. Liability rules governing offshore oil pollution	328
2.1 Liability rules.....	328
2.2 Economic observations.....	330
2.2.1 Basis of liability.....	330
2.2.2 Financial caps	337
2.2.3 Polluters: attribution of liability	337
2.2.4 Victims: a contributory negligence defence	342
2.3 Liability rules in practice.....	343
2.3.1 Polluters: allocating the liability among the operator and the CNOOC.....	343
2.3.2 Victims: taking due care in terms of the contributory negligence defence	344
3. The mechanism of pursuing tort damages	345

3.1 Rules of tort damages	345
3.2 Economic observations	346
3.2.1 Claimants of offshore oil damages	346
3.2.2 Types of damages	350
3.3 Rules regarding tort damages in practice	352
3.3.1 Claiming compensation for traditional damage through administrative management	353
3.3.2 Claiming compensation for traditional damage through the judicial system	356
3.3.2.1 Litigation	356
3.3.2.2 Judicial mediation	359
3.3.3 Claiming ecological restoration through administrative management	360
3.3.4 Claiming ecological restoration through EPIL	362
4. Financial guarantees	364
4.1 Insurance for offshore oil damage	365
4.2 Economic observations	365
4.2.1 Liability insurance	366
4.2.2 Offshore captive insurance company	367
4.2.3 Financial security	368
4.3 Rules regarding financial guarantees in practice	370
4.3.1 Voluntary or mandatory liability insurance	370
4.3.2 No legal criteria for self-insurance	372
4.3.3 A proposal regarding a compensation fund for offshore oil damage ...	373
5. Safety regulation regarding damage prevention	375
5.1 Rules of safety regulation	375
5.2 Economic observations	376
5.2.1 A preventive instrument to deter offshore oil pollution	376
5.2.2 Combining regulation with liability rules	378
5.3 Safety regulation in practice	379
6. Conclusion	382
Chapter 9 The case study on the Bohai Bay Oil Spill	385
1. Introduction to the Bohai case	385
2. Testing the strict liability system	386
3. Testing the claims process	388
3.1 The claims process of pursuing traditional damage	388
3.1.1 Powerful administrative controls in the administrative management ..	389
3.1.2 Litigation as an important alternative	392
3.1.3 Limited impact of judicial mediation and arbitration	396
3.2 The claims process of pursuing ecological restoration	397
3.2.1 Administrative management as a primary choice	397
3.2.2 Environmental Public Interest Litigation ended in a failure	398
4. Testing the financial guarantees	400
4.1 Financial tools	400
4.2 A temporary fund for ecological restoration	401
5. Testing the safety regulations	404
5.1 Safety performance of operators and their incentives for prevention	404
5.2 Post-accident response of public administration	406
6. Conclusion	407
Chapter 10 Policy recommendations for the Chinese legal system regarding	

offshore oil damage based on a comparative study	411
1. Introduction	411
2. Attribution of liability	413
2.1 The US: Joint and several liability applies	414
2.2 The CLC: Channelling of liability	416
2.3 Summary	419
3. Financial security.....	419
3.1 The US: financial responsibility under the OPA	420
3.2 The UK: Incorporating financial security through OPOL.....	420
3.3 The CLC: Financial guarantee on shipowners	422
3.4 Summary.....	424
4. Independent dispute resolution in the <i>Deepwater Horizon Oil Spill</i>.....	425
4.1 Private compensation scheme: GCCF	426
4.2 Public litigation via class actions	430
4.3 Summary.....	432
5. Policy recommendations for the Chinese legal system.....	433
5.1 Joint and several liability.....	434
5.2 Financial security.....	435
5.3 Independent dispute resolution.....	437
Chapter 11 Concluding remarks and future study	439
1. Answers to the research question.....	440
2. Academic contributions	442
3. Limitations of the research and possibilities for future study.....	444
Summary	449
Bibliography.....	451
Appendix One: Legislation	493
Appendix Two: Cases.....	501
Impact Statement.....	503
Curriculum vitae	507

List of abbreviations

ABS	American Bureau of Shipping
ACEF	All-China Environment Federation
ADR	Alternative Dispute Resolution
ARS	Accident Reporting System
ART	Alternative Risk Transfer
BOEM	Bureau of Ocean Energy Management of the United States
BOP	Blowout Preventer
BP	British Petroleum
CBIRC	China Banking and Insurance Regulatory Commission
CFMI	China Fishery Mutual Insurance Association
CHSEMS	CNOOC HSE Management System
CIL	CNOOC Insurance Limited
CNOOC	China National Offshore Oil Corporation
CNPC	China National Oil Corporation
COF	Covered Offshore Facility
COPC	ConocoPhillips China
CPC	Communist Party of China
CPIC	China Pacific Insurance Group Company
CRI	Cuttings Re-injection
CSOE	Central State-owned Enterprise
DECC	Department of Energy & Climate Change of the United Kingdom
DOJ	Department of Justice of the United States
EAP	Emergency Advance Payment
EED 8/86	Energy Exploration and Development Insurance
EPIL	Environmental Public Interest Litigation
ED	Emotional Damage
FAR	Fatal Accident Rate
GB	National standard of China ('Guojia Biaozhun' in Chinese)
GCCF	Gulf Coast Claims Facility
HB	Industrial Standard ('Hangye Biaozhun' in Chinese)
HPHT	High Pressure and High Temperatures
HSE	Health, Safety and Environment
HYSY 981	Hai Yang Shi You 981 Oil Rig
ICS	Incident Command System
IOGP	International Association of Oil & Gas Producers
LTIR	Lost Time Incident Rate
LWDC	Lost Work Day Case
OPEP	Oil Pollution Emergency Plan
OOOSO	Offshore Oil Operation Safety Office
MEI	Marine Environmental Impact
MEP	Ministry of Environmental Protection of China
MOA	Ministry of Agriculture of China
MOU	Mobile Offshore Unit
MSA	Maritime Safety Administration of China

NEA	National Energy Administration of China
NGO	Non-Governmental Organisation
NPC	National People's Congress of the People's Republic of China
NRSC	No-Risk Service Contract
OEE	Operators' Extra Expense
OSHA	Occupational Safety & Health Administration of the United States
PI	Personal Injury
PICC	People's Insurance Company of China
PSC	Product-Sharing Contract
PSMS	Process Safety Management System
RID	Reporting, Investigation and Disposition
RSC	Risk Service Contract
RWDC	Restricted Work Day Case
SAWS	State Administration of Work Safety
SINOPEC	China Petrochemical Corporation
SOA	State Oceanic Administration of China
SOE	State-Owned Enterprise
SPB	State Fishery Bureau of China
SPC	Supreme People's Court of People's Republic of China
SPP	Supreme People's Procuratorate of People's Republic of China
TRI	Total Recordable Injury
TRIR	Total Recordable Injury Rate
TTC	Total Transport Corporation
UKCS	United Kingdom Continental Shelf
WI	Work-related Injury

Note that this list does not include abbreviations of statutes and cases. For the abbreviations of these documents, see Appendix One (Legislation), Appendix Two (Cases).

Chapter 1 Introduction

1. Background

1.1 Chinese offshore oil industry

Offshore drilling is a distinct industrial activity, as it uses various types of oil facilities for well drilling to explore, extract, store, and process petroleum and natural gas that lies in rock formations beneath the seabed.¹ Notwithstanding the recent tendency to move from fossil fuels to renewable energy, the offshore oil sector is still a prosperous and significant industry in the global economy, and it will very likely still play an important role in the decades to come. The world's largest oil companies and a number of small and medium-sized enterprises both engage in offshore activities.²

In the past four decades, the exploration and production of oil in the offshore industry have grown steadily in China. After the adoption of the Chinese economic reform in 1979, China's offshore oil industry was *de facto* the first domain of its economy that opened up to the world.³ Since then, China has developed a joint operating model between foreign oil operators and its State-owned enterprise (SOE) - China National Offshore Oil Corporation (CNOOC) - to exploit offshore oil reserves in Chinese waters.⁴

This joint model has proven to be economically beneficial to China. According to Bassoe Analytics, China currently leads the world in active offshore drilling rigs, with nearly 60 rigs in operation.⁵ Notably, China Oilfield Services Limited (COSL),⁶ a

¹ This definition is given on the basis of multiple sources in the west and in China. See (i) EIA 2022; (ii) NOIA; (iii) Speight 2015; (iv) 33 U.S.C. §2701 of the *Oil Pollution Act* as of 1990; (v) Article 26 of the *Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises* (《中华人民共和国对外合作开采海洋石油资源条例》) as of 2013.

² Faure *et al.* (2015), 362.

³ CNPC 2016d.

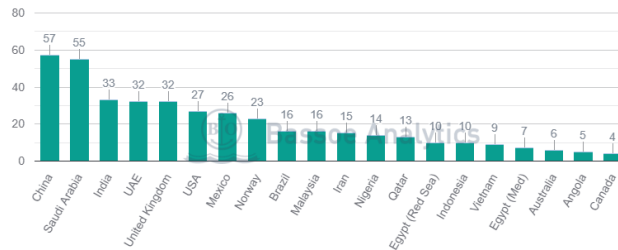
⁴ *Ibid.*

⁵ 'Rigs in operation' refers to the operational oil rigs covered an offshore petroleum contract, most of which are operated in offshore oil projects and are thus more likely to be subject to danger from daily operations. However, the number of rigs in the contract (60) may not accurately reflect the number of rigs actually working at any given time, because some contracted rigs may be moving between locations, undergoing maintenance, waiting for the weather change, etc.

⁶ China Oilfield Services (COSL, in Chinese: 中海油服) is an oilfield services company, which is a majority-owned subsidiary of Chinese State-owned company CNOOC Group. It also has a listed sister company in Hong Kong, CNOOC Limited. China Oilfield Services usually purchases offshore vessels (OSVs) and operates them in Southeast Asia, the Middle East and Central Asia in offshore projects of CNOOC. It also operates in Indonesia, Malaysia and the Caspian Sea. COSL claims a 95% share of China's market for offshore drilling services, 70% of the marine support and transportation market, 60% of the well survey services market and more than 50% of the seismic data collection market. Globally, about 15% of oil companies' capital expenditure goes to exploration, 35% to field development and 50% to production. More information is available at <https://www.cosl.com.cn/col/col20611/index.html> (accessed on April 7, 2022).

majority-owned subsidiary of the CNOOC Group, is a versatile offshore oilfield service solution provider with sought-after integrated functions and bundled service chains in China and other countries worldwide.⁷ It currently operates 57 platforms, equivalent to the number of offshore rigs in China, as displayed in figure 1.⁸

Figure 1 Operational offshore drilling rigs by country as of July 2019⁹



In addition, China is also one of the world's top oil producers, as it is the only country in East Asia to make the top 10, with a production rate of nearly 4 million barrels per day (million bbl/day) (see table 1). These statistics indicate that China continues to be an active oil producer with numerous offshore oil projects in coastal waters and overseas.

Table 1 Top ten countries by offshore oil production as of 2019¹⁰

Rank	Country	Oil production (bbl/day)
1	USA	12 000 000
2	Russia	11 200 000
3	Saudi Arabia	11 113 710
4	Iraq	4 451 516
5	Iran	3 990 956
6	China	3 980 650
7	Canada	3 662 694
8	UAE	3 106 077
9	Kuwait	2 923 825
10	Brazil	2 515 459

1.2 The history of oil spills in China

The offshore oil sector presents challenges and risks to the health, safety, and the environment while carrying out its operations. Technically speaking, oil spillage can be categorised into small oil spills or large oil accidents. The latter is the risk with a

⁷ Top 18 Offshore Drilling Companies in the World 2019 (2019-02-02), available at <https://blog.technavio.com/blog/top-18-offshore-drilling-companies> (accessed on April 7, 2022).

⁸ These 57 offshore facilities include 36 jack-ups, 12 semi-submersibles, 6 module rigs, and 3 accommodation rigs. In order to support these offshore oil rigs, COSL also has 130 working vessels, 13 seismic survey ships, and more than 430 units of modern facilities and equipment for logging, directional drilling, drilling-fluids handling, cementing, and well workover services, all being augmented by COSL's self-developed logging-while-drilling tool. The data is from the website of the COSL (EN), available at <https://www.cosl.com.cn/col/col20671/index.html> (accessed on April 7, 2022).

⁹ The data is provided by Bassoe Analytics, see Shinn 2019.

¹⁰ Umar 2019.

low probability of occurrence worldwide; however, once it takes place, the damage can be disastrous and long-lasting.¹¹ An offshore oil accident with catastrophic damage tends to have a significant chance of substantial losses.¹² It has two essential characteristics: (i) the past may not be the best predictor of future disasters, and a future disaster can be many times worse than those disasters seen in the past; (ii) a single extreme outcome may readily account for most of the losses from a particular type of catastrophe.¹³

Following an offshore oil accident, various types of harm may be associated with marine pollution, such as personal injuries and fatalities, property damage, and economic loss suffered by offshore-related sectors like fishery and tourism. An oil pollution incident also puts the marine environment of nearby areas in great danger, probably leading to environmental degradation. It brings about the problem of dealing with the offshore oil damage, as well as the concern of taking appropriate preventive action to mitigate such hazards.

In China, it was reported that there were 1,856 cases of oil spillage that happened in the offshore industry from 1987 to 1997.¹⁴ Although more accurate data is not available, offshore drilling is clearly a sector associated with potential risks. In the early 2000s, the industry's ability to solve design and equipment problems steadily allowed it to overcome many challenges of exploiting and operating in the marine environment. However, extreme weather conditions and human errors may create risks at any time.¹⁵ In 2011, a series of oil spills at platforms B and C of the Penglai 19-3 oil fields in the Bohai Bay in northeast China occurred, leading to a water area of over 5,500 km² being polluted, covering 7 percent of the entire Bohai Bay area.¹⁶ The accident, leading to economic losses and ecological damage,¹⁷ was the most severe

¹¹ Smith *et al.* 2011.

¹² Viscusi & Zeckhauser 2011.

¹³ *Ibid.*

¹⁴ Qian 2012; Wei *et al.* 1995; Nobuyuki Miyazaki *et al.* 2005. See, also Ministry of Ecology and Environment 2018, 2019, 2020.

¹⁵ While the design of rigs and tankers may be improved by introducing risk-mitigating measures, around 80% of maritime accidents are actually caused (directly or indirectly) by human error. See Wang & Trbojevic 2007.

¹⁶ For the 2011 Bohai case, the first oil spill at the field from the Penglai 19-3 oilfield took place on June 4, 2011, due to pressure during water injection into a subsurface reservoir, which led to a crack in an existing geological fault. The next incident occurred on June 17, 2011, during the drilling of a water injection well, where it bumped into an unanticipated high-pressure zone, causing a well kick and temporary loss of well control. The news of this oil spill was reported by the State Oceanic Administration (SOA) on July 5. In a statement by the SOA, the US company ConocoPhillips China (COPC), which was managing the platform, was held responsible for the leak and was fined CNY 200,000 (which was approx. EUR 26,000 based on the exchange rate EUR/CNY 0.13 in 2011). See Offshore Technology 2014.

¹⁷ Based on the report, 'The oil, containing toxic substances and heavy metals, will greatly affect the growth of marine lives on the seabed, such as clams, scallops and some kinds of crabs.' Xinhua News reported after the accident quoting Cui Wenlin, director of the environmental monitoring centre with the North China Sea branch of

oil spill in China in the past four decades, which raised general public awareness concerning the potential damage arising from offshore drilling activities. A preliminary investigation undertaken by the public administration - State Oceanic Administration (SOA) - concluded that the accident was totally avoidable, as experts pointed out that the accident was attributable to human-caused errors: a series of reckless decisions and irresponsible actions led to the disastrous result.¹⁸ This accident attracted public attention to this particular kind of damage and triggered a fierce debate about the oil spill response in China.

1.3 Rules concerning offshore oil pollution in the Chinese legal system

As China has become a major country in the offshore oil business, and this simultaneously brings tremendous risks with it, the legal system that governs this environmentally sensitive industrial sector deserves special attention. After all, studying the applicable rules aiming at the damage is not merely a necessity for China to prepare for such hazards *ex ante* and to tackle them *ex post*; moreover, offshore oil operators worldwide need specific legal guidance for their business activities in Chinese waters.

Currently (2022), China has legislation governing environmental pollution. More particularly, rules aiming at handling offshore oil damage have also been mentioned in several legal instruments. However, unlike vessel-induced oil pollution, for which the liability system has been well established based on a set of specific legal instruments, rules regarding offshore-related damage are randomly scattered in a handful of laws and regulations. Quite a few rules are not sufficiently clear to be applied and thus they are seldom used in practice.

In addition, there is limited literature concentrating on offshore oil damage in China,

the SOA. The situation was worse because Bohai is a half-closed sea with comparatively low self-cleaning ability due to limited water exchange with the outside. Dead seaweed and rotting fish have been reported in the water around Nanhuangcheng Island, about 74 kilometres south from where the leaks originated. See SOA 2011, 2012; COPC 2012. A discussion of 2011 Bohai case is given in chapter 9.

¹⁸ The oil spills in Penglai 19-3 oilfield were regarded as major accidents for the following reasons: (i) The overall development plan required separate layer water injection for offshore directional wells, but the operator COPC did not strictly follow the plan; (ii) The COPC had discovered that the shallow oil layer L70 had a risk of high pressure due to the wrongful water injection of Well B23, but it did not seal this layer in time nor did it undertake any emergency measures; (iii) The COPC violated the requirements of drill cuttings re-injection (DCR) as stipulated in the overall development plan, altering the layers randomly. The drill cuttings layer of C25 well on the C platform had a problem of ultra-high pressure due to the alternation, yet the alert was not told to the workers of the problematic C20 well, which caused a major error in its drilling design; (iv) A series of wrongful actions substantially violated the requirements of the environmental impact report. When the accident took place, the COPC could not have any effective response until it was out of control. More information is provided in SOA 2011, 2012, COPC 2012. Chapter 9 will provide a case study based on this accident.

as academia specialising in marine oil pollution pays more attention to vessel-induced damage.¹⁹ A heated discussion about oil spills was triggered shortly after the *Bohai Bay Oil Spill*. However, the research put emphasis on the accident response in that single case, whereas the whole legal mechanism aiming at compensation and prevention for offshore oil pollution was largely neglected.

1.4 Heads of damage arising from offshore oil pollution

An oil spill can lead to various types of losses, including but not limited to personal injury, property damage, economic loss, and damage to the environment. Personal injury can be in the form of physical injury or emotional damage, among which offshore oil workers are particularly vulnerable. Offshore-related sectors, such as fishery, aquaculture, and tourism, are more likely to suffer property damage and other economic losses. In addition to traditional damage, offshore oil accidents will not merely greatly impact the nearby environment but threaten the whole marine ecological system.

It is therefore of great significance to identify what heads of damages are recoverable under the applicable rules, whether all the potential losses are covered by law, who are the victims of each type of damage, what kinds of legal remedies are employed to compensate the loss, and what procedural rules should be followed to claim the damage. All these questions will be carefully answered while addressing the current legal system of compensating and preventing offshore oil damage.

2. Research question

Against this background, the questions of how victims are eventually compensated and how potential polluters are incentivised to prevent damage become relevant and important. Accordingly, the central research question in this thesis is: **does China have a legal system in place to remedy the damage arising from offshore drilling, providing adequate compensation and incentives for prevention for risk creators?** The question will be further divided into two sub-questions: (a) what legal system is available in China that remedies offshore oil damage? And, (b) does the legal system

¹⁹ For example, (i) Wang (2011) concentrates on vessel-induced pollution when discussing civil liability for marine oil pollution damage in China; (ii) Liu *et al.* (2014) address the compensation issue for marine oil pollution caused by vessels in the context of China; Li (2016) generally presents damage compensation in the Chinese marine oil and gas development.

provide adequate compensation and incentives for prevention? Notably, although major oil spills resulting from vessels (i.e., tankers) also threaten Chinese waters,²⁰ this study restricts the discussion to the damage caused by offshore drilling.²¹

The first sub-question will largely be answered by describing the applicable legal instruments in China regarding offshore oil damage, which includes the rules concerning liability, tort damages, financial security, and safety regulation. It constitutes the first part of the thesis (chapters 2-7). Specifically, the legally authorised cooperation model of oil exploration and exploitation is a precondition for examining this topic. The substantive and procedural rules regarding liability and tort damages from offshore oil damage constitute the main body of the legal remedies, while financial tools (i.e., insurance, self-insurance, fund, etc.) serve as an additional but important method to control the liability risks. Furthermore, safety regulation will also be involved in the discussion, as it is a primary tool to govern risk prevention and provide incentives for prevention.

Based on the written laws, the second part (chapters 8-10) turns to examine the other sub-question by providing a critical analysis of the existing regime. Chapter 8 will employ a law and economics approach to analyse whether the Chinese legislation is in line with the economic observations in tackling damage compensation and risk prevention. Considering that the law in practice is of equal importance to achieve the goal mentioned in the second sub-question (regarding sufficient compensation and preventive incentives), chapter 9 will present a case study of an offshore oil accident in 2011 (the *Bohai Bay Oil Spill*). This typical example will examine how the laws are applied in real-life cases, whether the practice confirmed or deviated from the theoretical findings, and what other emerging problems have been neglected in practice. In light of the limitations of the Chinese legal system, chapter 10 will look into the legal remedies regarding offshore oil damage in several selected countries in a problem-oriented way.

Compensation is the primary focus of the study, while prevention comes as the second. The following chapters will aim to make a distinction between compensation and

²⁰ The latest oil spill accident happened in January 2018, as the Iranian *Sanchi* oil tanker collision in the East China Sea resulted in a huge fire and subsequent sinking. None of *Sanchi*'s 32 crew members survived and an oil slick emerged that at one point spread to an area as wide as 332 km². See Wang 2018c.

²¹ Although both vessel-induced damage and damage caused by offshore drilling belong to marine oil pollution, the regulation concerning the former issue is separated from that of the latter one under Chinese legislation. As the topic of this study only concentrates on damage arising from offshore drilling, the discussion on vessel-induced pollution is excluded. In fact, the discussion of marine oil spills in general is provided by some scholars: (i) Wang 2011; (ii) Faure & Wang 2011; (iii) UNCTAD 2012; (iv) Maitland 2011.

prevention. Notably, the issue of '*adequate compensation*' in the research question has two aspects. The first is whether the applicable rules can correctly remedy the damage to the affected parties and restore the contaminated environment. In addition to compensating the victims and restoring the environment, the other reason we pursue compensation concerns prevention. A compensation mechanism could also serve as an instrument to provide incentives for prevention to risk creators. In general terms, lawyers may think prevention is the secondary effect of compensation, whereas compensation is the primary goal.²² On the contrary, the law and economics scholars believe it to be the other way around.²³ Regardless of these different viewpoints, an essential aspect of compensation is linked to offering incentives. In this regard, this study will also explore if the current legal system provides adequate incentives for prevention. Specifically, questions such as whether all the parties who influence the risk are exposed to liability, whether the operators and the State-owned CNOOC are liable for the pollution, whether there are any limits on the liability, and what are the consequences of the liability system, will be answered.

In the critical analysis, in addition to looking at the effectiveness of the compensation system, the study will further examine the impact of compensation on prevention, namely, to what extent the tort liability rules incentivise the risk creators to take prevention measures. Hence, a law and economics analysis will be primarily employed, as this methodology is appropriate to examine these two issues. Furthermore, there are other aspects that greatly affect prevention, among which an important instrument of prevention is regulation. Although the study will not extend itself to fully evaluate the effectiveness of regulation, it will touch upon this topic in order to provide a comprehensive background of the offshore oil sector.²⁴ The main focus of this thesis remains civil liability and compensation.

3. Methodology

3.1 The doctrinal approach

The study will first use a doctrinal approach to review the applicable laws in China. This method is used to locate the sources of law and interpret and analyse the legal

²² Visscher (2009), 21-26.

²³ *Ibid.*

²⁴ Chapter 7 will discuss safety regulations regarding offshore drilling.

text.²⁵ Therefore, the features of the existing legal documents and literature are ‘examined critically and all the relevant elements are combined or synthesised to establish an arguably correct and complete statement of the law on the matter in hand.’²⁶

Rules regarding damage arising from offshore drilling are available in the Chinese legal system, but most of them are scattered among dozens of legal instruments, which requires an extensive study to locate, examine, and integrate all the relevant rules in the first place. Chapters 2-7 will use this methodology to look at the legislation and examine the first sub-question: what are the applicable legal rules in China regarding offshore oil damage?

3.2 Law and economics

Among all the specific cases in the tort system, environmental liability is a good candidate for economic analysis,²⁷ while marine oil pollution caused by offshore drilling is a typical example within this sphere. The use of law and economics analysis helps to resolve issues of legal decision-making by providing both a methodology using the legal reality and functional criteria that favour some alternatives.²⁸ It is suitable for answering the second sub-question: what is the effectiveness of the applicable rules to pursue compensation and provide incentives for prevention?²⁹

Economic analysis is employed to explain the existing law in the light of economic principles and to identify the effects of a specific legal rule on individual behaviour.³⁰ The study first uses it for the positive analysis, as it allows us to conduct an effectiveness test. Chapter 8 will explore whether applicable rules regarding offshore oil damage in China are designed to pursue particular goals and whether specific legal instruments are legally formulated to achieve these goals. Hence, we will be able to unravel and determine the strengths and limitations of the existing legal system. In chapter 10, the study will also use economic analysis in the normative sense when making policy recommendations. It offers guidance to policymakers on how to fix the

²⁵ Hutchinson 2013.

²⁶ *Ibid.*

²⁷ Faure 2009b, xxix; 88.

²⁸ Sanchez-Graells 2017.

²⁹ Bergkamp (2021), 67-118.

³⁰ Posner (2004), 4-5.

limits and establish an effective model using the law to achieve certain goals, such as maximising social welfare and minimising social costs.³¹ In particular, this research adopts the basic neoclassic economic model for accidents. Especially the well-known theory of Calabresi in the field of tort law - total social cost theory - is used to compare the potentials of different compensation mechanisms to seek optimal liability rules for offshore oil pollution and mitigate the social costs of offshore-related accidents.³²

3.3 The use of a case study

Since the effectiveness of legislation greatly depends upon the enforcement of laws in practice, attention is also paid to implementing the applicable rules in actual cases. Hence, in addition to analysing the law on paper, the study examines what happens in practice and how that may affect the implementation of laws. Chapter 9 will use the *Bohai Bay Oil Spill* as a typical example to reveal the actual accident response in the wake of an offshore oil accident. Following the economic analysis, the adoption of a case study aims to test whether the implementation of rules confirms or deviates from the theoretical findings. Based on this analysis, the study will also examine how precisely the applicable rules have been applied or altered in practice.

3.4 Functional comparative approach

The economic analysis and the case study are mainly used to undertake a critical analysis of the existing legal system in China and thus to answer the second sub-question. However, some scholars suggest that economic analysis seems to be an inappropriate tool to answer normative questions.³³ Therefore, when it comes to the policy recommendations aiming at the limitations of the current legal system, chapter 10 will adopt a functional comparative approach. It may be interesting to look at several other countries from a perspective of mutual learning - what are their experiences in dealing with offshore oil pollution and could it give scope for improving the legal regime in China. Instead of executing a comprehensive comparative study, chapter 10 follows a cherry-picking approach and limits the topic

³¹ *Ibid.*

³² Calabresi 1970.

³³ Some literature presents the limitations of law and economics. See, for example, Campbell & Picciotto 1998; Sen 1977; Cooter 1989; Kennedy 1981; Regan 1972.

to the major limitations in the Chinese legal system.

As a result, the US, the UK, and the international conventions regarding vessel-source pollution are selected. On the one hand, this approach can be justified, since both the US and the UK are major oil-producing countries that have abundant experience in dealing with offshore oil accidents. More importantly, they also develop specific legal mechanisms and financial instruments to handle the losses associated with the accident. On the other hand, the international regime regarding vessel-source pollution is another suitable candidate for the study and can be justified. Currently, there is not a system worldwide aiming to compensate and prevent offshore oil pollution. In contrast, for the other type of marine oil pollution, vessel-source pollution, a global legal regime with multiple international conventions has been established already for decades. China is also a member of the international regime and has transposed the rules into domestic law. Examining the system regarding vessel-induced pollution in China may give insight into how to build a legal mechanism that fits the typical Chinese context.

4. Structure

After this introductory part (chapter 1), a description of the legal rules related to offshore oil damage in China will introduce the study, in order to provide legal guidance to operators, victims, and other interested parties, systematically.

Chapter 2 first provides background information on the legal structure in China, where it introduces the laws and regulations regarding offshore drilling. China has developed its characteristics in running offshore oil business and tackling offshore-related risks based on the legislation. It is necessary to look at relevant legal rules from a historical evolutionary perspective, since the rules regarding environmental harm (i.e., environmental law, liability law, insurance law, etc.) have considerably evolved in the past forty years. It is fundamental to sort out how the legal rules have been modified and how the offshore oil damage has been dealt with by law. Furthermore, chapter 2 will reveal that China adopts a typical business model between the State-owned enterprise CNOOC and operators to develop the offshore oil industry. Most operators that are involved in this sector are foreign oil companies; they are attracted by the large oil reserves located in Chinese waters and they are financially sound to invest in offshore oil projects. Such a joint development pattern is

favourable from technical and economic perspectives; it also fundamentally shapes a special form of liability allocation, which deserves further discussion.

Chapter 3 examines the substantive rules concerning offshore oil damage, where it clarifies the scope of ‘offshore oil damage’ and discusses the basis of liability. Afterwards, a discussion about which forms of damage are ‘recoverable’ is provided to identify the coverage of compensation. Generally speaking, offshore oil pollution concerns at least two types of losses: traditional damage to individual victims (physical injury and economic loss) and ecological damage to the environment. Hence, it will be of great significance to address how the Chinese legal system deals with these two types of losses.

Chapter 4 further addresses the extent and means of the damage. Personal injuries and casualties may affect offshore employees during the operations. Economic loss is another type of damage associated with offshore oil damage, among which one of the most common harms is the loss of fishery resources. Moreover, marine ecological damage resulting from offshore drilling deserves a separate discussion due to its particular features.

Chapter 5 focuses on the procedural issues; that is, how to pursue compensation awards and ecological restoration in practice. Given that the victims and the legitimate claimants of each form of damage are different, this part will take a close look at the claims processes respectively. The implementation of laws in practice is the next critical step to obtain compensation, so we will also present the issues in practice that may affect the settlement of claims. From the viewpoint of victims, this part provides specific legal guidance on how exactly the damages should be pursued and what obstacles may be encountered in real-life cases.

In addition to the liability system, chapter 6 considers using insurance and other financial tools as additional (alternative) methods to deal with offshore oil damage. Given that operators have to take the insolvency risk into account, apart from several relevant insurance products on the market, self-insurance and compensation funds are also options for offshore oil companies.

Chapter 7 turns to regulation, as it is seen as a primary instrument of prevention. This part addresses the safety rules governing the offshore oil industry and the operators’ compliance to depict a complete picture of the offshore oil industry. By doing so, it expects to examine the relationship between liability and prevention, and hence to answer whether the regulations give risk creators adequate incentives to take

prevention measures. Generally speaking, developing countries like China may not always have a strong reputation as far as safe operations are concerned, which makes us even more curious about the safety performance in the offshore oil sector. If offshore oil companies have good compliance, it may indicate that safety regulations positively affect operators to take prevention measures.

Based on the descriptive analysis of the legal remedies, chapter 8 critically analyses the applicable rules and examines the issues in practice that may set barriers to implementing laws, using the law and economics approach to accident law. On the one hand, it summarises the applicable rules systematically while concluding the strengths and weaknesses of the system on the other.

Chapter 9 addresses a series of oil spills in the Bohai area as of 2011 and uses this incidence as a typical example to test if the case study can confirm the theoretical findings. It will also be of great significance to check if some issues conflict with the economic theory or if they have newly emerged in practice.

Chapter 10 starts from the strengths and weaknesses of the current compensation mechanism in China. It will take the limitations in China as the basis and select several oil-producing countries and areas with sufficient experience in handling offshore oil damage. Based on a problem-oriented approach, this part examines whether some of their legal arrangements could offer potential solutions to China through a functional comparative approach.

Chapter 11 concludes the study, provides tentative answers to the research question, presents the limitations of the research, and discusses the possibilities of future study.

Chapter 2 Legal background of the Chinese offshore industry

This chapter outlines the legal framework explaining which legal instruments for damage resulting from offshore drilling are applicable in China. In order to sketch the legal framework concerning this matter systematically, the hierarchy in the Chinese legal system and the legal effects of relevant provisions in different legal instruments are introduced in sections 1.1 and 1.2 respectively. Before starting the legal analysis in the remainder of this part, section 2 provides a broader overview of offshore drilling in China, which serves as a general background to evaluate specific problems from the perspective of liability. Section 2.1 sketches rules addressing offshore oil resources, while section 2.2 introduces the development of the Chinese offshore industry in the past decades and the establishment of the China National Offshore Oil Corporation (CNOOC). Sections 2.3 and 2.4 address the industrial structure of offshore drilling and the incentives for joint development, followed by a description of potential risks and accidents in the course of offshore oil exploration and exploitation (section 2.5).

1. Legal framework concerning damage resulting from offshore drilling

1.1 The hierarchy of the Chinese legal system

Laws function in a hierarchy, which determines how they rank in authority and how the authority and scope of each level are derived from the *Constitution*.³⁴ Understanding the hierarchy of laws assists in developing a clear and consistent legal and regulatory framework in China.

In terms of basic elements of the hierarchy, the *Constitution of the People's Republic of China*³⁵ (hereinafter *Constitution*) and the *Legislation Law of the People's Republic of China*³⁶ (hereinafter *Legislation Law*) provide general rules as regards

³⁴ Clegg *et al.* 2016.

³⁵ The *Constitution of the People's Republic of China* (《中华人民共和国宪法》) was first adopted at the 5th Session of the Fifth National People's Congress and promulgated for implementation by the Announcement of the National People's Congress on December 4, 1982. The latest version was adopted at the 1st Session of the Thirteenth National People's Congress on March 11, 2018.

³⁶ The *Legislation Law of the People's Republic of China* (《中华人民共和国立法法》) was adopted at the 3rd Session of the Ninth National People's Congress on March 15, 2000, and amended in accordance with the *Decision*

the hierarchy of sources of law under the Chinese legal system.³⁷ The *Constitution* holds the highest level in the hierarchy,³⁸ and it is regarded as the supreme law in China to which all other laws, regulations, and measures must adhere.³⁹

Laws (falú) are highest next to the *Constitution* in the legal hierarchy.⁴⁰ Laws in China are enacted by the National People's Congress and its Standing Committee. Normally, a distinction is made between **basic laws** (jiben falú) and **special laws** (tebie falú), depending on their impact on society. Basic laws refer to statutes that fundamentally affect the entire society, whereas special laws are adopted to cope with specific areas.⁴¹ In China, a **code of law** (fadian) typically exhaustively covers the complete system of law, such as civil law or criminal law.

Followed by laws, **regulations** (fa gui) and **administrative measures** (gui zhang) function as the third and fourth tiers of the hierarchy.⁴²

In accordance with the *Constitution* and laws, the State Council, the People's Congresses of certain local governments, and their Standing Committees are granted the capacity to promulgate regulations. Specifically, the State Council is authorised to enact **administrative regulations** (xingzheng fagui), while the People's Congress and the Standing Committee of certain local governments are authorised to enact **local regulations** (defang fagui). It should be noted that, although the local legislative organs hold the right to make local regulations, they do not have an exclusive right over all legislative fields but can only develop local regulations on the basis of specific circumstances and the actual needs of their regions.⁴³ In other words, they are only permitted to draft and publish local regulations to implement laws or administrative regulations, or to deal with specific problems in their regions. These local regulations will be void if they conflict with the *Constitution*, laws or administrative regulations, which are positioned at a higher level in the hierarchy.⁴⁴

on Amending the Legislation Law of the People's Republic of China adopted at the 3rd Session of the Twelfth National People's Congress on March 15, 2015.

³⁷ Chen (2016), 249-254; Ma (2013), 76-96.

³⁸ Simon *et al.* (2016), 13. Chen (2016), 241; Xin (2014), 22; Zhang (2010), 1-64.

³⁹ See Article 3 of the *Legislation Law*; see Simon *et al.* (2016), 13; Chen (2016), 241; Xin (2014), 22; Zhang (2010), 47.

⁴⁰ Chen (2016), 241-242.

⁴¹ See Article 7 of the *Legislation Law*. The term 'basic law' and 'special law' are not clearly defined in this Article. See Simon *et al.* (2016), 13; Chen (2008), 242. Wang (2010a), 6-7.

⁴² Zhang (2010), 47. Zhang analyses three levels of sources of law in China: laws, regulations, and administrative measures. Chen argues that, regarding the hierarchy of sources of law, there are three levels: national laws, administrative regulations (supplemented by ministerial administrative measures), and local regulations (supplemented by local administrative measures). Also see Chen (2016), 241-242.

⁴³ See Article 72 of the *Legislation Law*.

⁴⁴ See Articles 5, 89, 100, 116 of the *Constitution*.

Administrative measures (guizhang) in China include both **ministerial administrative measures** (bumen guizhang) and **local administrative measures** (defang zhengfu guizhang). The former are enacted by the ministries of the State Council, commissions and other directly affiliated organs of the State Council,⁴⁵ whereas the latter are issued by local governments.⁴⁶

These two types of administrative measures are at the same level of the hierarchy in terms of their legal force under the Chinese legal system.⁴⁷ Given this fact, there may be a conflict between ministerial and local administrative measures when they regulate the same topic.⁴⁸ The State Council is authorised to decide on how to apply the provisions and handle the inconsistencies in this context.⁴⁹

In the light of the *Legislation Law*, the *Constitution*, laws, regulations, and administrative measures are formal sources of law under the Chinese legal system; provisions of these legal instruments have full legal force.⁵⁰

In contrast, **judicial interpretations** are not regulated in the *Legislation Law*. They are legal instruments enacted and released by the Supreme People's Court (hereinafter SPC) with the aim of applying laws and regulations to specific cases.⁵¹ Judicial interpretations, or SPC interpretations, can be made in four forms, namely, 'interpretation,' 'provision,' 'reply', and 'decision.'⁵²

To be specific, (a) **interpretations** (jieshi) are used to provide detailed rules on how to apply laws and regulations in practice, i.e., to deal with some certain type of cases and problems. By comparison, (b) **provisions** (guiding) are used to set out rules to facilitate judicial procedures in practice. Both forms of judicial interpretations are issued by the SPC and have binding force on all lower courts.⁵³ (c) **Replies** (pifu) are adopted to respond to lower courts' (i.e., Higher People's Court or the Military Court

⁴⁵ See Article 71 of the *Legislation Law*.

⁴⁶ See Article 90 of the *Constitution*; also see Articles 80, 82 of the *Legislation Law*.

⁴⁷ See Article 91 of the *Legislation Law*

⁴⁸ Chen (2008), 255.

⁴⁹ Based on Article 95(3) of the *Legislation Law*, for any discrepancy between ministerial measures, or between ministerial administrative measures and local administrative measures with regard to the same matter, the State Council decides which provision shall prevail.

⁵⁰ See Articles 2-3 of the *Legislation Law*.

⁵¹ Wei (1997), 87-112.

⁵² Article 6 of *Provisions of the Supreme People's Court on the Judicial Interpretation Work*, No.12 [2007] (《最高人民法院发布关于司法解释工作的规定》). The Supreme People's Court issued this document on March 23, 2007. Also see the *Decisions of the Standing Committee of the National People's Congress Concerning Providing an Improved Interpretation of Law* (《全国人民代表大会常务委员会关于加强法律解释工作的决议》), which was promulgated by the Standing Committee of the NPC and came into effect on June 10, 1981.

⁵³ *Ibid.*

of Chinese People's Liberation Army)⁵⁴ questions about particular cases., and thus they are not formal sources of law in the sense that lower courts are not bound by them and can use them only for reference. (d) **Decisions** (juding) are employed to declare the amendment or abolishment of judicial interpretations. Courts decide on cases involving civil, administrative and criminal matters. The first two forms and the last two forms of legal instruments have different roles in trials before the court.⁵⁵ The legal status of the first two forms of legal instruments, in fact, is unsettled in the Chinese legal system. Although interpretations and provisions have 'full legal force'⁵⁶ in all lower courts, an SPC interpretation is not a piece of legislation,⁵⁷ since this type of legal instrument is not even mentioned in the *Legislation Law*.

As a matter of fact, whether judicial interpretations can be deemed as formal sources of law in China is ambiguous and debated in academia.⁵⁸ Strictly speaking, it is questionable whether legal instruments issued by the SPC can fall within the scope of formal sources of law, since the SPC is not legislatively granted such powers under the *Legislation Law*. What can be certain is that the interpretations and provisions published by the SPC do have binding force on all lower courts nationwide. In other words, regardless of the fact that judicial interpretations are legal instruments issued by the SPC rather than legislative bodies, they do have similar binding force nationwide under the Chinese legal system. An SPC Interpretation can be considered legislation when it is applied in practice.⁵⁹ In this vein, whether SPC interpretations (interpretations and provisions by the SPC) are formal sources of law or not makes no difference in the sense that they function in that way. Some literature claims that SPC interpretations may even function more efficiently than legislation, since they can react to practical problems without much delay.⁶⁰

Apart from legal instruments issued by the Supreme People's Court, the structure of Chinese courts also has its own characteristics, which is briefly introduced here. The courts in China are categorised into four layers.⁶¹ The highest level is the Supreme People's Court, followed by the Higher People's Courts, the Intermediate People's

⁵⁴ *Ibid.*

⁵⁵ *Ibid.*

⁵⁶ Article 5 of *Provisions of the Supreme People's Court on the Judicial Interpretation Work*.

⁵⁷ Zhang (2011a), 773-779.

⁵⁸ Zhang (2003), 69-101.

⁵⁹ Liang (2017), 290-301.

⁶⁰ Up to May 2013, China established more than 130 environmental tribunals nationwide.

⁶¹ Article 129(1) of the *Constitution*, Articles 2,12,13 of the *Organic Law of the People's Courts of the People's Republic of China* (《中华人民共和国人民法院组织法》) (*hereinafter Organic Law of Courts*). See Peeters *et al.* (2016), 213-214.

Courts, and the Primary People's Courts, which covers regions at the provincial, prefectural, and county level, respectively.⁶² Moreover, there are a few special people's courts in China that specialise in certain fields, including maritime courts,⁶³ financial courts, intellectual property courts, and military courts. Several environmental tribunals have been established within some courts at various levels.⁶⁴ As will be discussed in the following sections, there are both formal sources of law and non-formal sources of law in relation to the damage arising from offshore drilling, the latter of which may refer to policies, judgments, and other normative documents.⁶⁵ The definition of **policies** (zhengce) is not well developed in Chinese legal literature and legislation.⁶⁶ Despite this, party policies and State policies are two forms of important instruments that are frequently used in China. Policies developed by the Communist Party of China (hereinafter CPC) are named **party policies** (zhizhengdang zhengce), while policies issued by national authorities are named **State policies** (guojia zhengce). In this vein, these two types of policies are used to express the views and insights of the CPC and the Central Government.

Judgments (anli) in China do not have legal binding force over the judgments that are delivered after them and they do not establish any precedent, as in the common law.⁶⁷ On the one hand, the court cannot undertake a judicial review on the legality of pieces

⁶² See Article 13 of the *Organic Law of Courts*; The Supreme People's Court is the highest judicial authority in China. See Article 132 of the *Constitution*. For more information on the structure of the judicial system in China, see Kossf (2014), 37-38; Bahrij & Ko (2013), 25. See Zimmerman (2010), 69-70. The Higher People's Courts are established at the provincial level. Each province, autonomous region, and municipality directly under the Central Government has one Higher People's Court. Intermediate People's Courts are set up in cities and prefectures within provinces. Primary People's Courts are set up at the county level, including tribunals in towns and villages. See also, Chen (2016), 188.

⁶³ Currently, there are ten maritime courts in China, which are located in Beihai, Dalian, Guangzhou, Haikou, Ningbo, Qingdao, Shanghai, Tianjin, Xiamen, and Wuhan. Enacted in 1984, the *Decision of the Standing Committee of the National People's Congress on the Establishment of Maritime Courts in Coastal Port Cities* (《全国人民代表大会常务委员会关于在沿海港口城市设立海事法院的决定》) provides a legal basis for the establishment of maritime courts in China.

⁶⁴ Peeters *et al.* (2016), 214.

⁶⁵ Bodenheimer (1981), 325. In China, the primary formal sources of law are the Constitution, laws, regulations, administrative measures, and certain types of judicial interpretations issued by the SPC; by contrast, non-formal sources of law refer to significant materials and considerations which have not received an administrative or at least articulate formulation and embodiment in a formalised legal document. Policies, judgments, and other normative documents are all considered non-formal sources of law.

⁶⁶ Policies differ from legislation in several aspects, such as their initiators, procedures of adoption, the scope of application, continuity, and legal effects. Legislation has advantages over policies from the perspective of legal certainty, the nature of normative rules and general application. Specifically, laws rather than policies provide legal certainty, which is a basis for judicial remedies when the rights of individuals and organisations are infringed. Nevertheless, the literature argues that policies are still important regarding the enactment and the implementation of legislation. For some new issues, the use of policies is still an appropriate tool, as policies can be forward-looking and proactive in regulating these issues. In reality, a policy, as a non-formal source of law, may be transformed into a piece of legislation, which is a formal source of law, after the policy has been practised for a while. (Li, 2017a) More information about policies in China, see Zheng & Tian (2007), 99-103; Xing (2012), 117-132.

⁶⁷ Kossf (2014), 29; Bahrij & Ko (2013), 2; Zimmerman (2010), 69-70.

of legislation.⁶⁸ On the other hand, judgments delivered by the court bind the natural or legal persons to which they are addressed.⁶⁹ To make judgments more consistent, China is establishing the **case guidance** (zhidaoxing anli) system. This is a system, which was established under the *Provisions of the SPC Concerning Work on Case Guidance* (hereinafter the *SPC Provision of Case Guidance*), and it refers to the process of selecting, releasing, and using guiding cases throughout the country.⁷⁰ These guiding cases should be the judgments that have already come into legal effect and meet several requirements before being selected by the SPC. Interestingly, although they do not have the status of precedents like in the common law system, they have *de facto* binding force on all lower courts, serving as important references for local courts in their judgments.⁷¹ Therefore, guiding cases are not sources of law in a formal sense.⁷²

Other normative documents (guifanxing wenjian), or regulatory documents, are the official documents issued by administrative authorities. The term ‘other normative document’ and the legal nature of this term are not clearly explained in the Chinese legislation.⁷³ According to the literature, ‘normative documents’ are generally applicable and are usually issued by administrative authorities, including the State Council and its ministries, as well as local governments and their departments.⁷⁴ Roughly speaking, ‘normative documents’ are subordinate to legislation, although they are also generally applicable.⁷⁵ Normative documents may take the forms of; *inter alia*, notices (gong gao), orders (ming ling), announcements (tong gao), measures (ban fa), opinions (yi jian), and resolutions (jue ding).⁷⁶

Figure 2 Chinese legal hierarchy

⁶⁸ Article 13(2) of the *Administrative Procedure Law*. See Chen (2016), 255; Chow (2017), 50; Kossof (2014), 18; Kellogg (2011), 361.

⁶⁹ Bahrij & Ko (2013), 26.

⁷⁰ Article 1 of the *SPC Provision of Case Guidance*.

⁷¹ Article 7 of the *SPC Provision of Case Guidance*. Also see Jia (2016), 2232-2233.

⁷² Jia (2016), 2232, Bahrij & Ko (2013), 26.

⁷³ Chen (2016), 255. ‘Other normative documents’ lack binding effect before the courts and thus lack legislative effects. The reason such documents exist is due to their role in bridging the gap between laws and reality.

⁷⁴ Chen (2016), 255; Chen (2015), 135; Wen (2015), 10; Wang (2010c), 11.

⁷⁵ See Wu (2013b); Wen (2015), 10; Huang (2014a), 12-13; Wang (2010c), 11.

⁷⁶ Chen (2016), 255; Wen (2015), 12; Wang (2010c), 12.

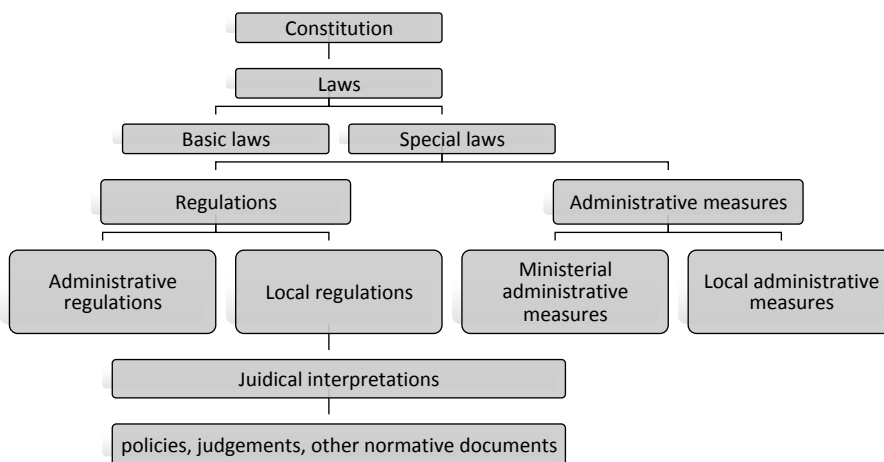


Table 2 Legal instruments under the Chinese legal system⁷⁷

Legal instruments	Issuing authority	Legal status
Constitution		Formal sources of law
Laws	Basic laws	National People's Congress and its Standing Committee
	Special laws	
Regulations	Administrative regulations	State Council
	Local regulations	People's Congress and its Standing Committee of certain governments in local areas
Administrative measures	Ministerial administrative measures	Ministerial department of the State Council
	Local administrative measures	Certain local government
SPC Interpretations	Interpretations, provisions	Supreme People's Court (SPC)
	Replies, decisions	
Policies	Party policies	Communist Party of China
	Policies issued by national authorities	National authorities
Judgments	Cases <i>(Model and guiding cases)</i>	Courts at all levels <i>(model and guiding cases are selected and issued by the SPC)</i>
Other normative documents	Notices, orders, announcements, etc.	National authorities
		Uncertain, full legal force to all lower courts
		Non-formal sources of law

⁷⁷ The table is made by the author.

In a nutshell, legislation in China is classified into six categories: the *Constitution*, laws, administrative regulations and ministerial administrative measures, local regulations and local administrative measures. Additionally, regardless of the legal nature of the judicial interpretation, it plays an important role in providing detailed rules on how to apply laws to specific cases. Other non-formal sources of law such as policies and normative documents also merit attention under certain circumstances.

1.2 Legal instruments related to damage caused by offshore drilling

The legal framework of the damage caused by offshore drilling in China is built upon both formal sources of law as well as non-formal sources of law. In the following chapters, when describing theoretical possibilities for providing damage compensation arising from offshore drilling, the applicable rules are addressed according to the hierarchy of laws related to each topic. After examining provisions in relevant laws, regulations, and administrative measures related to the topic, if available, this is followed by a discussion on judicial interpretations and related normative documents associated with the issue.

1.2.1 The *Constitution*

The *Constitution* applies to many fields, directing the regulation of oil exploration and exploitation in the offshore industry. A few provisions of the *Constitution* may provide a legal basis for economic cooperation in the Chinese offshore industry and the prevention of environmental pollution as a result of offshore oil activities.

Article 9 of the *Constitution* stipulates that ‘*all mineral resources are owned by the State*’ and the State ensures the rational use of natural resources. Therefore, appropriation of or damaging natural resources by any organisation or individual by whatever means is prohibited in China. Subsequently, Article 18 of the *Constitution* sets forth a legal basis for economic cooperation between foreign enterprises and Chinese enterprises, which states as follows:

‘The People’s Republic of China permits foreign enterprises, other foreign economic organisations and individual foreigners to invest in China and to enter into various forms of economic cooperation with Chinese enterprises and other Chinese economic organisations in accordance with the law of the People’s Republic of China.

...

The law of the People's Republic of China protects their lawful rights and interests.'

This article provides a legal basis for enacting legislation on the economic cooperation between foreign enterprises and Chinese enterprises in the field of offshore oil exploitation and exploration. Foreign enterprises are required to comply with Chinese laws and regulations while engaging in offshore oil activities within the jurisdiction of China. Additionally, their legally recognised rights and interests are also protected under the Chinese legal system. In the context of the offshore industry, the Chinese enterprise may typically refer to the China National Offshore Oil Corporation.⁷⁸

Furthermore, Article 26 (1) of the *Constitution* is applicable to prevent environmental pollution as a result of offshore oil activities in China, which reads as follows:

'The State protects and improves the environment in which people live and the ecological environment; the State prevents and controls pollution and other public hazards.'

Although the above-mentioned constitutional provisions are substantive rules, they are declaratory norms, and therefore they will not have a direct influence on decision-making in the case of offshore drilling. These three provisions in the *Constitution* are foundations for legislation on the development of offshore activities and prevention of environmental damage stemming from such activities.

1.2.2 Laws

Before 2021, four laws contained provisions addressing liability for environmental pollution that may relate to the damage resulting from offshore drilling. As a basic law, (1) the *General Principles of Civil Law of the People's Republic of China*⁷⁹ provides a legal basis of civil issues in general. (2) The *Tort Law of the People's Republic of China*⁸⁰ plays an important role in the sense that it devotes a whole chapter to the liability for environmental torts. Moreover, both (3) the *Environmental*

⁷⁸ See *infra* section 2 of this chapter, which introduces the China National Offshore Oil Corporation (CNOOC).

⁷⁹ *General Principles of Civil Law of the People's Republic of China* (《中华人民共和国民法通则》) was adopted at the 4th Session of the Sixth National People's Congress. It has been amended in accordance with the *Decision of the Standing Committee of the National People's Congress on Amending Some Laws* adopted at the 10th Session of the Eleventh Standing Committee of the National People's Congress on August 27, 2009. It was annulled on January 1, 2021 provided that the new *Civil Code* would come into force at that time.

⁸⁰ *Tort Law of the People's Republic of China* (《中华人民共和国侵权责任法》) was adopted at the 12th session of the Standing Committee of the Eleventh National People's Congress on December 26, 2009. It came into force on July 1, 2010. It was annulled on January 1, 2021 provided that the new *Civil Code* had come into force at that time.

*Protection Law of the People's Republic of China*⁸¹ and (4) the *Marine Environmental Protection Law of the People's Republic of China*⁸² merit more attention, since the former concerns environmental issues while the latter exclusively focuses on damage to the marine environment.

Since January 1, 2021, the *Civil Code of the People's Republic of China* (hereinafter *Civil Code*)⁸³ has come into force. Although a few pieces of legislation in the past (including the *CGPL* and the *Tort Law*) were supposed to be abolished as soon as the *Civil Code* became effective, it was considered it would still be too reckless to abandon all the previous legal instruments while turning to the new code. After all, the *Civil Code* purports to cover exhaustively the entire system of private law, which incorporates the provisions under the *GPCL*, *Tort Law*, *Contract Law*, *Property Law*, etc. It is built upon the legislation in the past and the majority of the provisions remain the same. Moreover, since it will take a long time for the new *Civil Code* to be widely used and examined in practice, this study will sketch the modifications of the law, while paying equal attention to the laws that have been used over the years. Chapter 3 will review the relevant provisions of these laws in detail.

Apart from these four laws mentioned above, laws in other fields may be sketched when some of their rules assist in tackling a particular issue relating to offshore drilling. For example, damage stemming from offshore drilling may negatively impact the fishing industry. Individuals and companies that specialise in fishing may request a claim for compensation for their losses in such a case. The *Fishery Law of the People's Republic of China*⁸⁴ deserves much attention in the sense that it provides

⁸¹ *Environmental Protection Law of the People's Republic of China* (《中华人民共和国环境保护法》) was firstly adopted at the 11th Meeting of the Standing Committee of the Seventh National People's Congress on December 26, 1989. It was revised and adopted at the 8th Session of the Standing Committee of the Twelfth National People's Congress of the People's Republic of China on April 24, 2014, and came into force on January 1, 2015.

⁸² *Marine Environmental Protection Law of the People's Republic of China* (《中华人民共和国海洋环境保护法》) was adopted at the 24th Session of the Standing Committee of the Fifth National People's Congress on August 23, 1982. It revised at the 13th Session of the Standing Committee of the Ninth National People's Congress on December 25, 1999; amended at the 6th Session of the Standing Committee of the Twentieth National People's Congress on December 28, 2013; and amended for the second time at the 24th Session of the Standing Committee of the Twelfth National People's Congress on November 7, 2016; amended for the third time at the 30th Session of the Standing Committee of the Twelfth National People's Congress of the People's Republic of China on November 4, 2017.

⁸³ The *Civil Code of the People's Republic of China* (《中华人民共和国民法典》) was adopted at the 3rd Session of the Thirteenth National People's Congress on May 28, 2020, is hereby issued, and shall come into force on January 1, 2021. According to Article 1260 of the *Civil Code*, this Code has come into force on January 1, 2021, upon which scores of legislation, including the *General Principles of the Civil Law*, the *Contract Law*, and the *Tort Law*, have been repealed.

⁸⁴ *Fishery Law of the People's Republic of China* (《中华人民共和国渔业法》) was adopted at the 14th Meeting of the Standing Committee of the National People's Congress and promulgated by Order No. 34 of the President of the People's Republic of China on January 20, 1986; amended for the first time at the 18th Session of the Standing Committee of the Ninth National People's Congress on October 31, 2000; amended for the second time at the 11th

guidance on how to assess these economic losses in the fishing industry and under what conditions the victim could be granted compensation.⁸⁵

1.2.3 Administrative regulations

There are three administrative regulations that particularly address the offshore activities as well as damage stemming from such activities. As introduced above, administrative regulations are the official documents issued by the State Council following the provisions of laws, to facilitate interpreting and implementing provisions in detail.

Precisely, (1) the *Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises (Offshore Cooperation Regulation)*⁸⁶ addresses oil exploration and exploitation in China. For example, it concerns the actors in the offshore industry and the functioning of offshore drilling.⁸⁷ (2) The *Regulation Concerning Environmental Protection in Offshore Oil Exploration and Exploitation (Offshore Exploitation Regulation)*⁸⁸ is more concerned with tackling environmental pollution caused by such activities in the offshore industry. (3) The *Regulation on the Prevention and Treatment of the Pollution and Damage to the Marine Environment by Marine Engineering (Offshore Engineering Regulation)*⁸⁹ also closely relates to this topic, as this piece of legislation pays attention to addressing operations of various forms of marine projects

Session of the Standing Committee of the Tenth National People's Congress on August 28, 2004; amended for the third time at the 10th Session of the Standing Committee of the Eleventh National People's Congress on August 27, 2009 and amended for the fourth time at the 6th Session of the Standing Committee of the Twelfth National People's Congress on December 28, 2013.

⁸⁵ Chapters 3 (section 3.5), 4 (section 3) and 5 (section 3.3) will particularly discuss compensation for damage to the fishing industry, where relevant provisions under the *Fishery Law of the People's Republic of China* will be addressed.

⁸⁶ *Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises* (《中华人民共和国对外合作开采海洋石油资源条例》) was promulgated by the State Council on January 30, 1982 and revised for the first time in accordance with the *Decision of the State Council on Amending the Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises* on September 23, 2001, revised for the second time in accordance with the *Decision of the State Council on Abolishing and Amending Some Administrative Regulations* on January 8, 2011, revised for the third time in accordance with the *Decision of the State Council on Amending the Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises* on September 30, 2011; and revised for the fourth time in accordance with the *Decision of the State Council on Abolishing and Amending Some Administrative Regulations* on July 18, 2013.

⁸⁷ More information on the Chinese offshore industry, see *infra* section 2 of this chapter.

⁸⁸ *Regulation Concerning Environmental Protection in Offshore Oil Exploration and Exploitation* (《中华人民共和国海洋石油勘探开发环境保护管理条例》) was promulgated by the State Council of the People's Republic of China on December 29, 1983.

⁸⁹ *Regulation on the Prevention and Treatment of the Pollution and Damage to the Marine Environment by Marine Engineering* (《防治海洋工程建设项目污染损害海洋环境管理条例》) was promulgated by the Order No. 475 of the State Council on September 19, 2006 and amended in accordance with the *Decision of the State Council to Amend and Repeal Certain Administrative Regulations* on March 1, 2017.

and their impact on the marine environment. An interesting fact is that the first two administrative regulations were respectively promulgated in 1982 and 1983, even before the promulgation of the *General Principles of Civil Law* (1987). It may indicate that oil exploration activities in the offshore industry already attracted the Chinese legislators' attention in the early 1980s. Section 2 of this chapter will first examine rules in the first Regulation to give an overview of the Chinese offshore oil industry, while the last two Regulations will be reviewed in chapters 3-5 to discuss how to tackle liability and compensation for environmental pollution arising from offshore drilling.⁹⁰

1.2.4 Administrative measures

Administrative measures play a significant role in further explaining relevant provisions of laws and regulations with the aim of implementing provisions in the context of the damage stemming from offshore drilling in practice. For example, the *Measure for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation (2016 Measure)*⁹¹ is developed for the purpose of implementing the *Offshore Exploitation Regulation*.⁹² The *Measure of the People's Republic of China Concerning Compensation for Marine Ecological Damage for the State (2014 Measure)*⁹³ is enacted to provide detailed guidance on how to implement Article 92 of the *Marine Environmental Protection Law* by setting out rules on how to compensate the marine ecological damage to the State.⁹⁴

1.2.5 SPC Interpretations

A handful of SPC interpretations relating to certain topics will be presented in this chapter. It should be noted that the interpretations and provisions by the SPC have full

⁹⁰ Chapter 3 first concerns liability rules relating to damage resulting from offshore drilling (section 2) and then addresses rules addressing compensation for such damage in China (section 3). Chapters 4 and 5 respectively concern qualification and procedures of compensating damages.

⁹¹ *Measure for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (《海洋石油勘探开发环境保护管理条例实施办法》) was issued by Order No. 1 of the State Oceanic Administration on September 20, 1990. It was amended at the first executive meeting of the Ministry of Land and Resources on January 5, 2016.

⁹² See Article 1 of the *Measure for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation*.

⁹³ *Measure of the People's Republic of China Concerning Compensation for Marine Ecological Damage for the State* (《海洋生态损害国家损失索赔办法》) was issued by the State Oceanic Administration on 21 October 2014.

⁹⁴ Articles 1 -2 of the 2014 *Measure*.

legal force on all lower courts and are used to address practical issues by judges in China.⁹⁵

On the one hand, SPC Interpretations can be used to tackle procedural issues. For instance, in chapter 3, after examining general rules addressing liability for environmental damage under the *Tort Law*, the *Interpretation of the Supreme People's Court of Several Issues on the Application of Law in the Trial of Disputes over Liability for Environmental Torts (SPC Interpretation of Environmental Torts)* will be presented to flesh out which elements constitute environmental liability in judicial practice. For example, what kind of evidence is needed to claim compensation and under what conditions will polluters be imposed joint and several liability, and under what circumstances may the polluter be exempted from liability.⁹⁶ On the other hand, a few SPC interpretations also play an active role in specifying rules in accordance with specific laws and regulations. An example is how the State can get compensated when it suffers from marine ecological damage. Article 89(2) of the *Marine Environmental Protection Law* only stipulates the State can be a victim of marine ecological damage and certain marine administrative departments are empowered to represent the State to demand compensation. Other specific matters concerning marine ecological damage are addressed in a SPC Interpretation: *Interpretation of the Supreme People's Court on Several Issues concerning the Trial of Cases of Disputes about Compensation for Marine Natural Resources and Ecological Damage (2018 SPC Interpretation)*.⁹⁷ Under this Interpretation, the SPC examines Article 89 (2) of the MEPL and develops this issue in detail.⁹⁸

1.2.6 Other non-formal sources of law

Despite that the definition and legal force of non-formal sources of law, i.e., policies and normative documents, are not well developed under the Chinese legal system,

⁹⁵ Article 6 of *Provisions of the Supreme People's Court on the Judicial Interpretation Work*, No.12 [2007] (《最高人民法院关于司法解释工作的规定》). The Supreme People's Court issued this document on March 23, 2007. Also see the *Decisions of the Standing Committee of the National People's Congress Concerning Providing an Improved Interpretation of Law* (《全国人民代表大会常务委员会关于加强法律解释工作的决议》), which was promulgated by the Standing Committee of the NPC and came into effect on June 10, 1981.

⁹⁶ See *infra* section 2.3 of chapter 3.

⁹⁷ *Interpretation of the Supreme People's Court on Several Issues concerning the Trial of Cases of Disputes about Compensation for Marine Natural Resources and Ecological Damage* (《最高人民法院关于审理海洋自然资源与生态环境损害赔偿纠纷案件若干问题的规定》) was adopted at the No. 1727 Meeting of the trial committee of the Supreme People's Court and entered into force on January 15, 2018.

⁹⁸ Chapter 4 (section 4) will address relevant rules under this SPC Interpretation to examine how the State can be compensated for marine ecological damage.

these forms of documents will be examined as needed in specific cases. For example, in chapter 4 (section 3), in order to determine whether or not certain fishing waters are polluted, as a prerequisite for claiming compensation, the study will introduce quite a few technical standards relating to water quality, such as the *Seawater Quality Standard* (GB3097-1997), the *Fishery Water Quality Standard* (GB 11607-89), as well as the *Marine Biological Quality Standard* (GB18421-2001). These Standards merit attention in determining the compensation for losses in the fishing industry in practice, as they help with tackling specific problems such as which fishery losses are recoverable, whether certain fishery water areas are polluted, and who can claim such losses.⁹⁹

2. Rules addressing the offshore oil industry in China

Section 1 of this chapter introduced the hierarchy of laws in the Chinese legal system, which offers a basis for understanding and applying laws and regulations in cases where damage compensation arising from offshore drilling is required. However, it is still unclear what offshore drilling refers to and which rules are available to cope with an incident stemming from such an industrial activity. This section, in particular, sketches out the development as well as potential risks related to offshore oil activities in China.

2.1 Industrial background of offshore drilling in China

2.1.1 Terminology

Offshore drilling refers to the activity that employs offshore facilities (in contrast with onshore facilities) for oil exploration, exploitation, and production.¹⁰⁰ These offshore activities often take place in the exclusive economic zone or on the continental shelf where exclusive jurisdiction is granted to the coastal State under the *United Nations Convention on the Law of the Sea* (UNCLOS).¹⁰¹

⁹⁹ These questions are answered separately in chapters 3 (section 3.5), 4 (section 3), and 5 (section 3.3).

¹⁰⁰ Li (2016), 129-132.

¹⁰¹ These are embodied in the following articles of the UNCLOS. (1) Article 56: Rights, jurisdiction and duties of the coastal States in the exclusive economic zone. (2) Article 60: Artificial islands, installations and structures in the exclusive economic zone. (3) Article 77: Rights of the coastal State over the continental shelf. (4) Article 81: Drilling on the continental shelf. The exclusive economic zone stretches from the seaward edge of the State's territorial sea out to 200 nautical miles from its coast. In colloquial usage, the term may include the territorial sea and even the continental shelf beyond the 200-mile limit. It took nine years from 1973 for the international

Offshore facilities employed during such activities may include offshore platforms (fixed or mobile ones),¹⁰² offshore storage or loading systems, sub-sea facilities, wells, offshore pipelines, offshore drilling units and other associated offshore equipment, constructions, and installations. The characteristics of fixed and mobile offshore units merit much attention in this study, as relevant laws, regulations, as well as insurance schemes regarding these two types of units in China are different in a few aspects, which will be addressed in the next parts.¹⁰³

A *fixed offshore platform* is a unique structure, as it is located in the sea or ocean, and its primary function is to carry industrial equipment that services oil and drilling. Note that the features of an applied load well (i.e., the location, depth, size, material) attach to the robust design of the fixed offshore structure.¹⁰⁴ It is a permanent structure or platform used for offshore drilling and production. By contrast, a *mobile offshore unit* (better known as MOU) is a term representing a floating drilling unit such as a jack-up rig, drilling barge, submersible rig, semi-submersible, or drillship. It is designed for offshore drilling in ultra-deep waters for the oil-rich areas across the globe, which is partially submerged in water during drilling operations and is normally moored to the seabed by anchors.¹⁰⁵

Mobile offshore units (MOUs) are widely welcomed by offshore operators, as these facilities not only improve stability while drilling but are also convenient to move, which is of great value for an MOU to adapt to activities in different depths of water.¹⁰⁶ Currently, offshore oil companies in China are ambitiously developing their deepwater projects,¹⁰⁷ where MOUs are frequently used for drilling, while fixed platforms are more used in relation to production.¹⁰⁸ An interesting fact is that, although an MOU is a movable property by nature, it seems to be treated as

community to finalise the United Nations conference that finally agreed on UNCLOS in 1982. For China (PRC), this was its first multilateral negotiation after having joined the UN in 1971. However, the arbitration lawsuit brought by the Philippines in 2016 stimulated debate about China's South China Sea policy. For more information about the relationship between the UNCLOS and China, see an editorial given by Wang (2016a).

¹⁰² Fixed platforms can only be used in shallow waters where the depth is no more than 400 m. Deepwater refers to a depth between 400 meters and 1500/1800 meter, and ultra-deepwater refers to a depth between 1,800 to 3,000 meters and more.

¹⁰³ See *infra* section 2.1.2 of chapter 6, where specific features of mobile offshore units are addressed.

¹⁰⁴ El-Reedy (2014), 33-34.

¹⁰⁵ More information on the MOU and its different types, see Singh (2019).

¹⁰⁶ The first mobile offshore unit was built in 1950s. See Zhu (1993), 125-127.

¹⁰⁷ The first truly offshore MOU was the named *Mr. Charlie*, designed and constructed from scratch by Ocean Drilling and Exploration Co. (ODECO), headed by its inventor and president, Laborde. A.J. It was a purpose-built submersible barge built specifically to float on its lower hull to location and, in a sequence of flooding the stern down, ended up resting on the bottom to begin drilling operations. When the *Mr. Charlie* went to its first location in June 1954, Life magazine wrote about the novel new idea to explore for oil and gas offshore. See Laborde (1997).

¹⁰⁸ Gao (2007), 96-101.

immovable property by law.¹⁰⁹ Each MOU even has its name, nationality, and specific port at which it is located. It is probably because an MOU is usually of great value in comparison to general movable items; therefore, most countries, including China, tend to set stricter rules regarding it. To be precise, in cases where (i) the MOU is leased to others, (ii) the MOU is used to secure a mortgage from the bank, or (iii) the owner company loses the possession of the MOU due to some legitimate reasons (i.e., the owner sells it to others); the interested parties, usually the mortgagor, mortgagee, or the new owner, are required to report such changes to the registration authority, which makes it possible for the authority to monitor and manage these facilities systemically.¹¹⁰ As indicated, the lease, mortgage, and sales contract mentioned above cannot be against the third party's interest unless the MOU is appropriately registered, and it is seen as a mechanism to protect the legal rights and interests of the parties from the perspective of property law.

2.1.2 Offshore oil resources in China

*In China, on the one hand, all the mineral resources, waters as well as other natural resources are owned by the State in accordance with Article 9(1) of the Constitution.*¹¹¹ The *Mineral Resources Law of the People's Republic of China*¹¹² (hereinafter the *MRL*) echoes the *Constitution* by stating that all forms of mineral resources under the jurisdiction of the People's Republic of China (the PRC or China) belong to the State, and the State Council is in charge of exercising the right of State

¹⁰⁹ Li (2016), 14-21.

¹¹⁰ Article 3 of the *Maritime Law* stipulates that 'ship in this Law means sea-going ships and other mobile units'. In addition, Articles 9, 10, 13 of the *Maritime Law* address the registration requirement of ships, where 'the acquisition, transference and extinction of the ownership of a ship should be registered at the registration authority.' Moreover, the mortgage of a ship 'will not be established unless it has been registered'. Together with the definition of ships in Article 3, mobile offshore units should comply with these provisions and register at the relevant administrative bodies. In fact, the detailed requirements concerning ship registration are provided in the *Regulation of the People's Republic of China Governing the Registration of Ships* (《中华人民共和国船舶登记条例》), which was issued by the State Council in 2014. Article 56 (1) of this Regulation stipulates that 'ship means any self-propelled or non-self-propelled vessel and any other mobile unit on water.' Seemingly, the definition of ship in this Regulation is the same as that in the *Maritime Law*, which indicates mobile offshore units, are also applicable to this Regulation. The discussion about whether mobile offshore units belongs to a ship or not, see *infra* section 2.1.2 of chapter 6.

¹¹¹ Article 9 of the *Constitution*, all mineral resources, waters, forests, mountains, grasslands, unreclaimed land, beaches, and other natural resources are owned by the State, that is, by the whole people, with the exception of the forests, mountains, grasslands, unreclaimed land, and beaches that are owned by collectives in accordance with the law.

¹¹² *Mineral Resources Law of the People's Republic of China* (《中华人民共和国矿产资源法》) was adopted at the 15th Meeting of the Standing Committee of the Sixth National People's Congress on March 19, 1986; and amended for the first time at the 21st Meeting of the Standing Committee of the Eighth National People's Congress on August 29, 1996; amended for the second time at the 10th session of the Eleventh Standing Committee of the National People's Congress on August 27, 2009.

ownership in mineral resources.¹¹³ As one form of an important mineral resource, offshore oil resources located within the territorial seas and other sea areas under the jurisdiction of China are also owned by the State.¹¹⁴

On the other hand, various forms of economic cooperation between Chinese enterprises and foreign enterprises are permitted under the *Constitution*, and all the foreign enterprises, foreign economic organisations as well as Chinese-foreign joint ventures within the Chinese territory should abide by Chinese law.¹¹⁵ Article 7 of the *Administrative measure for the Implementation of the Mineral Resources Law of the People's Republic of China*¹¹⁶ (hereinafter *Measure of the MRC*) stipulates that, 'the State allows foreign companies, enterprises, and other economic organisations as well as individuals to invest for exploration and exploitation of mineral resources within the territory of the PRC.' Based on these articles, foreign enterprises and entities may have the opportunity to engage in offshore oil exploration and exploitation within the jurisdiction of China under certain circumstances.

As illustrated in Article 50 of the MRL, if there are laws and administrative regulations with respect to foreign-funded exploration and mining of mineral resources, such provisions shall prevail. In fact, more rules addressing offshore oil activities are provided in an administrative regulation: *Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises*¹¹⁷ (hereinafter *Offshore Cooperation Regulation*). Article 2 of this Regulation prescribes that 'all petroleum resources under the jurisdiction of China are owned by the country,' which is in line with the provisions under the *Constitution*, the MRL as well as the *Measure of the MRL*. Furthermore, all facilities, installations, and structures for exploring and exploiting oil resources are also under the jurisdiction of China.¹¹⁸ In other words, in the context of China, even though the law conditionally allows the foreign enterprises to participate

¹¹³ Articles 2-3 of the MRL. This Law must be observed in exploring and mining mineral resources within the territory of the People's Republic of China and the marine areas under its jurisdiction.

¹¹⁴ Article 16 of the MRL: anyone who wishes to mine the following mineral resources shall be subject to examination and approval by the department in charge of geology and mineral resources under the State Council, which shall also issue a mining license: (4) those in the territorial seas and other sea areas under China's jurisdiction. Moreover, the Detailed List of Mineral Resources includes (1) Mineral Energy Resources: Coal, coal-related gas, stone coal, oil shale, petroleum.

¹¹⁵ Article 18 of the *Constitution*.

¹¹⁶ *Administrative Measure for the Implementation of the Mineral Resources Law of the People's Republic of China* (《中华人民共和国矿产资源法实施细则》) was promulgated and came into effect on March 26, 1994.

¹¹⁷ *Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises* was first promulgated by the State Council in 1982. The latest version was issued in 2013.

¹¹⁸ *Ibid.*

in exploring and exploiting oil resources, oil resources within the jurisdiction of China and all the facilities relating to oil activities are owned by the State.

2.2 Offshore drilling development in China

Before going forward, it is helpful to sketch the history of offshore oil exploration and exploitation in China. In 1982, the promulgation of the *Offshore Cooperation Regulation* with the establishment of the China National Offshore Oil Corporation (CNOOC) was regarded as a significant landmark in the field of the offshore oil industry, which marked that offshore oil exploration and exploitation in China entered a new phase of development. Therefore, section 2.2 addresses two phases of development: the offshore oil industry in China before 1982 (section 2.2.1) and after 1982 (section 2.2.2). By examining the first phase of development of the offshore oil industry in China and how the offshore oil industry developed with the adoption of the *Offshore Cooperation Regulation* in the second phase of development, it may help to understand how the Chinese offshore oil industry impacts the law-making with Chinese characteristics.

2.2.1 Offshore oil industry before 1982

The Chinese offshore oil exploration started at the end of the 1950s in the South China Sea.¹¹⁹ In 1957, the Chinese government for the first time tried to find the oil seepage in the sea areas near the Hainan Island (Yinggehai area).¹²⁰ Oil exploration within the South China Sea came to a halt due to the Vietnam War in the 1960s.¹²¹ Since 1965, such exploration was diverted to the Bohai Bay and the Yellow Sea, which were in the northern part of the East China Sea.¹²² During that period, oil discovery wells were constructed in the two sea areas - the South China Sea and the East China Sea - by using self-made crude equipment. After years of research and exploration, in June 1964, oilfield Hai-1¹²³ successfully produced 30 tonnes¹²⁴ of

¹¹⁹ CNPC 2017.

¹²⁰ *Ibid.*

¹²¹ *Ibid.*

¹²² CNPC 2016c.

¹²³ CNPC 2016b.

¹²⁴ 'Ton' and 'tonne' are both units of measurement. In the US, a ton (also called a short ton) equals 2,000 US pounds (*abbr.* lbs.). By contrast, outside the US, a ton can refer to a metric ton, which is 1,000 kilograms, or 2,204.6 pounds. A tonne is another word for metric ton. There is another kind of ton that is mostly outdated but worth mentioning called the British ton (also known as the long ton), which is equal to 2,240 pounds. Nowadays, most industrialised nations, including China, have standardised around the metric system and use what is called

crude oil per day and became the first oil well within the coastal waters in the South China Sea.¹²⁵ From 1966 to 1972, a total of four fixed drilling platforms were built, 14 wells were drilled, and three oil-bearing structures were discovered in the Bohai Bay.¹²⁶ Later in 1973, oil exploration and exploitation in the South China Sea restarted at the end of the Vietnam War.¹²⁷ In the meanwhile, the equipment began to be renewed, and new methods were introduced from abroad for conducting exploration and development tests in the Bohai Bay.¹²⁸

The economic reform initiated by the Chinese government in 1978¹²⁹ greatly contributed to the development of offshore oil activities, as it deeply impacted this industry with its own Chinese features.¹³⁰ Thanks to the introduction of market principles and opening up the country to foreign investment, the Chinese government offered more opportunities for the offshore industry to develop. In 1979, the State Council issued a policy to adopt two methods of offshore oil exploration and exploitation: cooperation with foreign companies and self-operation.¹³¹

Even though the private sector grew remarkably, and a number of State-owned enterprises were privatised, State monopolies in sectors such as petroleum remained,¹³² among which the offshore oil industry was included. On January 30, 1982, the State Council promulgated the *Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises* (hereinafter *Offshore Cooperation Regulation*) to regulate the offshore industry with the establishment of the China National Offshore Oil Corporation (hereinafter CNOOC) to undertake such activities.¹³³ Based on this regulation, half a month later, the CNOOC was formally established in Beijing on February 15, 1982. Since then, the CNOOC has played an important role in cooperating with overseas partners to develop the Chinese offshore oil industry. Thus,

the metric ton (in Chinese: 吨). A metric ton is equal to 1,000 kilograms (*abbr.* kg). Thus, a metric ton (tonne) is slightly larger than a US ton—it converts to 2,204.6 pounds. In order to avoid ambiguity, this thesis uses the term 'tonne' to measure the weight of crude oil. See Ton vs. tonne: What is the difference, available at <https://writingexplained.org/ton-vs-tonnes-difference> (accessed on April 10, 2022).

¹²⁵ *Ibid.*

¹²⁶ CNPC 2016c.

¹²⁷ CNPC 2016b.

¹²⁸ CNPC 2016c.

¹²⁹ The economic reform carried out in two stages: the first stage, in the late 1970s and early 1980s, involved opening up the country to foreign investment and permission for entrepreneurs to start businesses. However, most industries remained State-owned. The second stage of reform, in the late 1980s and 1990s, involved privatization and contracting out of much State-owned industry, while State monopolies in sectors such as petroleum remained.

¹³⁰ CNPC 2016a.

¹³¹ CNPC 2016d.

¹³² Engardio 2005.

¹³³ Article 6 of the *Offshore Cooperation Regulation*.

the Chinese offshore oil industry entered a new phase of development.¹³⁴

From 1982 to 1989, China attracted USD 3.1 billion foreign investment in the offshore oil industry through competitive bidding and established three offshore oil bases in the Bohai Bay, the west and the east of the South China Sea.¹³⁵ Until 1997, the CNOOC signed 131 oil exploration and exploitation contracts and agreements with foreign companies to develop the offshore industry further.¹³⁶ Its exploration areas expand to the Bohai Bay, the Yellow Sea, the East China Sea, as well as the South China Sea.¹³⁷

2.2.2 The offshore oil industry after 1982

The Chinese offshore oil industry was the first domain of China's economy that opened to the world after the adoption of the Chinese economic reform in 1978.¹³⁸ Promulgated in 1982, the *Offshore Cooperation Regulation* is an administrative regulation introduced particularly to address oil exploration and exploitation in the offshore industry. The purpose of this Regulation is '*to expand international economic and technological cooperation and to permit foreign enterprises to participate in the cooperative exploitation of offshore petroleum resources on the premise of maintaining national sovereignty and economic interests.*'¹³⁹ This regulation not only provides a legal basis to establish the CNOOC but also legislatively grants the CNOOC an exclusive right to undertake oil activities. In other words, the CNOOC dominantly takes charge of exploring and exploiting oil resources in cooperation with overseas partners in the Chinese offshore industry.¹⁴⁰

Founded under the *Offshore Cooperation Regulation*, the CNOOC is a State-owned company to promote international economic cooperation with foreign enterprises in the offshore drilling.¹⁴¹ Dating back to 1980s, even though the economic reform led to strong growth in China, advanced technologies, capitals, and a favourable supply and demand environment were desperately needed to develop the offshore industry,

¹³⁴ CNOOC 2018a.

¹³⁵ CNPC 2016c.

¹³⁶ *Ibid.*

¹³⁷ *Ibid.*

¹³⁸ CNPC 2018d.

¹³⁹ Article 1 of the *Offshore Cooperation Regulation*.

¹⁴⁰ Article 5 of the *Offshore Cooperation Regulation*.

¹⁴¹ In addition to oil and gas exploration and production, CNOOC is also engaged in refining, power generation, retail marketing, and engineering and technical services. Most of the company's primary operations are organised under its subsidiary, CNOOC Limited. CNOOC Limited was established in 1999 and listed on the New York Stock Exchange and the Hong Kong Stock Exchange in 2001.

while foreign enterprises could offer these crucial factors at that time.¹⁴² This was when China decided to cooperate with foreign companies to develop offshore drilling. Theoretically, the CNOOC could either undertake self-development or exploit oil with foreign enterprises by law, but the fact was that foreign operators wholly or partially conducted a great number of offshore oil activities. Accordingly, stable cooperation was gradually established.¹⁴³

Article 5 of the Regulation addresses establishing the CNOOC as a State-owned enterprise (SOE). The CNOOC is empowered to ‘have exclusive and overall responsibility for the work of exploiting offshore petroleum resources in China in cooperation with foreign enterprises,’ and to ‘have the exclusive right to explore for, develop, produce and market the petroleum within the zones of cooperation with foreign enterprises.’

From its very inception, the CNOOC, as a State-owned corporation specialised in offshore drilling, played a dominant role in cooperating with overseas partners and developing the Chinese offshore oil industry. In the next decades, increasing exploitation and exploration in the offshore industry resulted in more energy and consumption demand.¹⁴⁴ More foreign companies attempted to cooperate with the CNOOC to explore and exploit petroleum within the Chinese waters.¹⁴⁵ Some rules of the *Offshore Cooperation Regulation* were in need of revision, in the sense that they were unable to serve the needs of the new situations. For example, changes of the *Regulation of 2001*¹⁴⁶ are as follows.

First, some departments that used to take charge of the petroleum industry were changed due to the ‘Institutional Reform of the State Council.’¹⁴⁷ For instance, provisions related to the Ministry of Petroleum were modified due to the fact that the ‘National Energy Administration’ replaced the ‘Ministry of Petroleum’ in 1988. Based on Article 4 of the *Regulation of 2001*, the department designated by the State

¹⁴² CNOOC 2018a.

¹⁴³ Offshore Energy Today 2018.

¹⁴⁴ CNPC 2016e, CNPC 2016f.

¹⁴⁵ *Ibid.*

¹⁴⁶ See *Decision of the State Council on Amending the Regulations of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises* (《国务院修改〈对外合作开采海洋石油资源条例〉的决定》), which was issued by the State Council on September 23, 2001.

¹⁴⁷ The Institutional Reform of the State Council is a series of changes in the administrative structure of the Chinese government. Based on the decision of the National People's Congress, some departments in the Central Government are merged, dissolved or modified, while some new departments were founded. In 1988, the ‘Ministry of Petroleum’ was replaced by the Department of Petroleum and merged to the ‘National Energy Administration.’ See *Decision of the First Session of the Ninth National People's Congress on the Plan for Restructuring the State Council* and its appendix: *Explanation of the Plan for Restructuring the State Council* (March 10, 1998).

Council would be ‘*in charge of the exploitation of offshore oil resources in cooperation with foreign enterprises.*’ Another example is that the ‘Ministry of Foreign Trade and Economic Cooperation’ replaced the ‘Foreign Investment Commission.’ Based on Article 7 of the *Regulation of 2001*, the petroleum contract between the CNOOC and foreign enterprises ‘*would come into force only after approval by the Ministry of Foreign Trade and Economic Cooperation.*’ Note that provisions in respect of the CNOOC remained the same in the *Regulation of 2001* (and also in the following 2011 and the 2013 Amendments). The CNOOC, as a State-owned enterprise, continues to play an important role in the offshore industry until today.¹⁴⁸

Second, based on the *Regulation of 1982*, foreign operators used to be required to give priority to Chinese companies when they are in the same position. For example, a foreign operator has to choose to sign a subcontract (i.e., purchase contract, service contract) with a Chinese company rather than a foreign enterprise if the former is ‘*competitive in terms of price, efficiency, and services.*’¹⁴⁹ These provisions, which seem like the discriminatory treatment of foreign enterprises, were removed from the *Regulation of 2001*.¹⁵⁰ Since then, if operators intend to establish an offshore facility or purchase necessary materials in the process of carrying out petroleum contracts, they are free to choose Chinese or foreign companies and sign subcontracts with them.

Third, the wording of some articles has also changed over time. Articles 13, 14, and 17 of the *Regulation of 1982* set out obligations for foreign operators when ‘*carrying out the petroleum contract.*’ To be precise, they were mandated to submit reports concerning offshore oil operations to the CNOOC, to register their branches and subsidiaries, to use the existing offshore sites located in the territory of China when

¹⁴⁸ CNPC 2016a, CNPC 2016e.

¹⁴⁹ See Articles 19-21 of the *Offshore Cooperation Regulation of 1982*. Article 19 states that ‘*with respect to all facilities required to be built in carrying out the petroleum contract, including artificial islands, platforms, buildings and structures, when signing subcontracts, the operator must give preference to manufacturing plants and engineering corporations within the territory of the People’s Republic of China, provided that they are competitive in terms of quality, price, term of delivery and services.*’ Article 20 states that ‘*with respect to the equipment and materials required to carry out the petroleum contract, the operator and subcontractors must give preference to procuring and utilising equipment and materials manufactured and supplied by the People’s Republic of China, provided that these are competitive.*’ Article 21 states that ‘*with respect to services that are required to carry out the petroleum contract, such as those for geophysical prospecting, well-drilling, diving, aircraft, ships and bases, the operator and subcontractors must enter into subcontracts and service contracts with relevant departments within the territory of the People’s Republic of China, provided that they are competitive in terms of price, efficiency and services.*’

¹⁵⁰ See *Decision of the State Council on Amending the Regulations of the People’s Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises*, paragraphs 10- 11.

‘*carrying out the petroleum contract*,’ These obligations were reinterpreted in the *Regulation of 2001*. Since then, foreign operators are obliged to undertake the above responsibilities when ‘*carrying out the petroleum contract for the purpose of development and production operations*.’ The expressions in both versions seem to be similar but they are still different. In the latter version, the petroleum contract is narrowed to the contract with the aim of oil development and production, which may imply that the obligations of foreign enterprises are more specific.

After the amendment in 2001, the *Offshore Cooperation Regulation* was revised another two times in 2011 and 2013 respectively. The *Regulation of 2011* required that all the Chinese enterprises and foreign enterprises should begin to pay a ‘resource tax’ instead of the ‘mineral royalty’ as long as these enterprises explore and exploit offshore oil resources within the jurisdiction of China.¹⁵¹ The mineral royalty stemmed from the *Provision on the Payment of Mineral Royalties for the Exploitation of Offshore Petroleum Resources* (hereinafter *Provision of Mineral Royalties*).¹⁵² This Provision was formulated in accordance with the *Regulation of 1982*. Article 2 of the *Provision of Mineral Royalties* clearly stated that ‘*any Chinese and foreign enterprise engaging in the offshore oil exploitation within the jurisdiction of China should pay a royalty*.’ Article 5 of the *Provision of Mineral Royalties* explained how to pay this royalty of crude oil to the tax authorities when the oil was exploited and explored by Chinese companies and foreign companies cooperatively. First, foreign operators should pay the mineral royalty to the CNOOC. After receiving the payment from foreign oil enterprises, the CNOOC would hand over these royalties to the tax authorities in the name of foreign enterprises. In the offshore oil industry, it was the CNOOC (as the Chinese enterprise) that cooperated with foreign enterprises to exploit oil resources. As operators of offshore oil activities, these foreign enterprises were obliged to pay mineral royalties, while the CNOOC did not have this obligation.

In 2013, this Regulation went through another revision. In its latest version, Article 7 addresses that the CNOOC should report relevant information of the petroleum

¹⁵¹ Articles 10-11 of the *Offshore Cooperation Regulation* of 2011. Also see Article 9 of the *Offshore Cooperation Regulation* of 1982.

¹⁵² *Provision on the Payment of Mineral Royalties for the Exploitation of Offshore Petroleum Resources* (《中外合作开采陆上石油资源缴纳矿区使用费暂行规定》) was issued by the Ministry of Finance on January 13, 1990. It was amended on July 28, 1995.

contracts¹⁵³ to the Ministry of Commerce after signing petroleum contracts or other contracts relating to oil exploration and exploitation with foreign enterprises. Put another way, the effectiveness of contracts between the CNOOC and foreign enterprises depends on the contract itself rather than on the approval of the authority. Before 2013, the petroleum contract between the CNOOC and foreign enterprises could only come into force after approval by the authority in charge. As discussed above, the competent administrative body was changed from the Ministry of Petroleum (in the *Regulation of 1982*) to the Ministry of Foreign Trade and Economic Cooperation (in the *Regulation of 2001*). In 2003, the Ministry of Commerce replaced the Ministry of Foreign Trade and Economic Cooperation and took over its functions to approve the petroleum contract (in the *Regulation of 2011*). After 2013, this power was removed from the Regulation. The CNOOC still has to submit petroleum contracts with foreign enterprises as before. The difference is, instead of approving or disapproving the contracts, the Ministry of Commerce is only authorised to record these contracts.

The evolution of the *Offshore Cooperation Regulation* reflects the fact that legislators relaxed the obligations of foreign enterprises and offered more space to encourage economic cooperation between the CNOOC and foreign enterprises. The CNOOC is now the third largest national oil company in China, focusing on the exploration, exploitation, and development of crude oil and natural gas in offshore China.¹⁵⁴

2.3 Industrial structure of offshore drilling

2.3.1 A contract-based approach

The above section introduces that the offshore drilling industry in China was basically developed in the form of foreign cooperation offered by the *Offshore Cooperation Regulation*. Until the twenty-first century, the CNOOC has set its sights on raising oil reserves and developing its deepwater expertise further.¹⁵⁵ Cooperating with foreign enterprises helps the company to achieve its targets and cultivates its technical skills, which is part of the efforts by the CNOOC to accelerate domestic exploration as

¹⁵³ ‘Petroleum contract’ means a contract signed, in accordance with the law, between CNOOC and foreign enterprises for the cooperative exploitation of offshore petroleum resources of the PRC, including the exploration for and development and production of petroleum. See Article 26(3) of the Offshore Cooperation Regulation.

¹⁵⁴ It was also ranked 87th in the *Fortune Global 500* of 2018. See CNOOC, available at <https://www.cnoccltd.com/col/col7261/index.html> (accessed on May 15, 2022)

¹⁵⁵ CNOOC 2018a.

well.¹⁵⁶ Directed by the ‘innovation-driven strategy,’ the CNOOC began to pay more attention to independent research and development and focuses on core technology,¹⁵⁷ moreover, several subsidiaries of the CNOOC started running projects on their own to develop offshore oil.¹⁵⁸ This tendency can, therefore, be viewed as reaffirming China’s desire to attract international investment into its offshore drilling sector and a continuation of the reform and opening-up in the later twentieth century.

Offshore drilling in most countries is carried out within a similar structure. In general, oil resources belong to the State, and the government has the exclusive right to grant licenses to perform activities in the offshore area.¹⁵⁹ The license specifies under which terms and conditions offshore activities should be carried out.

Offshore drilling operations are highly technical and complicated, which are therefore carried out through joint operations among the parties with different expertise.¹⁶⁰ This joint operating agreement (JOA) usually specifies the share of each party in the joint venture, demarcates the obligations and defines the liability of the operators during the joint operation, administers and allocates the work programs and budgets, manages the relationship with the government, and deals with the requirements in relevant regulations on safety and environmental protection.¹⁶¹ Typically, an individual operator’s liability is proportionate to his respective interest in the licensed operations.¹⁶² In some countries, it is even required that the State should hold a particular share in the JOA with the companies that obtain a license from the authority, e.g., in Norway, Denmark, and the Netherlands.¹⁶³ The interested parties, usually offshore operators, have to pay a royalty to the State in exchange for the license.¹⁶⁴ The CNOOC usually provides the standard form of JOA that is prevalent in China and is also addressed by law (the *Offshore Cooperation Regulation*) as mentioned above.¹⁶⁵

Some scholars hold the view that the financial system of offshore oil production in

¹⁵⁶ Offshore Energy Today 2018.

¹⁵⁷ For example, see the United Morning Paper (2019); Rani (2021).

¹⁵⁸ For example, see the largest self-business subsidiary of the CNOOC Liaodong Operation Company: annual oil production of 10 million tonnes for seven years, available at <http://hongboqd.com/html/1709271709271441108.html> (accessed on May 15, 2022).

¹⁵⁹ De Smedt & Faure (2013), 28.

¹⁶⁰ *Ibid.*

¹⁶¹ Easo (2010), 18-22.

¹⁶² Bosma (2012), 89-117.

¹⁶³ De Smedt & Faure (2013), 28.

¹⁶⁴ *Ibid.*

¹⁶⁵ See *supra* section 2.2.2 of this chapter.

China follows ‘*production sharing contract*’ (PSC),¹⁶⁶ which refers to an agreement between the contractor and the government whereby the contractor bears all exploration risks, production and development costs in return for its stated share of profit from the production resulting from this effort,¹⁶⁷ which is in line with provisions under the *Offshore Cooperation Regulation*.¹⁶⁸ Under the PSC, the country remains the owner of the oil produced, i.e., ownership of the petroleum, major installations and platforms. This structure can be beneficial to the governments of countries that lack the expertise or capital to develop their resources and wish to attract foreign companies to do so, which is precisely the case in the Chinese offshore industry.¹⁶⁹

Furthermore, it is argued in some literature that the performance under the *Offshore Cooperation Regulation* indicates a ‘*hybrid contract*’ (HC) rather than a pure PSC,¹⁷⁰ the latter of which is a combination or hybrid arrangement, meaning the financial system contains a variety of patterns.¹⁷¹ However, such literature also admits that the characteristics of such a mixture are not easy to describe accurately. In fact, the system adopted under the *Offshore Cooperation Regulation* is more a PSC approach associated with some distinctive features than a novel approach created by China. The

¹⁶⁶ Harraz (2016); Li (2016), 129-132.

¹⁶⁷ An introduction of PSC, available at

[http://www.arthapedia.in/index.php?title=Production_Sharing_Contract_\(PSC\)](http://www.arthapedia.in/index.php?title=Production_Sharing_Contract_(PSC)) (accessed on April 20, 2022).

¹⁶⁸ Articles 6, 7, 9, 29 of the *Offshore Cooperation Regulation*. See *infra* section 2.4.1 of this chapter.

¹⁶⁹ See *supra* section 2.2.2 of this chapter.

¹⁷⁰ Currently, there are two leading families of the financial system: the concessionary system (more commonly known as royalty/tax system) and the contract-based system (which includes both the production sharing contract and the service agreement). The classification of such systems in the offshore oil industry is debated in academia. Basically, there are at least three patterns worldwide, namely the concession, production sharing contracts (PSCs), and service contracts. The first is a form of contract in the oil and gas industry between a State and a company to explore and develop oil resources. In the general legal context, the State represented by its government, or its legal authority, grants the rights and obligations to an operating company to explore, develop and produce oil resources as any mining company. This concession applies in the same way for offshore or onshore development as long as it is located in the continental shelf of the State, and it is a long-term agreement signed between the State of a producing country and the operating company (i.e., for at least 20 years.) The term ‘concession’ is mainly used in the oil countries of the Middle East. It is also known as ‘license’ in the UK, Norway, and Australia; ‘permit’ in France; or, ‘lease’ in the US and Canada. All these words refer to the same pattern in nature. The second is a product-sharing contract (PSC), also known as production sharing agreement, or product share contract. The third is a service contract, which is further divided into the Risk Service Contract (RSC) and the No-Risk Service Contract (NRSC). An RSC means that an international oil company (foreign oil company) supplies services and know-how (i.e., technical, financial, managerial or commercial services) to the State from exploration through production phases for the government in exchange for an agreed-upon fixed fee or some other form of compensation. In an RSC, the international oil company bears all the exploration costs, which is similar to a PSC. In return, if exploration efforts are successful, the government allows the contractor (foreign operator) to recover costs through the sale of the oil and pays the operator a fee based on a percentage of the remaining revenues. The fee is often subject to taxes. The foreign operator bears all the risks, especially exploration risks, and is compensated when a commercial discovery is made. The contractor is also entitled to a share of the profits and not a share of the production. In some cases, international oil companies may negotiate an option to repurchase oil at world prices, which constitutes a particular pattern of RSC, buy-back contract. For more information on these systems, see Aghion & Quesada (2010), 47; Yu (2000), 35-41; Li (2016), 129-132.

¹⁷¹ Gao (1994), 5-11; Yu (2000), 35-41.

distinguishing characteristics of each pattern are, where, when, and if ownership of the petroleum transfers to international oil companies (foreign oil companies). Numerous variations and twists are found under these approaches. However, from a technical and financial point of view, there are practically no differences between the various systems, because crucial features such as a profits-based mechanism are generally found in almost all systems.¹⁷² As seen in the Chinese offshore industry, the country with technically feasible resources (which is represented by the State-owned CNOOC) provides oil fields within the jurisdiction of China for companies to explore and operate, yet it maintains the ownership of these oil blocks. Oil companies, which are usually foreign operators that participate in such oil activities, undertake all the risks and production costs while exploring, exploiting and producing; they are only allowed to receive a share of the petroleum produced according to the petroleum contract signed with the CNOOC in advance.¹⁷³

2.3.2 Stakeholders

In general, offshore drilling involves the following four phases: exploration, exploitation (drilling), construction, and production,¹⁷⁴ where offshore projects gather considerable stakeholders, making it difficult to control as a whole.¹⁷⁵ It is beyond the current scope to list all potentially involved actors. However, in order to comprehend the rules that will be outlined in the coming chapters, it is necessary to take note of the difference among operators, contractors, and subcontractors. *Operators* are companies that actually perform oil operations, and they can be contractors themselves or may hire other contractors to perform activities on their behalf.¹⁷⁶ *Subcontractors* offer services to operators; it refers to the State-owned enterprise, the CNOOC, in the context of Chinese offshore drilling.

During the whole process of offshore drilling in China, a couple of stakeholders may

¹⁷² These elements include (i) generation of production and revenue followed by, (ii) royalty or royalty equivalent elements followed by, (iii) cost recovery, tax deductions or reimbursement, and (iv) profits-based mechanisms. See Harraz (2016).

¹⁷³ The difference between the PSC and RSC lies in their diverse scopes of rewarding foreign operators (contractors). Under the PSC, the contractor gets a share of the petroleum produced; in contrast, under the RSC, the contractor is normally remunerated in cash and not in barrels of petroleum. Li (2016), 130; Yu (2000), 35-41.

¹⁷⁴ Zhang (1997), 89-92; Li (2016), 241-242. The four phases can be further divided into seven parts: (a) seismic exploration; (b) exploration drilling; (c) field development; (d) construction and installation; (e) oil drilling of production wells; (f) production and (or) maintenance; and (g) field abandonment or decommissioning. See, Janssen (2012), 15.

¹⁷⁵ Mohan (2017), 1163.

¹⁷⁶ Janssen (2012), 15.

be involved. These include national regulatory authorities, offshore oil companies (domestic and foreign ones), and some other offshore-related entities, such as those who provide services for the offshore exploration, or those who provide equipment to facilitate the operation, and insurance companies.¹⁷⁷ In addition, industry organisations and other international organisations may also play important roles under specific circumstances.

To be specific, first, State regulatory authorities are the administrative organs that are involved in offshore oil activities. The authority supervising the offshore drilling industry in China is the Department of Petroleum, subject to the National Energy Administration (NEA).¹⁷⁸ Second, offshore operators are directly involved in offshore oil exploration, exploitation, and production, which basically refers to the CNOOC and specific operators that are signed the contract with the CNOOC. Third, offshore-related service providers, i.e., companies, entities or organisations, may be not directly involved in the process of exploration, but they play a role in providing their specialised services. Fourth, insurance companies prevent potential risks arising from offshore drilling offer different insurance products.

2.3.3 The independence of the CNOOC

The above text introduced that the CNOOC exclusively dominates the offshore drilling industry in China, and it is a body substantially formed by the Central Government through legal means.¹⁷⁹ The public can naturally question the independence of State-owned CNOOC from the public administration. Is there a conflict or interest between the competent authority and this SOE? This question should be examined based on the special government system in China.¹⁸⁰

Specifically, the State Oceanic Administration (SOA) is likely to be the competent authority when any marine pollution occurs as a result of offshore drilling. It is subordinate to the Ministry of Natural Resources in the Central Government system

¹⁷⁷ De Smedt & Faure (2013), 29.

¹⁷⁸ In 1988, the 'Ministry of Petroleum' was replaced by the 'Department of Petroleum' and merged to the 'National Energy Administration.' See *Decision of the First Session of the Ninth National People's Congress on the Plan for Restructuring the State Council* and its appendix: *Explanation of the Plan for Restructuring the State Council* (March 10, 1998).

¹⁷⁹ The law refers to the *Offshore Cooperation Regulation*.

¹⁸⁰ Briefly speaking, the authority in China cannot simply be regarded as one unit. It is in general classified into legislative (the People's Congress), administrative (government and its agencies), and judiciary organs (courts and procuratorates); all of them are further divided into central and local bodies. By way of illustration, the administrative body (also called the government) is comprised of the Central Government (the State Council, ministries and departments) and regional government (provincial and municipal administration).

while its agencies are responsible for marine issues at the regional level. State-owned enterprises,¹⁸¹ on the other hand, are separate from the government system and thus are differentiated from governmental agencies or State entities established to pursue purely non-financial objectives. Although the CNOOC is a Central State-owned enterprise (CSOE) that receives budgets from the Central Government,¹⁸² theoretically, it does not mean the CNOOC has any financial relationship with the SOA. However, in practice, it is unknown whether the administrative bodies are reluctant to launch a claim in relation to the CNOOC due to its government background, or there may be some political factors may intervene when handling the damage compensation. What is known for sure is that the liability allocation under the *Offshore Foreign Regulation* is obviously more favourable for the CNOOC. The next sub-section will further address that the CNOOC is free from liability until an offshore oil project is transferred from offshore operators to the CNOOC.¹⁸³ In most cases, the whole project should be finished, and conditions under the contract should be satisfied at that time. By contrast, offshore operators are fully liable for any damages that occurred during their operations.¹⁸⁴ It is evident that the incident (i.e., spill, fire, explosion, blowout) is more likely to happen when the project is in process rather than when it is completed. Seemingly, the attitude of legislators is partial to the State-owned CNOOC, and that may explain our doubt about whether administrative organs also have a bias towards the CNOOC when dealing with damage compensation.

In chapter 5, when examining legitimate claimants of marine ecological damage caused by offshore drilling, the relationship between the administrative bodies and the SOEs will be further addressed, as the State-status of both parties may have an impact

¹⁸¹ A State-owned enterprise (SOE) is a business enterprise where the government or State has significant control through full, majority, or significant minority ownership. The defining characteristics of SOEs are their distinct legal form and operation in commercial affairs and activities. They may also have public policy objectives (e.g., a State railway company may aim to make transportation more accessible).

¹⁸² The ‘Central State-owned enterprise’ (CSOE, 央企) and ‘State-owned enterprise’ (SOE, 国企) are two different terms in China. All CSOEs are SOEs, while an SOE may not be a CSOE. The former is directly financed by the State Council or the State-owned Assets Supervision and Administration Commission (国有资产监督管理委员会), which covers the areas related to national safety and economy, such as banking, infrastructure, nuclear, and energy sectors. Their budget appropriation is directly from the Central Government. The CNOOC is a typical CSOE. Currently, the number of CSOEs in China is 96 (the number is not fixed). The latest list of CSOEs in China is provided on the official website of the State-owned Assets Supervision and Administration Commission of the State Council (December 29, 2017), available at <http://www.sasac.gov.cn/n2588035/n2641579/n2641645/index.html> (No.13 is the CNOOC) (accessed on April 20, 2022).

¹⁸³ See *infra* section 2.4 of this chapter.

¹⁸⁴ Article 8 of the *Offshore Cooperation Regulation*.

on the liability distribution in that case.¹⁸⁵

2.4 Incentives for joint development

As indicated above, a joint development model between the State-owned CNOOC and foreign companies dominates the offshore oil industry in China. From both technical and economic perspectives, the model is in favour of sharing the risks generated from offshore drilling operations.

2.4.1 Technical reasons

2.4.1.1 Uncertainty in the offshore drilling industry

Technically, operators determine whether an offshore oilfield is appropriate to develop a project based of two factors: (i) the amount of oil deposits and (ii) the possibility of exploitation. For example, operators may not dare to launch a project on an oil-rich field because it is located on a dangerous trench; they may also hesitate to drill an oil well in sea areas where they will not gain substantial profits. After all, the offshore oil industry is a business that requires a large amount of initial investment, and considerable profits are only available when the project runs smoothly. Therefore, any entity or company that participates in the offshore oil industry has to be capable of providing considerable investments in order to pay off the costs of the initial phase, including the cost of exploring an oilfield, building platforms, hiring professionals, and handling waste and pollutants. Moreover, their assets should also be sufficient to resist different risks during the operations. Apart from the failure of exploring an exploitable well, the potential accidents due to a natural disaster or human error lead to enormous costs of compensating the victims, cleaning the pollutants, restoring the environment, and restarting the project. The uncertainty of this kind of potentially costly activity increases the difficulty in developing offshore drilling operations.

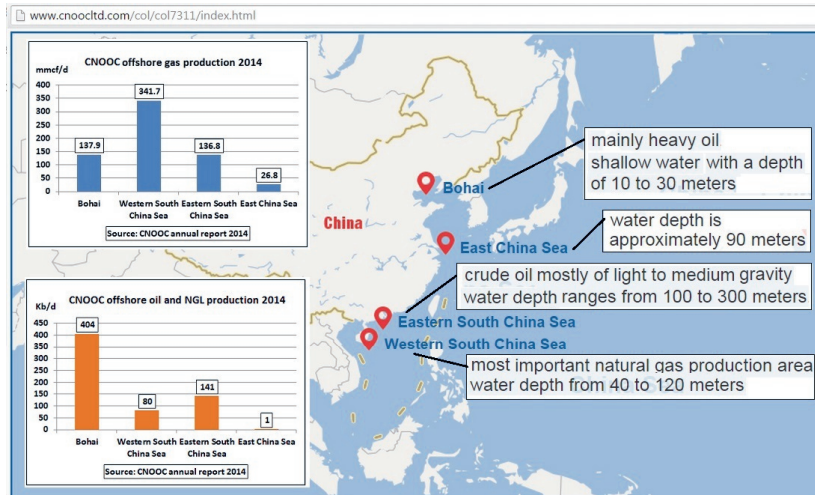
In addition, the geographical and meteorological conditions in China inevitably influence offshore oil operations. Oil in the Chinese coastal waters is mainly found in the Bohai Bay, East China Sea, and the South China Sea, which are also the locations the CNOOC develops offshore oil projects at present.¹⁸⁶ Currently, the Bohai Bay is

¹⁸⁵ See *infra* section 2.3.1.2 of chapter 5.

¹⁸⁶ The Chinese coastal waters extend to the Bohai Bay (渤海), Yellow Sea (黄海), East China Sea (东海), and

the pioneer of the offshore oil industry, while the South China Sea has the best prospect for future development.¹⁸⁷

Figure 3 CNOOC's key offshore oil and gas production areas¹⁸⁸



Compared to other sea areas, it is less challenging to develop oil in the Bohai Bay due to its exploitation-friendly conditions: (a) its average depth of water is only 18 meters; (b) its oil deposits are located near the coast, and (c) as an innermost gulf on the coast of North-eastern China, it is less affected by weather hazards such as hurricanes or tropical storms. All of these natural conditions contribute to a relatively lower level of investment and a higher amount of income for offshore companies, which not surprisingly attracts both the CNOOC and foreign oil companies,¹⁸⁹ such as ConocoPhillips¹⁹⁰ and Roc Oil,¹⁹¹ to develop this area. Nowadays, the Bohai Bay accumulates considerable offshore oil projects in the area of 78,000 km².¹⁹² However,

South China Sea (南海).

¹⁸⁷ Guo 2018; Gordon *et al.* 2014.

¹⁸⁸ CNOOC (2016). The figure is provided by the CNOOC, available at <http://www.cnoccltd.com/col/col7311/index.html> (accessed on April 10, 2022). Notably, the areas shown in the figure are not the contested areas in the South China Sea.

¹⁸⁹ Until today, the Bohai Bay has oilfield projects operated by domestic and foreign offshore companies, which includes the Jinzhou Condensate Oil and Gas field (锦州凝析油气田), the Suizhong Oilfield (绥中油田), Qinhuangdao Oilfield (秦皇岛油田), the Boxi Oilfield (渤西油田), the Chengbei Oilfield (埕北油田), the Bonan Oilfield (渤南油田), and the Bozhong Oilfield (渤中油田). Guided by the CNOOC, China has obtained some advanced technology and practical experience during the process. A large number of professionals have been trained to specialise in the offshore industry. See Liu & Xiao 2012.

¹⁹⁰ More information on the business of ConocoPhillips in the Bohai Bay is available at <http://www.conocophillips.com/operations/asia-pacific-middle-east/> (accessed on April 10, 2022.)

¹⁹¹ Offshore Technology (November 27, 2012). Roc Oil: Drilling Starts in Bohai Bay, China, available at <https://www.offshore-energy.biz/roc-oil-drilling-starts-in-bohai-bay-china/> (accessed on April 10, 2022).

¹⁹² Chow & Lo 2001.

due to the geological and environmental limitations of this area, the CNOOC has already encountered problems to develop oil production in its main producing area in recent years, and a series of oil spills that happened in 2011 made the bad situation even worse.¹⁹³ Compared to the South China Sea, the Bohai Bay is gradually becoming less attractive for offshore companies.¹⁹⁴

2.4.1.2 Deepwater drilling in the South China Sea

The natural conditions in the South China Sea for developing offshore oil differs from that of the Bohai Bay: although its oil and gas deposit is estimated over 70,78 billion tonnes in the spacious, deep-water areas,¹⁹⁵ the complicated geographical environment and extreme weather conditions indeed frighten companies considering exploiting this area, not to mention the political factors that inevitably increase the difficulty of initiating offshore oil projects in the South China Sea.¹⁹⁶

Above all, the average water depth of the South China Sea is around 1,200 meters, while that of the Bohai Bay is only 18 meters. Figure 3 illustrates that, currently, most offshore oil projects in the South China Sea are restricted to the sea areas that are at a depth of 300 meters. Although vast oil and gas reserves are believed to lie beneath its seabed,¹⁹⁷ developing offshore oil and gas in this area is definitely a technically challenging task, as it requires a variety of offshore platforms, facilities, and units for different depths of water. As shown in figure 4, the platform designed to drill is upgraded when the depth of water increases. Generally speaking, an offshore operation deeper than 300 meters is considered 'deepwater drilling.'¹⁹⁸ The deeper a facility moors, the more innovative the technology that is required for its operation,

¹⁹³ The infamous Bohai Oil Accident happened in this area, where three spills occurred in a two-month time frame in 2011. This case will be described and analysed in chapter 9.

¹⁹⁴ Mushalik 2015.

¹⁹⁵ Based on the report of China Institute of International Studies (CIIS, 中国国际问题研究院) in 2016, there are over 29.19 billion tonnes of oil reserved in the South China Sea, among which 2 billion tonnes are exploitable. Moreover, the amount of gas deposit is 5.8 billion m³, among which the exploitable reserves reach 0.4 billion m³. See Guo 2018.

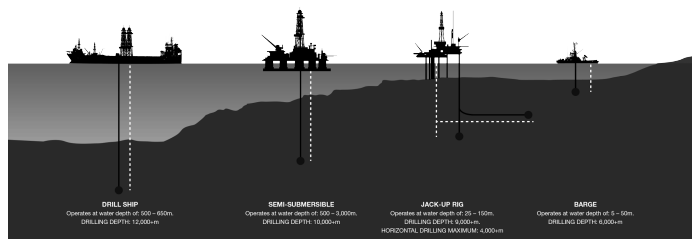
¹⁹⁶ In fact, the territorial conflicts and resource disputes of the South China Sea among China, Southeast Asian countries, and a few great powers (i.e., the US, Russia, India, Australia, and Japan) substantially influence the offshore development in this area. Countries like Vietnam, the Philippines, and Malaysia claim their sovereignty rights over specific sea areas in the South China Sea. They are ambitious to launch their oil projects in this area and attempt to jointly develop oilfields with the support of oil companies from developed countries. For more information about the disputes concerning the South China Sea, see Tran (2016), 1-18; Thayer (2016), 1-10; Thayer (2017), 95-109; Graham (2017), 1-6. Due to the limitation of the thesis, the following parts will not discuss these political factors but concentrate on offshore oil development from the perspective of law.

¹⁹⁷ As huge oil and gas reserves are believed to lie beneath deepwater, a global trend in the area of the offshore oil industry is to move towards deepwater drilling.

¹⁹⁸ Based on the international practice, deepwater drilling refers to drilling below 300 meters, while ultra-deepwater means the drilling below 1,500 meters. See Xinhua 2012.

and the better performance it may have to have to handle unfavourable conditions (i.e., deep water depth, jagged sea-floor terrain, low-temperature, low-pressure reservoir).¹⁹⁹ For offshore drilling, the higher cost of drilling equipment often represents nearly 90 percent of an oil producer's total investment. The cost of oil rigs varies widely depending on the project and the depth being drilled, as it typically costs more to drill deeper holes. The average price for offshore oil-drilling rigs is approximately USD 650 million.²⁰⁰ An alternative is allowing the drilling contractor to provide the rig, the personnel, and other incidentals, while the operator of a drilling project pays a day rate for the services and equipment,²⁰¹ with average prices of ultra-deepwater rigs around USD 200,000 to 250,000 per day.²⁰² Not surprisingly, the research and development costs of such facilities is extremely expensive. Even if the project runs successfully, a fairly large amount of the profits are paid off from investments.

Figure 4 Several types of offshore oil platforms (designed for different depths of water)²⁰³



Offshore drilling, the process of extracting oil and gas resources from underwater locations, has been conducted at increasingly deeper and farther offshore sites in recent years. One realistic reason is that shallow fossil fuel reserves and near-shore drilling locations have become exhausted.²⁰⁴ By way of illustration, a few impressive oil rigs in the last forty years (1978-2016) may indicate the global changes of the

¹⁹⁹ Villaluz 2017.

²⁰⁰ Rigs vary in price according to, among other things, the depth to which they are designed to drill, and in the case of offshore rigs, the depth of water in which they are designed to operate. It typically costs more to dig deeper and extract the oil. See Lioudis 2020.

²⁰¹ See Offshore Energy 2019a.

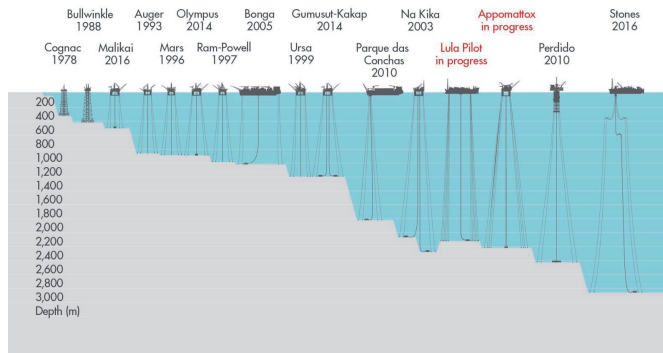
²⁰² Day rates, which represent the daily costs of renting a drilling rig, are often used when calculating rental costs of drilling rigs. In this arrangement, the daily rate is typically a flat fee per contract, so the day rate is computed by dividing the total value of the contract by the number of days anticipated to complete the project. See Lioudis 2020.

²⁰³ The figure is provided by Scpre. These are capable of operating in water depths up to 3,000 meters. In shallower waters the mobile units are anchored to the seabed, however in deeper water (more than 1,500 meters (4,900 ft) the semisubmersibles or drillships are maintained at the required drilling location using dynamic positioning. The figure is available at <https://www.sccpre.cat/maxp/hTJmwvm/> (accessed on April 7, 2022).

²⁰⁴ Melina 2010.

water depth that an oil platform can vertically moor in place (figure 5).

Figure 5 The water depth that an oil rig moored at from 1978-2016²⁰⁵



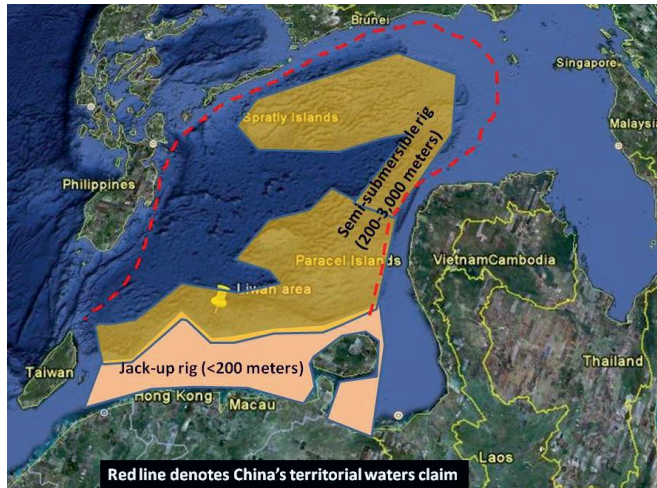
Until 2012, China successfully initiated its first operation in deepwater drilling, when the offshore platform ‘*Hai Yang Shi You 981*’ in the South China Sea was capable of drilling at a depth of over 1,500 metres. Nevertheless, a majority of offshore drilling projects in China are operated within 300 metres; therefore, there is still significant room for improvement to develop deepwater drilling. In order to catch up with other countries and make the best of oil reserves in the South China Sea, China expects to promote cooperation with foreign operators, on the one hand, and concentrate more on independent research, on the other.²⁰⁶ As shown in figure 6, the jack-up rig box (< 200 metres) represents the previous drillable area, while semi-submersible (200-3,000 metres) represents the expanded area from 2011 to 2021.

Figure 6 China's Pursuit of Offshore Development in the South China Sea from 2011-2021²⁰⁷

²⁰⁵ The figure is provided by Shell. See, Villaluz 2017.

²⁰⁶ See Xinhua 2012.

²⁰⁷ The picture is from ChinaSign Post (2011), Continental Margins Biogeochemical Research and Education. See Collins & Erickson 2011.



As a border sea located in the western part of the Pacific Ocean, the South China Sea is frequently disturbed by typhoons and hurricanes all year round, which negatively influences initiating offshore operations and sometimes results in considerable damages.²⁰⁸ Moreover, an irregular phenomenon of ‘internal wave’ in this area is a nightmare for offshore operators, as such waves can easily trigger energetic high-frequency events in the ocean and affect seabed stability.²⁰⁹

Notwithstanding, offshore oil activities in the South China Sea are continually growing, driven by its rich oil reserves and the rising Chinese energy demand.²¹⁰ Given this fact, China also attempts to cope with these technical obstacles from an economic angle - adopting joint development with foreign enterprises.

2.4.2 Economic reasons for joint development

Considering that offshore oil development is technically challenging and expensive,

²⁰⁸ Based on the analysis of data obtained from the China Meteorology Administration (1949-2016) and the State Oceanic Administration (1989-2016), tropical cyclones and storm disasters along the South China Sea greatly influence Chinese coastal areas, which lead to personal injuries and considerable economic losses. The frequency of intense storm surge disasters and the level of annual maximum storm surge have been an increasing trend on the South China coast in recent years. See Yin *et al.* (2019), 35-42. For instance, early in 1983, the US drillship Glomar Java Sea, with 81 persons on board, capsized and sank in the South China Sea to the southwest of Hainan Island. Prior to the sinking, the drillship had secured drilling operations due to the severe effects of tropical storm ‘Lex’ approaching from the east of the drilling site. It is believed that no one survived. More information about the accident is available at http://members.home.nl/the_sims/rig/gjs.htm (accessed on April 7, 2022).

²⁰⁹ Internal waves are typically the most energetic high-frequency events in the coastal ocean, as well as in deeper settings, displacing water parcels vertically by up to 100 meters and generating strong currents and turbulence. It can also influence the seabed stability in the water areas with the depth of more than hundreds of meters; low-frequency internal waves can transport sediments along the continental slope, thereby affecting the side slope stability. See Moum *et al.* (2007), 1968-1988.

²¹⁰ Laursen 2013.

the Chinese government expects to design a scheme that will help to mitigate the risks or at least lower the costs accompanied by offshore operations. It was against this background that joint development was officially introduced into China in the early 1980s. Since then (1982 - now), this joint scheme has been playing a vital role in the offshore industry in China. Foreign offshore companies are attracted by substantial resources reserved in the Chinese waters and therefore motivated to cooperate with the CNOOC. This sub-section examines this scheme under the *Offshore Cooperation Regulation*: how does it distribute profits and share risks in the offshore drilling operations?

Recall that various forms of economic cooperation between Chinese enterprises and foreign enterprises are permitted under the *Constitution*, and all the foreign enterprises, foreign economic organisations as well as Chinese-foreign joint ventures within the Chinese territory should abide by Chinese law.²¹¹ In the context of the offshore oil industry, joint development typically refers to the CNOOC and its business partners, usually foreign oil enterprises who have contractual relationships with the CNOOC.

According to Articles 8 and 22 of the *Offshore Cooperation Regulation*, there are five rules for economic cooperation between the CNOOC and foreign enterprises in the Chinese offshore industry. First of all, the CNOOC and foreign enterprises are required to sign petroleum contracts before exploring and exploiting petroleum in China. Since 2013, however, there is no need for the Ministry of Commerce to approve these petroleum contracts, the CNOOC still has the duty to submit them to the Ministry of Commerce. The CNOOC acts as the Chinese subcontractor, while foreign enterprises are operators of the contract.²¹²

Second, after entering into the contract, in general, foreign enterprises are the ones to ‘provide the investment, carry out exploitation, be responsible for the exploitation and bear all exploration risks.’²¹³ If their oil operations result in pollution to the marine environment, or an oil spill occurs due to their activities, foreign enterprises, as operators who take responsibility for operations, should also be held liable for the damage resulting from such oil operations. Under the *Regulation*, ‘the operator’ refers to ‘an entity that is responsible for implementing the operations pursuant to the

²¹¹ Article 18 of the *Constitution*.

²¹² ‘Operator’ refers to an entity engaged in offshore oil exploration and exploitation under the petroleum contract, which is in accordance with the Articles 26(10) and 30(3) of the *Regulation of Offshore Exploration*. In this sense, “foreign operator” refers to a foreign enterprise that signs a petroleum contract with the CNOOC and engages in the offshore oil industry.

²¹³ Article 8 of the *Offshore Cooperation Regulation*.

*provisions of the petroleum contract*²¹⁴; while ‘the subcontractor’ means ‘*an entity that renders services to the operator.*’²¹⁵

Third, normally, after discovering a commercial oil field within the Chinese waters, both the CNOOC and foreign enterprises will make an investment in the development of the oil field, yet only foreign enterprises will act as the operators in the first phase and take charge of relevant exploitation and production activities. The CNOOC will take over these oil operations from the foreign enterprises when the requirements in the petroleum contracts are satisfied,²¹⁶ and the relevant duties will also be correspondingly transferred from foreign enterprise to the CNOOC at that time. For instance, if an oil spill happens during the exploitation, which is usually before the hand-over, the foreign operator will be fully liable for this accident. After the production is finished and the project is transferred to the CNOOC, the CNOOC will then bear all the potential risks arising from offshore oil operations.

Fourth, foreign enterprises enjoy the right to receive their payment on the investment and expenses for operations after the exploitation is finished. They may also obtain remuneration from the petroleum if they make an agreement on this issue with the CNOOC when signing the petroleum contracts.²¹⁷

Last but not least, in the course of performing petroleum contracts, both the CNOOC and foreign enterprises are obliged to comply with relevant laws and regulations concerning environmental protection of China so as to protect the ‘*fishery resources and other natural resources and prevent the environment, including the air, sea, rivers, lakes and land, from being polluted or damaged.*’²¹⁸ It is the only provision under this Regulation that sketches environmental protection during the process of offshore activities. No more detail is provided about the potential risks associated with offshore oil activities, nor the legal remedies to compensate the loss and prevent the risks. In fact, such issues are regulated in other legal instruments, such as, *Offshore Exploitation Regulation, Offshore Engineering Regulation, 2016 Measure*, etc., which will be addressed in chapters 3-5.

When the CNOOC and foreign enterprises jointly explore oil resources in the Chinese

²¹⁴ Article 26 (10) of the *Offshore Cooperation Regulation*.

²¹⁵ Article 26 (11) of the *Offshore Cooperation Regulation*.

²¹⁶ See Article 8 of the *Offshore Cooperation Regulation*. After a commercial oil (gas) field is discovered, both the foreign contractor and CNOOC should provide the investment for its cooperative development. The foreign contractor should be responsible for development operations and production operations until the CNOOC takes over the production operations when conditions permit as provided in the petroleum contract.

²¹⁷ Articles 8-9 of the *Offshore Cooperation Regulation*.

²¹⁸ Article 22 of the *Offshore Cooperation Regulation*.

waters, there might be some disputes arising from their cooperation. Article 24 of the *Offshore Cooperation Regulation* provides three methods to settle the dispute between them. The CNOOC or foreign enterprises should firstly make an attempt to settle the dispute via (a) consultation. If the dispute cannot be solved through consultation, they may require an arbitration body in China to decide the case via (b) mediation or (c) arbitration. An alternative is that they may include an arbitration clause in the contract in advance, stating that, by signing the contract, both parties agree to choose a certain arbitration body for arbitration or mediation in the case of any future disputes. It is noted that the *Offshore Cooperation Regulation* does not refer to the court to settle the case. Whether such disputes over cooperation can be settled via litigation is therefore unclear under the Regulation.

2.5 Risks related to offshore operations

Drilling for oil and gas offshore is a dangerous task with multiple hazards. Accidents are certainly caused by a number of natural, technical, and technological factors combined.

2.5.1 Various risks stemming from offshore drilling

The types of oil rig accidents vary based on different grounds. Normally speaking, there are two aspects in particular which control the notion of risk: (1) the extent of possible harm and (2) the likelihood thereof.²¹⁹ In terms of the risks stemming from offshore drilling, some types of accidents are particularly prevalent: the most common offshore accident scenarios include but are not limited to (a) fire and explosion; (b) slip and fall; (c) platform collapses; (d) collision; (e) adverse weather; (f) equipment failure; (g) loss of well control; and (h) human error (i.e., poor safety and training, improper equipment maintenance).²²⁰ Notably, although some risks are generally mentioned in the literature, many are not typical to the offshore industry. Moreover, some of these risks (i.e., slip and fall, equipment failure) will not be focused on in this dissertation, unless such risks relate to the prevention of well blowouts.

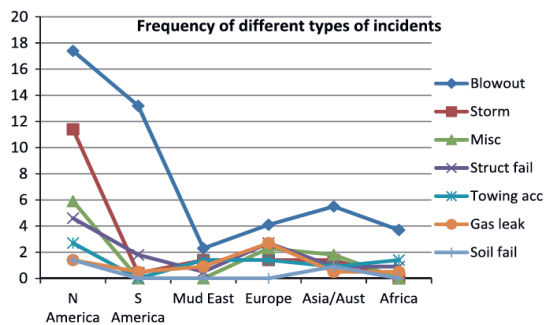
For instance, based on the published reports and data on exploration and production

²¹⁹ Koch & Koziol (2002), 412.

²²⁰ The above types of offshore drilling accidents are summarised from several sources. See Chopra 2019; BSEE 2017.

oil activities, Ismail *et al.* (2014) examined a number of accidents over the last 56 years (1956-2012) in the offshore oil industry,²²¹ where the common primary causes were classified under (a) blowout,²²² (b) storm, (c) structural failure, (d) towing accident, (e) gas leak, and (f) soil failure. From 219 accidents recorded, the highest percentage was due to blowouts with 46.1 percent in all the regions, followed by storms and hurricanes with 15.1 percent, and structural failures with 11.4 percent. Figure 7 demonstrates the frequencies of various types of incidents on a regional basis in the world, among which North America is at the top of all types of accidents.

Figure 7 Frequency of different types of offshore oil incidents in the world (by region)²²³



As sketched earlier, a number of dangers are present at sea in the course of offshore drilling, which may be generated by daily offshore operations or by particular incidents. Both are terrifying events for human health, threatening the economy and the environment, and it is generally associated with oil spills. Technically, an *oil spill* refers to the release of a liquid petroleum hydrocarbon into the environment due to human activities or natural disasters and is a form of pollution. The term is usually given to marine oil spills, where oil is released into the ocean or coastal waters.²²⁴ Oil spills can be caused by the release of crude oil from tankers, offshore platforms, drilling rigs and wells, leakage of refined petroleum products (such as gasoline and diesel) and their by-products, or the pollutants of any oily refuse or waste oil.²²⁵ Therefore, an oil spill may either be the result of pollution generated

²²¹ A detailed description of offshore drilling accidents is given in his study. See Ismail *et al.* 2014.

²²² A *blowout* is an uncontrolled release of crude oil from an oil well after pressure control systems have failed. Modern wells have blowout preventers designed to prevent such an occurrence. An accidental spark during the blowout can lead to a catastrophic oil fire. A discussion on blowout is given in section 3 (well control insurance) of chapter 6.

²²³ The diagram is about evaluating accidents in the offshore drilling of petroleum: regional picture and reducing impact. See Ismail *et al.* (2014), 31.

²²⁴ Fingas (2012), 1-20.

²²⁵ Westergaard 1987.

from daily operations (daily oil spill) or the undesired consequence of accidents that occur during offshore drilling operations (oil spill accident).²²⁶

According to Chinese legislation, an oil spill accident is the leakage of crude oil and its refined products under abnormal operating conditions, where it classifies oil spill accidents into three categories: small, medium and large ones.²²⁷ An accident with oil spillage below 10 tonnes is a small oil spill; an accident with the oil spillage of 10 up to 100 tonnes is a medium one; and an accident with the oil spillage of more than 100 tonnes is considered large.²²⁸ The amount of oil spill, together with the location of offshore platforms, according to law, are the two most fundamental factors in determining whether and, if so, when liable operators should report the oil spill to the competent department.²²⁹ Chapter 7 will explain this reporting system of oil spill accidents extensively from the regulatory perspective.²³⁰

2.5.2 Offshore drilling accidents in the world

Technically speaking, offshore drilling operations do not frequently cause incidents, but, if damages should ensue, it would most likely be immense.²³¹ The map below shows the largest marine oil spills in history (1901-2010), from drilling operations to tanker accidents, as well as a number of other notable spills.²³²

Figure 8 The largest oil spills in history (1901-2010)²³³

²²⁶ Shigenaka (2011) adopts 'daily oil spill' and 'oil spill accident' to respectively clarify the oil spill according to different reasons. The former is more related to pollutant discharge under safety regulations, while the latter concerns the unexpected incident during the offshore operation.

²²⁷ *Measures for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (《中华人民共和国海洋石油勘探开发环境保护管理条例实施办法》) (hereinafter the *2016 Measure*) was issued in October 2016. See Article 32 (4).

²²⁸ Article 32 (4) of the *2016 Measure*.

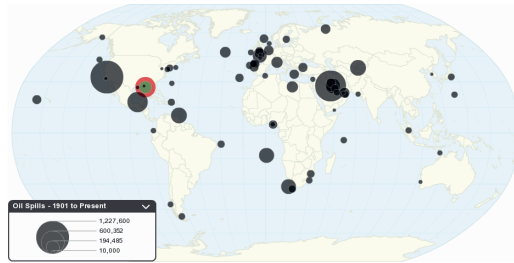
²²⁹ Article 19 of the *2016 Measure*.

²³⁰ See *infra* section 3.3 of chapter 7.

²³¹ Smith *et al.* (2011) addressed that the oil discharge from an offshore facility is the kind of risk that has a low probability of occurrence but, once it takes place, the damage can be disastrous.

²³² There was not much attention to oil spills until in 1967, when one supertanker, *Torrey Canyon*, ran aground on Pollard Rock off the coast of England. The *Torrey Canyon* disaster made headlines around the world. Legislation governing oil tankers carried oil was passed after the crash.

²³³ The map is provided by ChartsBin statistics collector team in 2010. The largest oil spills in history from 1901 to present is available at <http://chartsbin.com/view/mgz> (accessed on April 9, 2022). Only spills that have spilled over 10,000 tonnes are included. The amount of oil spill in an incident includes all oil lost to the environment, including the oil burnt or remained in a sunken vessel.



Catastrophic consequences probably accompany oil spill accidents. First of all, the quantity of oil spilled during accidents has ranged from a few hundred tonnes to several hundred thousand tonnes but, even so, the volume is a limited measure of damage or impact. Smaller oil spills have already proven to have a great impact on ecosystems, such as the *Exxon Valdez* oil spill in March 1988 because of the remoteness of the site and the difficulty of an emergency environmental response.²³⁴ Second, offshore oil accidents not only put workers' health and life at risk but also damage vulnerable marine ecosystems due to the crude oil and refined fuel spills from rigs and tankers, and both of them lead to considerable economic losses. By way of illustration, the *Piper Alpha* disaster in the North Sea remains the worst offshore oil disaster in history after 167 people lost their lives in July 1988.²³⁵ Twenty-two years later, the blowout, fire, and sinking of the *Deepwater Horizon* in April 2010,²³⁶ led to the tragic loss of eleven lives, together with a horrible disaster that spewed a large amount of oil into the Gulf of Mexico.²³⁷ The public accordingly criticised that the failure of the *Deepwater Horizon's* blowout preventer (BOP) sent a stark signal that the offshore oil industry's ultimate defence against the risk of blowouts for nearly

²³⁴ The Exxon Valdez oil spill occurred in Prince William Sound, Alaska, March 24, 1989, when Exxon Valdez, an oil tanker struck Prince William Sound's Bligh Reef and spilled 37,000 metric tonnes of crude oil over the next few days. It is considered to be one of the worst human-caused environmental disasters. The Valdez spill is the second largest in US waters, after the 2010 *Deepwater Horizon Oil Spill*, in terms of volume released. Prince William Sound's remote location, accessible only by helicopter, plane, or boat, made government and industry response efforts difficult and severely taxed existing response plans. The region is a habitat for salmon, sea otters, seals, and seabirds. The oil, originally extracted at the Prudhoe Bay Oil Field, eventually affected 2,100 km of coastline, of which 320 km were heavily or moderately oiled. More information on this spill is addressed in NOAA 1992, 2014.

²³⁵ The *Piper Alpha* case killed 167 workers on July 6, 1988 off the coast of Aberdeen, which is the world's deadliest oil rig accident ever. A series of explosions ripped through the Piper Alpha platform in the North Sea, UK. Engulfed in fire, over the next few hours most of the oil rig topside modules collapsed into the sea. This offshore oil disaster affected 10% of UK oil production and led to financial losses of an estimated GBP 2 billion (the equivalent of USD 5 billion or EUR 4.53 billion in 2019). See, Maritime Executive 2018.

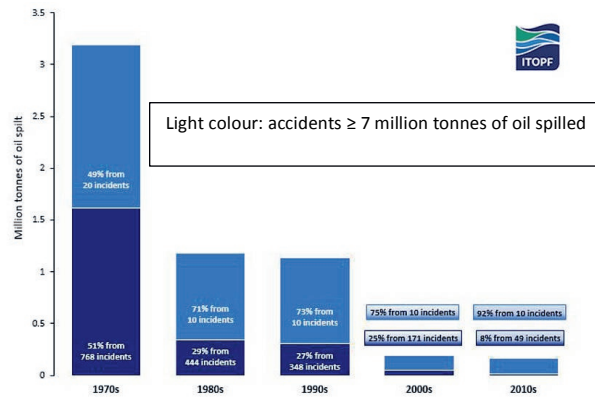
²³⁶ The *Deepwater Horizon Oil Spill* in 2010 is considered to be the largest marine oil spill in the history of the petroleum industry and estimated to be 8% to 31% larger in volume than the previous largest, the *Ixtoc I oil spill*, also in the Gulf of Mexico. The US Federal Government estimated the total discharge at 4.9 million barrels (which is around 560,000 metric tonnes). After several failed efforts to contain the flow, the well was declared sealed on September 19, 2010. Reports in early 2012 indicated that the well site was still leaking. This oil spill accident is regarded as one of the largest environmental disasters in American history. See, NOAA 2010.

²³⁷ McKenzie 2010.

ninety years was not infallible.²³⁸ Last but not least, an oil spill is always a long-tail problem. It is reported that a large amount of oil can be continually leaking from the site of an oil production platform in the aftermath of an accident.²³⁹ Such a series of oil spills caused by damaged tankers, pipelines, and offshore rigs result in immediate and long-term environmental damages that can last for decades.²⁴⁰

Over the past fifty years, the statistics for spills greater than seven tonnes from tankers show a marked downward trend, as illustrated below. When looking at the frequency and quantity of oil spills, it should be noted that a few substantial oil spill accidents account for a high percentage. Unfortunately, the data analysis of oil spilled from offshore platforms is not as complete as that from tankers, which may require further study.

Figure 9 The number of spills from 1970 to 2018²⁴¹



2.5.3 Risks caused by offshore drilling in China

Not all offshore accidents data is publicly available, as countries with a fully

²³⁸ *Ibid.*

²³⁹ Since 2004, between 300 and 700 barrels (approx. 42 to 100 tonnes) of oil per day have been leaking from the site of an oil-production platform 12 miles off the Louisiana coast, which sank in the aftermath of *Hurricane Ivan*. The oil spill, which officials estimate could continue throughout the twenty-first century, will eventually overtake the 2010 BP *Deepwater Horizon Oil Spill* as the largest ever, but there are currently no efforts to cap the many leaking wellheads. See Washington Post 2018.

²⁴⁰ West 2019.

²⁴¹ The figure is provided by ITOPF (2019). For historical reasons, spills are generally categorised by size, <7 tonnes, 7-700 tonnes, and >700 tonnes, although the actual amount spilled is also recorded. Information is now available on over 10,000 incidents, the vast majority of which fall into the smallest category, i.e., <7 tonnes. See ITOPF 2019. Based on the data from ITOPF (2019), the influence of a relatively small number of comparatively large spills on the overall figure can be shown. In particular, in the nine years 2010-2018, there have been 59 spills of 7 tonnes and over, resulting in 163,000 tonnes of oil lost; 92% of this amount was spilled in just ten incidents. One incident is responsible for about 70% of the quantity of oil spilled this decade. In terms of the volume of oil spilled, the figures for a particular year may be severely distorted by a single large incident. It is clearly illustrated by incidents such as Sanchi (2018), with 113,000 tonnes spilled.

State-owned offshore industry may not disclose the information on offshore accidents to the public.²⁴² Nevertheless, some data collected from the previous offshore events below indicates that the situation is similar to that in the world. Oil spills from daily operations or offshore accidents endanger the marine ecosystem of Chinese waters. The latter can, in the meantime, cause unexpected personal injuries and substantial economic losses. Even the oil discharge from an offshore rig is the kind of risk that has a low probability of occurrence; once it takes place, the damage can be disastrous and long-lasting.²⁴³

Note that the Bohai Bay is an area that has been often developed with exploitable oil and favourable natural conditions, but it also experienced quite a few offshore accidents in the past decades.²⁴⁴ Dated back to 1979, the *Bohai-2* oil rig accident²⁴⁵ in the Gulf of Bohai off the coast of China was a fatal offshore disaster, which caused the death of 72 out of 76 people on board²⁴⁶ and the direct economic loss was over CNY 37 million.²⁴⁷ Half a year later, a blowout of the *Bohai-3* oil rig resulted in the death of 70 people in June 1980.²⁴⁸ In July 1988, another blowout of the *Bohai-7* platform that was kept in the Bohai Bay for 28 hours, and negatively impacted the marine resources and the environment of the Bohai Bay.²⁴⁹ Apart from the Bohai Bay, other sea areas within the Chinese waters also experienced catastrophic offshore incidents. In 1981, an accident occurred in the South China Sea as a severe tropical storm forced the *Bohai-6* oil rig to slip from its original location. In October 1983, a drill-ship named *Glomar Java Sea* positioned at the south of Hainan Island was supposed to commence drilling operations in the sea area. Unfortunately, it capsized and sank due to tropical storms, leading to the death of 81 people.²⁵⁰

It was reported that over 20,000 tonnes of crude oil were released polluting the water areas from the 1970s to the 1980s; at least 1,856 cases of oil spills happened in the offshore oil sector from the late 1980s to the 1990s. At the start of the twenty-first century, despite this industry developing more advanced technology for oil

²⁴² IOGP 2010.

²⁴³ Smith *et al.* 2011.

²⁴⁴ CNPC 2016c.

²⁴⁵ State Council 1989; Dong & Wang 2009; Fang 2013; Liu 2018; Dong & Wang 2009; Shannon 2010; Offshore technology 2019.

²⁴⁶ *Ibid.*

²⁴⁷ CNY 37 million = approx. EUR 481,000 (The current exchange rate for the EUR/CNY was about 0.13 in 2019). Also see Wei *et al.* 2003.

²⁴⁸ Xu & Song 1991.

²⁴⁹ *Ibid.*

²⁵⁰ Enregy Global News 2019; Offshore Technology 2019.

exploitation and production, the great risks arising from offshore drilling remained. One year after the disastrous *Deepwater Horizon Oil Spill*, in 2011, a series of oil spills occurred on the Penglai 19-3 oilfields in the Bohai Bay, polluting over 5,500km² of Chinese waters. The official investigation report revealed that this man-made accident had a disastrous impact on the environment, causing immense damage to the fishery, aquaculture, and tourism, triggering another fierce debate about this particular type of damage.

3. Summary

After sketching out the hierarchy of the Chinese legal system, it becomes clear that the legal framework addressing damage compensation caused by offshore drilling is built upon both formal sources of law as well as non-formal sources of law, which offers a legal basis for understanding and applying laws in dealing with the risks arising from offshore oil operations.

Apart from the legal background, the development of the offshore drilling industry also merits attention. In fact, Chinese offshore drilling is divided into two phases according to the implementation of the *Offshore Cooperation Regulation* in 1982, where it addressed that this industry started to follow a contract-based approach between the State-owned China National Offshore Oil Cooperation (CNOOC) and foreign oil enterprises. Currently, many major offshore projects are located in the Bohai Bay, while the CNOOC is also ambitious to initiate more deepwater projects in the South China Sea, as a fairly large amount of oil is believed to be reserved in this area.

However, offshore oil development, especially deepwater drilling, is technically challenging, extremely costly, and accompanied by substantial risks. China, therefore, adopted a joint development model as it is in favour of sharing offshore-related risks from both technical and economic perspectives. Foreign offshore companies are also interested in cooperating with the CNOOC as they are ambitious to develop the large oil reserves located in Chinese waters.

However, a variety of risks are present during offshore drilling. Based on the data collected on a global scale, it is noted that an offshore drilling accident is a long-tailed problem associated with catastrophic consequences to inflict vast economic damage, human suffering, as well as marine ecological damage. Some shocking and

unexpected accidents in history indicate that the offshore oil industry is costly and risky both in the world and in China. Damages in the course of offshore oil exploration and exploitation may trigger a series of legal issues, such as who is liable for the losses, who are the victims, what losses are recoverable, and how to assess different kinds of losses. The *Offshore Cooperation Regulation* stipulates rules addressing the exploration and exploitation, while it pays scant attention to tackling the damage arising from it. Rules relating to the latter issue are addressed in several other laws and regulations, which will be presented in the following chapters (chapters 3-5).

Chapter 3 Substantive rules concerning damage resulting from offshore drilling in China

After the introduction of the Chinese offshore industry in the past decades, it is noted that offshore oil exploration and exploitation in China is roughly divided into two phases: the first phase of development before the promulgation of the *Offshore Cooperation Regulation* and the establishment of the CNOOC (1949-1982) and the second phase of development after that (1982 - present).²⁵¹ This chapter and the following two chapters (chapters 4-5) examine which rules are concerned with compensating damage stemming from offshore oil activities.

Following an offshore incident, various kinds of damages may occur, which may include but are not limited to personal injury and fatalities, property damage, marine ecological damage, and losses suffered by offshore-related sectors such as fishery, aquaculture, and tourism. Since liability may also arise from the breach of contract between the contracting partners for the (joint) venture of offshore activities, and/or contract with the downstream parties and related businesses, e.g., shipping and transportation, and storage of produced oil, this study focuses on liability for damage to third parties; hence the contractual liability is not discussed.

It is worth noting that liability for damage resulting from offshore drilling cannot be separated from environmental liability rules in general; on the contrary, the basis of liability for damage resulting from offshore drilling is rooted in the general rules regarding environmental liability. In this sense, this chapter sketches the pieces of legislation addressing environmental liability under the Chinese legal system, as several provisions in these laws and regulations contribute to the determination of liability for damage arising from offshore drilling.

This chapter is structured as follows: after describing the term ‘damage resulting from offshore drilling’ (section 1), section 2 addresses liability rules in relation to damage stemming from offshore drilling. Section 3 specifies a variety of types of damages caused by offshore drilling and whether these damages are recoverable by law. Section 4 summarises.

²⁵¹ See *supra* section 2.2 of chapter 2.

1. Definition of ‘damage resulting from offshore drilling’

Before going forward, it is necessary to clarify the meaning of ‘damage resulting from offshore drilling’ or the term ‘offshore oil damage’ under the Chinese legal system before examining the liability and compensation systems that apply to such damage.

The first step is to define the latter part of this phrase. In the light of Article 94 (1) of the *Marine Environment Protection Law* (MEPL), ‘damage to the marine environment’ refers to *‘any direct or indirect introduction of oil into the marine environment, deleterious effects of which involve but not limit to harm to marine living resources, hazards to human health, hindrance to fishing and other legitimate operations at sea, impairment of the utilisation quality of sea water and degradation of environment quality.’* In other words, ‘damage to the marine environment’ may take the forms of personal injury via the environment, property damage or economic losses via the marine environment and marine ecological damage.²⁵² The next step is to specify the term ‘offshore drilling.’ Based on Article 30 (2) of the *Offshore Cooperation Regulation*, ‘offshore drilling’, also known as ‘*offshore oil exploration and exploitation*,’ refers to operations as offshore oil exploration, exploitation, production, storage, and transportation through pipelines, which is equivalent to all forms of activities relating to offshore drilling. This explanation is also reinstated in the *Offshore Exploitation Regulation* as well as the *Marine Engineering Regulation*.²⁵³

Based on these provisions, ‘damage resulting from offshore drilling,’ or ‘offshore oil damage’ for short, is described below:

In the offshore oil industry, all kinds of operations that negatively impact the marine environment, which includes but is not limited to personal injury, property damage, and economic losses via the environment, and various forms of marine ecological damage.

²⁵² See *infra* section 3 of this chapter.

²⁵³ *Marine Engineering Regulation* broadens the scope of environmental protection in the offshore oil exploration and exploitation into various forms of ‘marine engineering works.’ Article 3 of the *Regulation* states that ‘marine project’ refers to the newly built, restructured or expanded projects that are constructed for the exploitation, utilisation, protection, and restoration of marine resources, and whose main parts are situated along the coastline to the side of the sea. ‘Projects of offshore oil industry’ fall into this field because ‘projects of marine mineral resources exploration and exploitation, and ancillary works’ is one type of marine projects. The definition is provided by the *Marine Engineering Regulation*.

2. Rules addressing liability for damage resulting from offshore drilling

In this part, sections 2.1 and 2.2 respectively examine the basis of liability and requirements for liability. Section 2.4 concerns two particular circumstances: joint and several liability and liability under a third party's fault. It also discusses the duties relating to platform workers. Section 2.5 is devoted to the defences against liability, followed by a discussion on legal remedies (section 2.6).

2.1 Basis of liability

This part firstly sketches applicable rules in the legal instruments addressing environmental liability. Then, a theoretical discussion on whether strict liability or 'no-fault' or is employed under the Chinese legal system is provided.

2.1.1 Liability rules before 2021

Before the promulgation of the *Civil Code* in 2021, civil law, environmental law, as well as tort law provided remedies for environmental damage in China. Environmental liability rules can be found in the *General Principles of Civil Law*, the *Environmental Protection Law*, and the *Tort Law*.

The *General Principles of the Civil Law of the People's Republic of China* (hereinafter GPCL) were first issued in 1987 and revised in 2009; the provisions in respect of civil liability (chapter VI, from Articles 106 - 134) remained the same in both versions. Chapter VI not only set forth rules for establishing civil liability but provided several legal remedies for the act of tort (Article 134). Article 124 of this chapter provided liability for environmental pollution, which states that:

'Any person who pollutes the environment and causes damages to others in violation of provisions for environmental protection and the prevention of pollution shall bear civil liability in accordance with the law.'

The violation of a relevant regulation was a prerequisite to the establishment of a strict liability system according to this article.²⁵⁴

²⁵⁴ There is a confusion concerning the notion of 'strict liability' and 'no-fault' in Chinese literature. A discussion is given in section 2.1.2 of this chapter. More information about the interpretation of Article 124 of the GPCL, see Wang 2010b, 320-323. Legal Work of the Standing Committee of the National People's Congress Committee Room of the Civil Law is in charge of drafting pieces of legislation, including the *Tort Law*. In this Interpretation, drafters of the *Tort Law* point out that 'no-fault' is applicable to environmental pollution. See Cheng (2015), 98; Yu *et al.* (2014), 14-15.

However, liability for environmental pollution, under the *Environmental Protection Law of the People's Republic of China* (hereinafter *EPL*) of 1989, was stipulated differently. Article 41 of the EPL stated that,

'A unit that has caused an environmental pollution hazard shall have an obligation to eliminate it and provide compensation to the unit or individual that suffered direct losses.'

Article 41 of the *EPL of 1989* echoed Article 124 of the GPCL, yet without requiring the violation of relevant provisions.²⁵⁵ Debates have been held on which provision prevails and how to interpret the requirements of violation under the GPCL in the Chinese legal scholarship.²⁵⁶

The adoption of the *Tort Law of the People's Republic of China*²⁵⁷ (hereinafter *Tort Law*) in 2009 has brought an end to these debates. The *Tort Law* devoted an entire chapter (Chapter VIII, liability for environmental pollution) to the civil liability of enterprises that pollute the environment. Article 65-68 of the *Tort Law* also regulated the strict liability for environmental damage,²⁵⁸

'Where any harm is caused by environmental pollution, the polluter shall assume the tort liability.'

As explained in chapter 2 (section 1), Article 65 of the *Tort Law* was considered a special provision that differed from Article 124 of the GPCL. According to Article 92 of the *Legislation Law of the People's Republic of China* (hereinafter *Legislation Law*), when a special provision differed from a general provision, the special provision should prevail. Therefore, any polluter who caused harm would have tort liability even if his pollution discharge were lawful.²⁵⁹

The *EPL of 1989* were modified in 2015. The revised EPL reiterates strict liability for environmental damage, without any requirement of violating relevant provisions.²⁶⁰ Article 64 of the EPL stipulates that liability for environmental damage should be determined in accordance with relevant rules of the *Tort Law*.²⁶¹

²⁵⁵ Faure & Liu (2013), 248-249.

²⁵⁶ Faure & Hu (2011), 231-233

²⁵⁷ *Tort Law of the People's Republic of China* was adopted at the 12th session of the Standing Committee of the Eleventh National People's Congress on December 26, 2009. It came into force on July 1, 2010 and had been annulled on January 1, 2022.

²⁵⁸ Cheng (2015), 574; Yu *et al.* (2014) 21-50; Yang (2018a), 76-82.

²⁵⁹ Yang (2018a), 79.

²⁶⁰ Cheng (2015), 574; Yu *et al.* (2014), 21-50; Yang (2018a), 76-82.

²⁶¹ Article 64 of the EPL is further explained by the Supreme People's Court in the *Interpretation of Several Issues on the Application of Law in the Trial of Disputes over Liability for Environmental Torts (Interpretation for Environmental Torts)*. Article 1 provides that 'a polluter shall bear tort liabilities regardless of fault' as regards damages caused by environmental pollution. If the polluter claims no liability on the ground that the discharge of

Under the GPCL, EPL and the *Tort Law*, liability for environmental pollution is regarded as a special tort liability, where polluters bear the liability for damage regardless of whether they violate legal duties and pollute the environment by act or omission.²⁶² As a result, a strict liability system governs environmental liability matters in China.²⁶³

2.1.2 Liability rules after 2021

Promulgated on January 1, 2021, the *Civil Code of the People's Republic of China* (hereinafter the *Civil Code*) is considered a codification of private law relating to property, liability, contract, family, and obligations, which typically cover the entire system of private law exhaustively.²⁶⁴ As the first piece of legislation named after 'Code' (fadian) in China, the promulgation of the *Civil Code* is regarded as a milestone in the Chinese legal system. As mentioned earlier, it did not mean abolishing the previous laws but integrating and to systematising multiple applicable laws into one basic law.²⁶⁵

Accordingly, although this new legislation has come into force in 2021, the legal consideration of environmental torts mentioned above - the general rules of civil liability under the GPCL and the specific rules considering environmental pollution under the *Tort Law* - remain the same in the new *Civil Code*, which is shown in the table below. One exception is that the *Code* not only regulates the ecological damage that is recoverable but also specifies which categories of ecological damage can be covered, the details of which will be presented in section 3.6 of this chapter.

Table 3 The interrelation between the old and new legislation

	Since 2021 (<i>Civil Code</i>)	Before 2021 (GPCL and <i>Tort Law</i>)
General rules of civil liability	Chapter VIII Civil Liability, Book One General Provisions Article 176-180	Chapter VI In the GPCL

pollutants complies with national or local pollutant discharge standards, the Court should not support such a claim.

²⁶² Yang (2018a), 77.

²⁶³ See Faure & Liu (2013), 248-249; Wang (2011). However, when examining environmental liability rules in China, some researchers address that a no-fault system applies under the *Tort Law* in the sense that Article 65 unconditionally requires the polluter to be liable for the harm caused by the act of pollution. See Cheng (2015), 574. Yu *et al.* (2014), 21-50; Yang (2018a), 76-82. The debate of whether 'no-fault' or 'strict liability' is adopted in the Chinese literature is given in section 2.1.2 of this chapter.

²⁶⁴ The *Civil Code of the People's Republic of China* (《中华人民共和国民法典》) was adopted at the 3rd Session of the Thirteenth National People's Congress of the People's Republic of China. It was issued on May 28, 2020 and came into force on January 1, 2021.

²⁶⁵ See *supra* section 1.2.2 of chapter 2.

Specific rules of civil liability	Book Seven Tort Liability Article 1164-1258		<i>Tort Law</i>
Rules of environmental pollution	Article 1229-1233	Chapter VII Liability for Environmental Pollution and Ecological Damage, Book Seven Tort Liability	Article 65-68 of the <i>Tort Law</i>
Rules of ecological damage	Article 1234-1235		N/A

Given that the *Civil Code* is newly issued, and its rules have not been widely applied, we will still use the provisions under the GPCL and *Tort Law*, as nearly all the rules are identical to those under the *Civil Code*. Any changes in the *Civil Code* that differ from the previous laws will be illustrated, in particular. It restricts the laws that are replaced by the *Civil Code*, such as the GPCL, *Tort Law*, and *Contract Law*. Other legal instruments that are not affected by it, such as the EPL, MEPL, *Offshore Cooperation Regulation*, and *Offshore Exploitation Regulation*, are not involved.

2.1.3 Rules under the MEPL

It is acknowledged that the *Civil Code* (previously the GPCL and *Tort Law*) is applicable to all tort claims, while the EPL applies to environmental issues in general. For tort claims arising out of marine environmental pollution in particular, one needs to refer to another special law: ***Marine Environment Protection Law of the People's Republic of China***²⁶⁶ (hereinafter MEPL).

In fact, the MEPL was the first legal instrument in China that regulated strict liability for environmental damage.²⁶⁷ Dating back to 1983, Article 42 under the *MEPL of 1983* addressed that the party who suffers from marine environmental pollution is entitled to claim compensation from the polluter. Although the MEPL was revised several times, the strict liability remains the same until day.²⁶⁸

The current revision of the MEPL entered into force in 2017. Article 89(1) of the MEPL provides guidance on how to determine the liability when damage to the marine environment occurs, stipulating that:

'Any party that is directly responsible for the damage to the marine environment shall eliminate the damage and compensate for the losses; in case the pollution damage to the marine environment is entirely caused by an intentional act or a fault

²⁶⁶ *Marine Environment Protection Law of the People's Republic of China* was first adopted in 1982. The latest version was revised in 2017.

²⁶⁷ Yu *et al.* (2014), 2-3.

²⁶⁸ Zhang (2014); Yu *et al.* (2014), 129-130.

of a third party, that third party shall relieve the damage and be liable for the compensation.'

This provision implies that the doctrine of strict liability applies to damage to the marine environment under the MEPL,²⁶⁹ as the polluter is liable for the damage regardless of whether he intentionally or negligently causes damage to the marine environment. Meanwhile, the polluter may escape from the liability if such damage entirely results from a third party. In other words, two parts constitute this article: (1) if the polluter causes the damage, the polluter is liable for eliminating the danger and compensating the losses; (2) if the damage is entirely due to the intent or negligence of a third party, the third party should be held liable.

As illustrated in section 1, 'damage to the marine environment' under the MEPL, or 'marine pollution' for short,²⁷⁰ refers to 'any direct or indirect introduction of substances or energy into the marine environment that results in deleterious effects.'²⁷¹ Therefore, any person or entity that pollutes the marine environment and causes personal injuries or economic losses to others should bear the liability for eliminating such damage and compensating the losses.²⁷² This article concerning liability for environmental pollution under the MEPL is applicable to damage resulting from offshore drilling in the sense that such damage is a form of damage to the marine environment.²⁷³

A common denominator of strict liability regimes is the fact that liability typically lies with the 'holder,'²⁷⁴ which is either a person or an entity that is in a position to control the risks covered and that is presumed to draw at least some (not necessarily monetary) benefits from the source of harm.²⁷⁵ Recall that chapter 2 (section 2.4) introduced that operators who participate in offshore oil activities are liable for their operations; they are seen as controlling the risks stemming from offshore drilling.

2.1.4 A confusion between strict liability and no-fault regarding environmental damage in China

Based on the environmental liability rules sketched above, liability for damage

²⁶⁹ *Ibid.*

²⁷⁰ Yang (2018a), 87.

²⁷¹ Article 94(1) of the MEPL.

²⁷² Yang (2018a), 87.

²⁷³ See *supra* section 1 of this chapter.

²⁷⁴ Koch & Koziol (2002), 414.

²⁷⁵ Koch & Koziol (2002), 395.

resulting from offshore drilling is one kind of liability derived from these provisions, where strict liability applies.²⁷⁶ That is, whether the polluter in such cases is at fault or not, he will bear the liability as long as the damage is caused by his act of pollution. There is a confusion in the Chinese literature. In most cases, the notion of ‘strict liability’ and ‘no-fault’ are used interchangeably in Chinese academic writings.²⁷⁷ Some researchers point out that a no-fault system, in essence, is equal to a strict liability scheme.²⁷⁸ This view is supported by *Black’s Dictionary*, which considers the term ‘strict liability’ as equivalent to ‘liability without fault,’ or a ‘no-fault’ system.²⁷⁹ In the case of environmental pollution, usually, there is no need for the victim to prove the fault or negligence of the polluter in order to obtain compensation. This may be the reason why these scholars address no-fault systems and strict liability as similar systems.²⁸⁰ On the contrary, some scholars argue that strict liability is inconsistent with a no-fault system.²⁸¹ In their viewpoints, for strict liability, whether the polluter is negligent or not is of great importance to determine the liability. In other words, if the polluter causes the environmental pollution without any intention or negligence, his liability might be reduced to a certain extent; while the polluter will bear the full liability when he intentionally or negligently causes such pollution. In contrast, the factor of negligence is irrelevant in the case of a no-fault system.²⁸² That is, the polluter will bear the liability regardless of whether he negligently causes the pollution or not. A third opinion is present that the implication of these two notions are similar, yet a distinction should be made between them under specific circumstances. This is because ‘strict liability’ is a notion derived from the common legal system while the ‘no-fault system’ is rooted in the civil law system.²⁸³ Some western scholars, by comparison, address the idea of strict liability from a different perspective. For example, a strict liability scheme, according to Fiore’s opinion, is a hybrid legal system. Although it belongs to the tort system, it is halfway between the no-fault and negligence systems. Like a no-fault scheme, the strict liability system is not fault-based; the difference between them is far from being

²⁷⁶ Faure & Liu (2013), 248-249; Wang (2011).

²⁷⁷ Cheng (2015), 99. Hou (2014), 69.

²⁷⁸ Cheng (2015), 99.

²⁷⁹ Garner (2009), 998. Strict liability does not depend on actual negligence or intent to harm, but it is based on the breach of an absolute duty to make something safe. Strict liability most often applies either to ultra-hazardous activities or in products-liability cases. Also termed ‘absolute liability’ and ‘liability without fault’.

²⁸⁰ Fiore (2009), 416-418.

²⁸¹ Wang (2003), 131-132.

²⁸² *Ibid.*

²⁸³ Wang (2006b), 5; Hou (2014), 69.

insignificant. Fiore argues that at least two differences exist between strict liability and no-fault. On the one hand, within a strict liability system, evidence of damage is not sufficient to make a claim result in indemnification; namely, the existence of the fact of damage is not enough to constitute a liability. Contrary to no-fault, a strict liability system requires a link to be made between the act of pollution and the damage generated by the potential polluter. Only if a causal effect between these two key factors is shown, could victims claim compensation from the polluter. On the other hand, for a strict liability scheme, compensation is not (or at least not as a first resort) financed through public funds but is funded out of the polluter's own resources.²⁸⁴ Put simply, another significant difference between strict liability and no-fault lies in compensation being related to their liability,²⁸⁵ which greatly matters in this study. Based on this theory, under a strict liability system, the victim of the damage arising from offshore drilling has to prove a causal link between the act of pollution and the damage that occurred; moreover, the victim claims compensation from the polluter. In contrast, under a no-fault system, the victim has no duty to prove the causal link; and furthermore, he will pursue compensation from certain public funds.

In fact, the various causes of action can nevertheless all be allocated along the scale between fault and no-fault liabilities without overreaching.²⁸⁶ Given that a strict liability system is liability based, it belongs to the tort system; by contrast, a no-fault scheme is an entirely different system, as it is not a liability system.²⁸⁷ According to Fiore's standpoints, the provisions of environmental liability sketched above enjoy features of strict liability. To establish environmental liability under the Chinese legal system, one has to prove three factors: (a) the act of pollution, (b) the fact of damage, and (c) the causal link between the act of pollution and the fact of damage.²⁸⁸ The third element regarding the causal link indicates to the first feature of a strict liability scheme. Moreover, the polluter who causes the damage is obliged to pay the compensation based on its own assets,²⁸⁹ which complies with the second feature of strict liability.

Given these arguments, this study employs the term 'strict liability' to represent the

²⁸⁴ Fiore 2009; Faure (2009), 416-420.

²⁸⁵ *Ibid.*

²⁸⁶ Koch & Koziol (2002), 409-410.

²⁸⁷ *Ibid.*

²⁸⁸ See *infra* section 2.2 of this chapter and section 3 of chapter 5.

²⁸⁹ See Articles 117, 119 and 124 of the GPCL, Article 65 of the *Tort Law*, and Article 89(1) of the MEPL.

liability for marine pollution under the Chinese legal system. In this study, liability without a need to prove the fault is considered strict liability; in contrast, a ‘no-fault’ system governs the compensation when it is outside tort liability. Although Chinese scholars widely adopt the term ‘no-fault’ in the former case, it would be misleading to use this term when discussing this topic. In the following chapters, the role of liability in compensating damage as a result of offshore drilling will be analysed theoretically, using a law and economics, as well as a comparative approach. Using the notion ‘strict liability’ rather than ‘no-fault system’ will ensure consistency in this study.

2.2 Requirements for liability

In the light of Articles 109-126 of the *Civil Code*, tort liability is employed to protect various types of rights and legal interests.²⁹⁰ Therefore, assessing that a right or legal interest exists and has been infringed is the first step to establish tort liability. In the context of damage to the marine environment, the subsequent steps include the determination of the act of pollution, the fact of damage and the causal link between the act and the damage.²⁹¹ These three requirements are also applicable to liability for damages caused by offshore oil exploitation. The *Interpretation of the Supreme People's Court of Several Issues on the Application of Law in the Trial of Disputes over Liability for Environmental Torts*²⁹² (hereinafter *SPC Interpretation of Environmental Torts*) specifies how to prove the environmental liability in particular cases.

2.2.1 Determination of the act of pollution

The act of pollution to the marine environment may refer to various forms of operations and activities in the course of offshore oil exploration and exploitation. A polluter’s act of environmental pollution may either be an act or an omission in this

²⁹⁰ It corresponds to Article 2 of the *Tort Law*.

²⁹¹ Cheng (2015), 574-581; Yang (2018a), 77-80.

²⁹² *Interpretation of the Supreme People's Court of Several Issues on the Application of Law in the Trial of Disputes over Liability for Environmental Torts* (《最高人民法院关于审理环境侵权责任纠纷案件适用法律若干问题的解释》) was adopted at the 1,644th session of the Judicial Committee of the Supreme People's Court on February 9, 2015, and came into force on June 3, 2015. Article 6 of the *Interpretation on Environmental Torts* states that ‘where the aggrieved party claims compensation in accordance with Article 65 of the *Tort Law*, the aggrieved party shall provide evidence to prove the following facts: (1) The polluter discharged the pollutants. (2) Damage has been caused to the aggrieved party. (3) The pollutants discharged by the polluter or their secondary pollutants are relevant to the damage.’

regard.²⁹³ Based upon Article 1229 of the *Civil Code*²⁹⁴ and Article 89 (1) of the MEPL, whether the act of pollution has violated certain rules is irrelevant in the case of constituting tort liability.²⁹⁵ Put simply, an operator who engages in offshore oil activities within the Chinese waters is obliged to compensate the damage as long as he causes such damage, regardless of whether his operations are legally permitted or not.

2.2.2 Determination of the fact of damage

The second requirement is an objective fact of damage. Before the 2021, the *Tort Law* did not list specific types of environmental damage nor did it clarify the scope of damage.²⁹⁶ The damage caused by an act of pollution might take a variety of forms, such as personal injury, property damage, and economic losses via the marine environment. Whether or not ecological damage to the marine environment was recoverable is unknown under the GPCL or the *Tort Law*. Scholars interpreted the environment prescribed in Article 65 of the *Tort Law* as a broad concept, including the living environment as well as the ecological environment.²⁹⁷ This situation has changed since 2021, as Article 1229 of the *Civil Code* adds that ‘ecological damage’ is also recoverable.

The polluter may also be mandated to bear environmental liabilities, even if his act of pollution does not lead to any ‘actual’ damage, but merely ‘endangers’ the personal or property safety of others.²⁹⁸ On the basis of Articles 1167 and 1229 of the *Civil Code*, the polluter will undertake his liability via ‘*ceasing the infringement act, removing the obstruction and eliminating the danger.*’ Theoretically, Article 1167 does not exclude the possibility to claim monetary compensation under such circumstances. In the course of offshore oil exploration and exploitation, the operator may be obliged to bear liabilities when his operations pose ‘great risk’ to others, and he may eliminate great risk by the above remedies.

A problem relating to Article 1167 is how to assess the word ‘endanger’ as the *Civil Code*, EPL and MEPL stay silent on this issue. According to Yang’s view, four

²⁹³ Yang (2018a), 88.

²⁹⁴ Article 65 of the *Tort Law* was nearly identical to this rule, but the *Tort Law* did not mention ‘ecological damage.’

²⁹⁵ Cheng (2015), 576-577.

²⁹⁶ Cheng (2015), 578.

²⁹⁷ Yang (2018a), 77; Yang 2010. Yang (2010) addresses that the notion of ‘environment’ in Article 65 of the *Tort Law* can be divided into the ‘living environment’ and the ‘ecological environment.’

²⁹⁸ Cheng (2015), 578.

circumstances can be treated as ‘endangering’ the personal or property safety of others, namely that (a) pose great risks to personal health; (b) cause property damage to the public; (c) cause damage to the property after the pollution; or (d) certain damage is taken place. Under any circumstance, it is presumed that ‘the fact of damage’ is constituted.²⁹⁹

2.2.3 Determination of the causation - presumption of causation

The last factor in determining the liability is the causal link between the act of pollution and the damage. For liability for environmental pollution, the element of causation between the pollution (act) and damage (fact) occupies a prominent position. Environmental pollution adopts the idea of strict liability and thus fault is not considered when liability is determined. In other words, a basic standard to determine whether there exists an environmental liability or not is causation.

As prescribed in the *Civil Code*, a presumption of causation is employed when determining the liability for environmental pollution.³⁰⁰ Article 1230 reads as follows:

‘Where any dispute arises over environmental pollution or ecological damage, the polluter shall assume the burden to prove that it should not be liable or its liability could be mitigated under certain circumstances as provided for by law or to prove that there is no causation between its conduct and the harm.’³⁰¹

Under this provision, the polluter is required to prove that a causal link does not exist between the act of pollution and the damage; otherwise, he will be held liable to compensate the damage. However, the existing statutes do not provide rules on how the requirement of causation should be applied. The present causation theory is largely developed by the SPC, as well as by Chinese scholars.³⁰²

As a result, if there is an objective basis to determine the causal link between the damage to the victim and the act of environmental pollution, the polluter in the act of environmental pollution will bear the tort liability for the victim.³⁰³ In this regard, causation is not only the legal basis to establish a causal link between the pollution

²⁹⁹ Yang (2018a), 79.

³⁰⁰ Yang (2018a), 84.

³⁰¹ Article 66 of the *Tort Law* was nearly identical to this rule, but the *Tort Law* did not mention ‘ecological damage.’

³⁰² Guo (2013) summarises different opinions among Chinese scholars concerning the issue of causation; Yang (2018a) analyses the causation in terms of environmental pollution.

³⁰³ Yang (2018a), 85.

and the damage, but also the foundation to determine whether or not the polluter should bear the liability for the damage caused by his act of environmental pollution.³⁰⁴

Based on this theory, such a presumption of causation requires the burden of proof to be shifted from victims to polluters in the case of claiming compensation through the courts in practice. Chapter 5 will take a closer look at what procedural rules should be followed in such circumstances.³⁰⁵

2.3 Moving beyond the original polluter

2.3.1 Joint and several liability

The rule of joint and several liability may apply to any situation in which the victim's injury arises from the actions of multiple parties,³⁰⁶ which is addressed in Article 1231 of the *Civil Code*.³⁰⁷ Based on this provision, whenever there is a likely probability that the polluter caused the injury, liability will be imposed, but its magnitude will be reduced proportionally to account for the uncertainty.³⁰⁸ Factors such as the types of pollutant and the volumes of emissions discharged by different polluters will be measured when determining the liability. It sets the polluter's liability equal to the actual harm multiplied by the probability that the polluter caused the injury.³⁰⁹ Yang (2018a) holds that the 'market share liability' is applicable in the case of tackling liability for environmental pollution.³¹⁰ When two or more polluters pollute the environment, and it is unlikely to determine whose act of pollution causes the damage, yet each act of pollution may contribute to the pollution, the situation in this regard is almost the same as that when determining the product liability.

Details of this provision are addressed in Article 3 of the *Interpretation of Environmental Torts*, where the legal proceedings as regards joint and several liability are delineated into three circumstances.

(1) When two or more polluters separately cause the pollution that leads to the same

³⁰⁴ *Ibid.*

³⁰⁵ See *infra* section 3 of chapter 5.

³⁰⁶ Korhauser & Revesz (2009), 109.

³⁰⁷ Article 1231 of the *Civil Code* states that 'where not less than two tortfeasors cause environmental pollution or ecological damage, the shares of liability shall be determined, according to the type, concentration, and quantity of pollutants, the manner, scope, and degree of ecological damage, the role of conduct in causing the harmful consequences, and other factors.' It corresponds to Article 67 of the *Tort Law*.

³⁰⁸ Ben-Shabar (2009), 91.

³⁰⁹ *Ibid.*

³¹⁰ Yang (2018a), 87.

damage, any polluter may be held fully liable for compensating the damage if the pollution caused by each polluter is *sufficient* to cause the total damage.³¹¹ Put differently, the victim is entitled to file against two or more polluters and prevails against only one; he may recover the full losses from any polluter. Joint and several liability applies.

(2) When two or more polluters respectively cause the pollution that leads to the same damage and the pollution caused by each polluter is *insufficient* to cause the total damage, the polluters are mandated to compensate the damage on the basis of the shares attributable to them.³¹² The magnitude of each polluter's liability is proportionally determined to account for his act of pollution. (a) If shares of the liability for each polluter can be determined, polluters should bear their liabilities according to their shares; (b) if shares of each polluter cannot be determined, all polluters will be required to compensate the damage evenly.

(3) Under the third circumstance, two or more polluters respectively cause pollution that results in the same damage. The pollution caused by certain polluters is adequate to cause the entire damage, while the pollution committed by other polluters merely contributes to partial damage. Certain polluters whose pollution is sufficient to cause the entire damage are required to take joint and several liability in terms of the share of the damage jointly caused by other polluters. Meanwhile, they are mandated to be liable for the entire damage. By contrast, other polluters whose pollution only leads to partial damage should bear the liability account for the partial damage. In this sense, each polluter's liability is defined as several liability rather than being joint and several liability in nature.³¹³

The economic cooperation between the CNOOC and foreign enterprises in the Chinese offshore industry is worth noting in this regard. As addressed in chapter 2, operators are granted the right to explore and exploit petroleum within the jurisdiction of China. If an accident occurs in the course of their activities, they are mandated to bear the liability and compensate the losses, while the CNOOC can be free from liability based on the petroleum contract. As the subcontractor, the CNOOC will be held liable only when it takes over the whole project from foreign operators. It is more likely that incidents happen in the course of oil exploration and exploitation, which is

³¹¹ Article 11 of the *Tort Law*. Article 3 of the *Interpretation of Environmental Torts*.

³¹² Article 1172 of the *Civil Code*. It corresponds to Article 12 of the *Tort Law*.

³¹³ Yang (2018a), 88-89.

usually before the take-over in that case. The foreign operator will be fully liable for this accident. This pattern of development indicates that foreign operators and the CNOOC undertake the entire liability in different phases respectively and thus may hardly take joint and several liability in practice due to this cooperation pattern.³¹⁴ In fact, judgments in some cases regarding damage caused by offshore drilling confirm this assumption.³¹⁵ For example, a series of oil spillages stemming from offshore drilling occurred in the Bohai Bay in 2011, which led to serious losses to the fishing industry in that area. In several cases initiated by affected fishermen and fishery companies, although all plaintiffs filed their lawsuits against the operator - ConocoPhillips China (COPC) and the CNOOC to compensate their losses, the courts considered that the CNOOC should not be liable for the damage, as the COPC was in charge of the project when the accident occurred.³¹⁶ Therefore, even though both the COPC and the CNOOC were sued, it was only the COPC that ultimately bore the liability. Nevertheless, it is theoretically possible that operators together with other entities or individuals in the same area accidentally contribute to the same damage. They will take joint and several liability in such a case.

2.3.2 A third party's fault

The determination of liability may differ if the pollution is the result of a third party's

³¹⁴ See *supra* section 2.4 of chapter 2.

³¹⁵ For more information about the 2011 Bohai case, see SOA 2011, 2012; COPC 2012. This accident will be discussed later in chapter 9.

³¹⁶ See (a) Civil Judgment of the First Instance of *Dou, Xingdao, et al. v. COPC & CNOOC Regarding Marine Pollution Dispute Settlement* given by Qingdao Maritime Court (都兴涛与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案一审民事判决书), (2015) 青海法海事初字第 200 号, available at <http://wenshu.court.gov.cn/content/content?DocID=0d2ff863-ae51-43ad-9d7f-a862017d6748&KeyWord=%E6%8D%9F%E5%AE%B3%E8%B5%94%E5%81%BF%7C%E9%83%BD%E5%85%B4%E6%B6%9B> (accessed on April 15, 2022); (b) Civil Judgment of the First Instance of *Shuangle Aquaculture Farm of Cao Feidian District v. COPC & CNOOC Regarding Marine Pollution Dispute Settlement* given by the Tianjin Maritime Court (曹妃甸区七农场双乐育苗场与康菲石油中国有限公司、中国海洋石油集团有限公司海上、通海水域污染损害责任纠纷一案), (2016) 津 72 民初 324 号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=decceb8c2cee48f396e6a8b300890a71> (accessed on April 15, 2022); (c) Civil Judgment of the First Instance of *Xizhong Aquaculture Co. of Tangshan City v. COPC & CNOOC Regarding Marine Pollution Dispute Settlement* given by the Tianjin Maritime Court (唐山市希忠水产有限公司与康菲石油中国有限公司、中国海洋石油集团有限公司海上、通海水域污染损害责任纠纷一案一审民事判决书) (2016) 津 72 民初 300 号, available at <http://wenshu.court.gov.cn/content/content?DocID=c193bdab-ea01-4924-8f95-a8b300890a0f&KeyWord=%E5%B8%8C%E5%BF%A0%E6%B0%B4%E4%BA%A7%7C%E6%8D%9F%E5%AE%B3%E8%B5%94%E5%81%BF%7C%E7%9B%8A%E5%8F%91%E5%86%9C%E4%B8%9A%E7%94%9F%E6%80%81%E5%9B%AD> (accessed on April 15, 2022).

fault. Article 1233 of the *Civil Code* deals with this situation as follows:

*'Where any environmental pollution or ecological damage is caused by the fault of a third party, the victim may require compensation from either the polluter or the third party. After paying compensation, the polluter shall be entitled to be reimbursed by the third party.'*³¹⁷

Therefore, a third party's fault in liability for environmental pollution does not mean that the polluter's tort liability is exempted, but it is an 'unreal joint and several liability.'³¹⁸ This is an exception to the general provisions of Article 1175 of the *Civil Code*,³¹⁹ which stipulates that a third party should bear the tort liability if the harm is caused by him.³²⁰

Apart from the general liability rules under the *Civil Code*, the MEPL also sets out rules on how to determine the liability when the damage is attributable to a third party. Article 89 (1) states that:

'... In cases where damage to the marine environment is entirely caused by an intentional act or a fault of a third party, this third party shall eliminate the damage and be liable for the compensation.'

From the wording above, if a third party is involved in pollution and the damage to the marine environment is entirely due to his negligent or intentional behaviour, this third party is obliged to eliminate the pollution and compensate the loss. If the act of the third party solely causes the damage, the polluter has the right to be reimbursed the costs from this third party after compensating the victims; in other words, the polluter can be exempted from such a liability in cases where such pollution is due to the third party's fault.³²¹

Developed on the basis of the MEPL, the *Offshore Exploitation Regulation* directly invokes Article 89 of the MEPL, without offering more detailed information on this issue.³²² By comparison, as an administrative measure to implement the *Offshore*

³¹⁷ It corresponds to Article 68 of the *Tort Law*, but the *Tort Law* did not mention 'ecological damage.'

³¹⁸ 'Unreal joint and several liability' (in Chinese: 不真正连带责任) is the term adopted by Chinese scholars. In particular, it happens when several unrelated parties are all liable for one payment due to different reasons. When one party performs his duty, other parties can be free from the liability towards victims. Nevertheless, the party that fulfils his duty is authorised to claim reimbursement from other liable parties. 'Joint and several liability' means multiple parties are jointly and severally liable for repayment and thus the payee may legally look to all the parties or any one of them for payment of the entire liability. However, this joint and several liability, according to Chinese scholars, is not real, because these parties are not connected with each other despite that they all contribute to one undesired result. See Yang (2015), 104-121; Garner (2009), 1162.

³¹⁹ Yang (2018a), 88.

³²⁰ It corresponds to Article 28 of the *Tort Law*.

³²¹ Li (2016), 146-147.

³²² Article 25 of the *Offshore Exploitation Regulation*.

Exploitation Regulation, the Measures for the Implementation of the Regulation on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation (2016 Measure) touches upon this issue. Article 30 (1) *Measure* stipulates as follows:

'Where, due to... entirely for the intentional act or fault of a third party, any marine environment damage cannot be avoided even if reasonable measures have been taken on time, the operator involved in this accident may be exempt from the relevant liability.'

This provision echoes the MEPL by stating that the polluter may be exempt from tort liability in cases where damage arising from offshore drilling is due to an intentional or negligent act of a third party. Put differently, the tort liability of pollution should be imposed on the third party because the damage is entirely caused by him.

The *Offshore Exploitation Regulation*³²³ and *2016 Measure*³²⁴ specify that the polluter should follow specific procedures if he intends to be free from liability in practice. If a polluter intends to be exempt from liabilities, he should submit a *Liability Exemption Statement (Exemption Statement)* to the competent authority.³²⁵ After the administrative body in charge of the affected sea area verifies that the polluter is eligible for liability exemption, it may make a decision to relieve the polluter from paying compensation. In other words, even though the third party causes the pollution and undertakes the liability, the polluter is presumed to bear liability as well unless the authority approves his *Exemption Statement*. The *Statement* should provide all the evidence that may help the polluter to be exempt from liability, which should show that, even though the polluter is involved in a pollution accident, (a) such pollution was unavoidable even if the polluter took immediate and reasonable measures; or, (b) the pollution is entirely attributable to the intentional or negligent act of a third party. After submitting the *Statement* and relevant materials, the administrative body in charge of the affected sea area is authorised to determine whether the polluter is eligible to be exempted from liability or not.

In addition, the SPC provides three circumstances when the environmental pollution is related to a third party.³²⁶ (a) If a victim brings a legal proceeding against a polluter

³²³ Articles 22-23 of the *Offshore Exploitation Regulation*.

³²⁴ Article 30 (2) of the *2016 Measure*.

³²⁵ *Liability Exemption Statement* (《责任免除申请书》) is regulated in Article 30 of the *2016 Measure*. The discussion of liability exemption, see *supra* section 2.1.1.A of chapter 5.

³²⁶ Article 5 of the *SPC Interpretation of Environmental Torts*.

and a third party separately or simultaneously under Article 68 of the *Tort Law* (which refers to Article 1233 of the *Civil Code* since 2021), the court should accept and hear the case. (b) If a victim claims against a third party to bear compensatory liability, the court should determine the compensation to be assumed by the third party based on his extent of fault. (c) If a polluter argues that he intends to be free from the liability, or his liability should be reduced by claiming that a third party's fault causes the environmental pollution, the court should not support the polluter's claim.³²⁷ The last circumstance clarifies that the polluter cannot be free from liability, even though the environmental damage was completely caused by a third party. Interestingly, the *Liability Exemption Statement* is not mentioned in this *Interpretation of Environmental Torts*, which indicates that the *Statement* is exclusively applicable to marine environmental pollution.

To sum up, Article 1233 of the *Civil Code* along with Article 5 of the *Interpretation of Environmental Torts* addresses that the polluter is liable for the damage even if it results from a third party's fault. In other words, the polluter should compensate the damage regardless of whether a third party is involved or not in the context of environmental torts.³²⁸ In this vein, (i) if the polluter directly causes environmental pollution, he should be held liable for the damage; (ii) if the polluter and a third party both cause the damage, both of them are required to compensate the loss due to their acts of pollution; (iii) if the third party solely causes the pollution, the third party, as well as the polluter, is liable for the damage arising from the third party's fault.³²⁹ The polluter can nevertheless obtain reimbursement from the third party. The victim has the option to pursue compensation from the polluter or the third party.³³⁰ Some literature considers this provision to be too rigorous for polluters; nevertheless, they argue that the rule is reasonable from the perspective of victims as, the polluter companies usually gain from the activity causing the pollution, so the victims can

³²⁷ *Ibid.*

³²⁸ Li (2016), 146-147.

³²⁹ In academia, there are debates on the interpretation of Article 89 (1) of the MEPL. Yang, Y (2017) argues that this provision indicates a fault-liability rule rather than a strict liability rule. Based on Article 89(1), Yang argues that the polluter may escape from liability if a third party negligently or intentionally polluted the marine environment, and this state of the law presumably creates a conflict in laws between provisions in the MEPL and *Tort Law*. See Yang (2017), 490. However, section 2.1.2 of this chapter explained that both MEPL and *Tort Law* apply strict liability in dealing with environmental pollution cases. Moreover, Article 5 of the *Interpretation of Environmental Torts* further addresses how to adopt relevant rules in practice. Hence, the strict liability for environmental damage under the MEPL is in line with the strict liability under the *Tort Law*, and offshore oil spill damage could trigger strict liability.

³³⁰ Li (2016), 146-147.

have a greater possibility of receiving compensation.³³¹ Since the polluter is authorised to claim reimbursement from the third party after the payment, it is just an alternative to protect the interest of victims better.

When a similar case happens in the context of the marine environment, although Article 89 (1) of the MEPL, Article 25 of the *Offshore Exploitation Regulation*, as well as Article 30 (1) of the *2016 Measure* all impose tort liability on the third party, the polluter is still required to prove his innocence by submitting a *Liability Exemption Statement* to the competent department, which indicates that the polluter is also presumed to be liable for the marine pollution. The only difference between general environmental torts and marine pollution cases is that the latter has the opportunity to escape from the liability by submitting a specific statement regarding liability exemption.

Therefore, there is actually no inconsistency between the *Civil Code* (together with the *Interpretation of Environmental Torts*) and the MEPL (along with the *Offshore Exploitation Regulation* and *2016 Measure*), as the latter is a particular case. Article 1(1) of the *Interpretation of Environmental Torts* states that the provisions in a special environmental protection law are superior to those under the *Civil Code* in terms of the liability exemption. The MEPL is a special law on environmental protection, of which the provisions regarding the exemption of liability should take precedence to those under the *Civil Code*. As a result, in cases where the marine damage resulting from offshore drilling is due to a third party's fault, the court should accept the case if the polluter claims to reduce or escape from tort liability after successfully submitting the *Liability Exemption Statement* to the authority.

2.3.3 Liability relating to platform workers

This part pays attention to how to proceed with a claim when the injured person is a platform worker in the case of an offshore accident.

For the people who work on offshore oil platforms, or platform workers for short, the threat of accidents like an oil spill is never far away from their minds. When they get hurt or worse, apart from the general rules reviewed above, laws may provide special rules to cope with this employment relationship and protect the rights and interests of the persons who make their living on an offshore platform.

³³¹ Yang (2015), 104-106; Zhang & Zhuang (2014), 127.

When an offshore accident occurs, generally, who bears liability will influence what kind of legal result occurs. If the worker is found at fault for the accident, except for a huge black mark on their resume going forward, will they bear any civil liability due to their wilful behaviours? In contrast, if the oil enterprise were found to have willingly placed workers in an environment where they would easily get hurt or worse, would only the enterprise be found liable for the damages?³³²

Article 1191(1) of the *Civil Code* addresses how to deal with the compensation in the first situation, stating that *'where an employee of an employer which is an entity causes any harm to another person in the execution of his work duty, the employer shall assume the tort liability,'* which is the same as that under the *Tort Law*.³³³ In addition, Article 1191(2) adds a new rule, stipulating *'after the employer assumes the tort liability, it may claim reimbursement from the employee with intent or grossly negligent.'*

The *SPC Interpretation on PI* develops this matter in Article 9, stating:

'Where an employee causes an injury to others while carrying out an employment activity, the employer shall bear the compensation liabilities; if the employee causes the injury due to his intent or major negligence, he shall bear joint liabilities along with the employer. The employer may claim compensation from the employee after it compensates the victim.'

For the above text, the employer is liable for the compensation, even though the injury is caused by its employees. However, both the company and the worker who caused such an injury may bear joint and several liability because of his 'intent or major negligence'. Moreover, the company holds the right to reimbursement from its workers after compensating the victim. This provision also makes it clear that 'carrying out an employment activity' may refer to *'in the process of certain production, business activity or any other labour service within the scope of authorisation or instructions of the employer.'*³³⁴

Based on these articles, the joint and several liability for the employer and its employees are in line with the standard under the *Civil Code*, which has been discussed above. In the case of an offshore accident, however, even if a platform worker intentionally causes the accident, it is apparent that he may never have

³³² Ernst 2014c.

³³³ It corresponds to Article 34 of the *Tort Law*, but it did not mention the reimbursement of the employers.

³³⁴ Article 9 of the *SPC Interpretation on PI*.

sufficient money to compensate the tremendous damage arising from offshore drilling. Hence, it would be unrealistic to require platform workers to bear joint liability with the oil company in an offshore accident. Therefore, an employer company may only exercise the right of reimbursement when the employee causes some minor damage, as individual employees are capable of paying those losses out of their assets, which is rarely the case in an accident stemming from offshore drilling.

In the second situation, a platform worker who gets hurt from an offshore accident is entitled to claim compensation from the enterprise. Article 1192 of the *Civil Code* reinstates this liability rule, stating ‘an employer shall bear the liability to compensate the victim in the case that an employee suffers from a personal injury in the course of carrying out an employment activity’.³³⁵

If a third person out of the employment relationship caused a personal injury to the platform worker, the injured worker may claim compensation either from the third person or from his company. If the company compensates its workers in the first place, Article 1192 of the *Civil Code* authorises the company to enjoy the right of reimbursement by claiming compensation from the third person who ultimately caused the injury. In this regard, a third party’s fault in liability for the personal injury of platform workers does not mean the company is exempted from liability, but it means that joint liability is applied with a possibility of subrogation,³³⁶ which is consistent with Article 1233 of the *Civil Code*.³³⁷ In other words, joint liability is adopted while the employers have the right of subrogation as a result of exercising recourse against the third party if the conditions are fulfilled.

Furthermore, one cause of an offshore accident can be poor safety measures of operators participating in the offshore oil activity. If the employer company knows or ought to know that the other companies it cooperates with are not qualified enough to conduct relevant activities or its partner companies are incapable of following safety procedures and it still chooses to develop oil exploration and exploitation activities with them, under such a circumstance, both the employer company and its partner companies with poor safety qualifications should bear joint and several liability.³³⁸ In such a case they all contributed to the accident.³³⁹

³³⁵ It corresponds to Article 11 of the *SPC Interpretation on PI*.

³³⁶ Yang (2018), 88.

³³⁷ See *supra* section 2.3.2 of this chapter

³³⁸ Article 12(1) of the *SPC Interpretation on PI*.

³³⁹ A discussion of safety regulation aiming at compensation is given in chapter 7.

2.4 Defences to (civil) liability

Apart from a third party's fault, a polluter may also raise a defence in an attempt to avoid civil liability under the MEPL. Since a defence is raised by the polluter (defendant) in a direct attempt to avoid what would otherwise result in liability, the polluter typically has the burden of proof.³⁴⁰ Article 91 of the MEPL prescribes three situations as tort defences in terms of damage to the marine environment, stating:

'Where damage to the marine environment caused by the pollution cannot be avoided despite prompt and reasonable adoption of measures, and where the pollution is entirely attributable to any of the following circumstances, the parties concerned held responsible shall be exempt from liability:

(1) wars;

(2) unavoidable natural disasters; or

(3) negligence or other illegal acts in the performance by a certain department

that is responsible for the maintenance of beacons or other navigation aids.'

This article introduces wars and unavoidable natural disasters as defences, with certain limitations, which is in line with provisions concerning *force majeure* under the *Civil Code*.³⁴¹ Requirements for *force majeure* as a defence for damage to the marine environment are: first, the natural cause and only this cause rather than other social causes leads to the pollution or damage; second, such a natural disaster or a war is inevitable, even after the adoption of prompt and reasonable measures to prevent it from happening.³⁴²

In addition to *force majeure*, the third circumstance is concerned with negligence in human behaviour: where there is particular marine pollution caused by negligence or other illegitimate acts performed by the person who is responsible for the maintenance of beacons or other navigational aids, the polluter may be free from liability as well. Since a competent department in charge of maintaining beacons and other navigational aids usually helps navigators to guarantee their safety, the defence in the third circumstance may mainly be in the case of pollution caused by ships, such as oil tankers. Seemingly, this situation seldom occurs in the case of damage resulting from offshore drilling.

³⁴⁰ Cheng (2015), 480-581; Yang (2018a), 83-84.

³⁴¹ Article 180 of the *Civil Code*. It corresponds to Article 29 of the *Tort Law*.

³⁴² McElwee (2011), 257.

So far, provisions in relation to defences under the *Civil Code* and MEPL address three circumstances that could free the polluter from tort liability. The first two situations may be cases that happen in the course of offshore oil activities, while the last situation seems to be related to liability for vessel-induced pollution.

Apart from provisions in these two laws, one administrative regulation also addresses this matter. The *Offshore Exploitation Regulation* also sets out rules on *force majeure* when the damage is as a result of offshore drilling, where the expression partly differs from that in the MEPL. Article 24 of the *Offshore Exploitation Regulation* addresses that the operator involved in an offshore accident may require precluding a civil liability due to the following circumstances, which reads as follows:

‘When an enterprise, institution or operator that is involved in an offshore accident aims to preclude civil liability for the compensation because of force majeure, he shall submit a report to the Competent Authority. Such a report shall verify that the pollution is caused by one of the causes specified under Article 42 of the MEPL and thus the pollution is unavoidable despite the prompt and reasonable measures taken.’

According to the *Legislation Law*, if there is a discrepancy between new provisions and old provisions with respect to laws and regulations developed by the same authority, the new provisions shall prevail.³⁴³ As regards *force majeure*, since Articles 89 (1) and 91 of the *MEPL of 2017* replace Article 43 of the *MEPL of 1983*, the former should be applicable in this regard. These articles are shown below in order to illustrate the difference between these two versions.

Table 4 Defences to civil liability under the MEPL

Defences to civil liability under the MEPL	
The <i>MEPL of 1983</i> (the initial version) ³⁴⁴	The <i>MEPL of 2017</i> (the latest version) ³⁴⁵
<i>Article 43 Despite prompt and reasonable measures taken, the polluter may be free from his compensation liability if pollution damage to the marine environment is unavoidable due to the following circumstances: (1) acts of war; (2) irresistible natural calamities; or (3) negligence or other wrongful acts in the exercise of the functions of departments responsible for the maintenance of beacons or other navigational aids.</i>	<i>Article 89 Any party that is directly responsible for pollution damage to the marine environment shall eliminate the damage and compensate for the losses; <u>in case the pollution damage to the marine environment is entirely caused by an intentional act or a fault of a third party, that third party shall relieve the damage and be liable for the compensation.</u></i>

³⁴³ Article 92 of the *Legislation Law*.

³⁴⁴ Article 43 of the *MEPL of 1983*.

³⁴⁵ Article 89 of the *MEPL of 2017* (applicable version).

<p><u>In the case of pollution damage to the marine environment resulting entirely from the intentional or wrongful act of a third party, that party shall be liable for compensation.</u></p>	<p>Article 91 Despite prompt and reasonable measures taken, the polluter may be free from his compensation liability if pollution damage to the marine environment is unavoidable due to the following circumstances: (1) acts of war; (2) unavoidable natural calamities; or (3) negligence or other wrongful acts in the exercise of the functions of departments responsible for the maintenance of beacons or other navigational aids.</p>
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By comparing the texts of these two versions (modifications are underlined), it appears that the contents are almost the same, but the statement of ‘a third party’s fault’ is rearranged. According to the old version, when marine pollution is entirely caused by the intentional or negligent act of a third party, the third party should be liable for compensating the damage. In this regard, it seems that legislators provide this provision along with *force majeure* as defences to civil liability under the *MEPL of 1983*. In contrast, under the *MEPL of 2017*, the stipulation of a third party’s fault is removed from the Article addressing defences,³⁴⁶ but it is added to the article with respect of the determination of liability for the marine pollution. Based on Articles 89 (1) and 91, it seems unclear whether the polluter should be held liable if the damage is due to a third party’s fault. What can be made clear is that the third party has the duty to compensate the damage in this regard.³⁴⁷ This question has been examined and answered in the previous section. In cases where marine pollution arising from offshore drilling is solely caused due to a third party’s fault, this third party should compensate the loss, while the polluter may be exempted from the liability.³⁴⁸

2.5 Legal Remedies

The remedies applied to bear the liability for environmental damage refer to those prescribed in Article 179 under the *Civil Code*.³⁴⁹ Accordingly, this provision establishes the general principle that any polluter who causes harm to the body or property of another should bear the liability in specific forms. Nevertheless, some

³⁴⁶ Article 91 of the MEPL.

³⁴⁷ Zhang (2014), 214.

³⁴⁸ See *supra* section 2.3.2 of this chapter.

³⁴⁹ Legal remedies under the *Civil Code* include (1) ceasing the infringement, (2) removing the obstruction, (3) eliminating the danger, (4) returning the property, (5) restoring the *status quo ante*, (6) repairing, remaking and replacing, (7) continuing performing, (8) compensating the loss, (9) paying for the liquidated damages, (10) restoring the reputation, and (11) making an apology. Article 15 of the Tort Law also listed eight types of legal remedies, which were (1)- (6), (10) and (11).

remedies are not applicable to environmental liability, such as making an apology or restoring the reputation.³⁵⁰ Scholars' opinions on which forms are adopted for environmental liability differ. For instance, Yang (2018a) holds that eliminating the harm and making compensation for loss are the two basic methods to deal with environmental pollution.³⁵¹ Zhang (2014) argues that five remedies can be used to bear the environmental liability; namely, '*ceasing the infringement, removing the obstruction, eliminating the danger, restoring the status quo ante and compensating the losses.*'³⁵² To be precise, the first three are methods to prevent the accident from taking place, whereas the last two methods are used as legal remedies to compensate the loss after the pollution.³⁵³

This matter is more precisely described in the liability of marine pollution as the MEPL directly prescribes two legal remedies to bear liability: eliminating the damage and compensating the loss.³⁵⁴ Moreover, these methods are not mutually exclusive. Since the MEPL does not exclude other remedies to bear the liability under the *Civil Code*, in principle, it is possible to use other approaches to compensation in the case of damage stemming from offshore drilling. Sections 2.5.1 and 2.5.2 describe two methods under the MEPL respectively, followed by a discussion on 'restoration to the *status quo ante*' provided by the *Environmental Protection Law* (EPL) (section 2.5.3). Section 2.5.4 sketches whether the principle of punitive damages applies in the case of marine pollution.

2.5.1 Eliminating the damage

Interestingly, the exact term 'eliminating the damage' (xiaochu sunhai) under Article 89 (1) of the MEPL was not mentioned in the *Civil Code*.³⁵⁵ This term was also adopted in another special environmental law: the *Water Pollution Prevention and Control Law of the People's Republic of China*.³⁵⁶ In fact, the term 'eliminating damage' and 'compensating the losses' were originally introduced in the

³⁵⁰ Zhang (2014), 214-215; Yu *et al.* (2014), 225.

³⁵¹ Yang (2018a), 81.

³⁵² Zhang (2014), 214-215; Yu (2014), 226.

³⁵³ *Ibid.*

³⁵⁴ Article 89(1) of the MEPL. Also see Yang (2018a), 81.

³⁵⁵ It was also not mentioned under the *Tort Law* or the GPCL.

³⁵⁶ *Water Pollution Prevention and Control Law of the People's Republic of China* (《中华人民共和国水污染防治法》) was initially issued on May 11, 1984, and the latest version was promulgated on June 27, 2017. Article 96 states that '*the party whose rights and interests are damaged by a water pollution accident is entitled to ask the party discharging pollutants to eliminate the damage and pay compensation for their losses.*'

Environmental Protection Law (EPL) of 1989.³⁵⁷ These two methods to bear the liability were adopted in the MEPL when it was first revised in 1999. Recall that this provision in the EPL was modified in 2014.³⁵⁸ Article 64 of the revised EPL states that the polluter should undertake the liability on the basis of Article 15 of the *Tort Law* (referring to Article 179 of the *Civil Code* since 2021). For this reason, a few scholars hold that ‘eliminating damage’ is a typical remedy applied to bear the liability regarding liability for environmental pollution, which is distinct from other remedies regulated under the *Civil Code*.³⁵⁹ On the contrary, a majority of Chinese scholars argue that ‘eliminating the damage’ is a general term representing several methods of remedying liability, which may approximately refer to ceasing the infringement, removing the obstruction, and eliminating the danger regulated under Article 179 of the *Civil Code*. In judicial practice, judges tend to decide the environmental cases on the basis of provisions under the *Civil Code* (previously the GPCL and *Tort Law*), whereas ‘eliminating damage’ is barely adopted by the court. The reason for this tendency of the court is unknown.

Based on the Chinese literature, eliminating the damage under the MEPL is a remedy whereby the law requires the one who causes or threatens to cause marine environmental damage to eliminate the possible harm or cease the harm having occurred and avoid its effect.³⁶⁰ Eliminating damage applies to the cases where a tortious act has occurred or a tortious act causes harm to victims. It has the function of preventing the occurrence of damage and the consequence of more severe damage from happening.³⁶¹ This term, based on the opinion of some scholars, may also refer to three other preventive measures derived from the *Civil Code*:³⁶² ceasing the infringement, removing the obstruction and eliminating the danger. ‘Ceasing the infringement’ deals with a certain tortious act that takes place when the victim intends to claim against the polluter.³⁶³ It should be practically possible for such pollution to be controlled and stopped with immediate measures so that subsequent damage will be avoided. The prerequisite of ‘removing the obstruction’ is that the act of pollution is against the law, and such an act has already impeded the victim from performing

³⁵⁷ Article 41 of the *EPL of 1989*.

³⁵⁸ See *supra* section 2.1.1 of this chapter.

³⁵⁹ For more discussion about ‘eliminating damage,’ see Zhang (2014), 214-215; Yu *et al.* (2014), 226-227.

³⁶⁰ Yang (2018a), 81.

³⁶¹ Yang (2018a), 83.

³⁶² Articles 179 and 1167 of the *Civil Code*. It corresponds to Articles 15 and 21 of the *Tort Law*.

³⁶³ Zhang (2014), 214-215; Yu *et al.* (2014), 227-228.

their legal rights and interests.³⁶⁴ In such cases, the victim may require the polluter to remove such an obstruction. In contrast, when a victim requires the polluter to ‘eliminate the danger’ if his act of pollution endangers the performance of rights and interests of the victim, the actual damage has not yet occurred.³⁶⁵

2.5.2 Monetary compensation

As sketched above, monetary compensation, or compensation for short, is a remedial method to cope with environmental pollution, which is provided for in the *Civil Code* (Article 179), MEPL (Article 89), and previously the *Tort Law* (Article 15).

Theoretically, compensation for damage solely refers to monetary compensation.³⁶⁶ It is a legal remedy whereby the law requires polluters to make up for the property damage caused to another with the polluters’ assets, which punishes the act of pollution and inhibits the wrongful behaviour of polluters from happening again. Generally, this remedy mainly applies to the cases where a tortious act occurred and caused damages to others.

Three fundamental questions related to compensation are: (1) what kinds of losses are covered; (2) how are these losses are assessed, (3) who is entitled to claim compensation; and (4) what are the approaches to claim based on these types of damages? Answers to these questions vary, depending on the specific circumstances.³⁶⁷

The scope of environmental damage is debated among Chinese scholars. For damage arising from offshore drilling, a special case in the realm of environmental pollution, some literature addresses that the scope involves traditional damage via the environment and pure ecological damage to the environment. ‘Traditional damage’ refers to the damage to all forms of personal and property rights and interests listed in Article 2 of the *Tort Law*, and damage to these civil rights and interests can be treated as personal injury, property damage, as well as economic losses. Although the New *Civil Code* deleted this specific provision, it prescribes all these rights and interests in Article 109-126. Personal injuries may both involve physical injuries as well as severe mental distresses.³⁶⁸ ‘Traditional damage via the environment’ means that the injuries

³⁶⁴ *Ibid.*

³⁶⁵ *Ibid.*

³⁶⁶ Zhang (2014), 214-215; Yu *et al.* (2014), 235.

³⁶⁷ Chapters 3-5 will give an answer to these questions.

³⁶⁸ Article 1183 of the *Civil Code*. It corresponds to Article 22 of the *Tort Law*.

mentioned above and damages stem from the environmental pollution. For instance, in the case of an offshore accident, inshore fisheries nearby are polluted and thus the number of fish decreased, which ultimately leads to economic losses for the fishermen. Previously, ‘ecological damage to the environment’ was not specified under the *Tort Law*,³⁶⁹ but currently it has been included under the *Civil Code*.³⁷⁰

Based on the articles discussed above, in the case that an offshore activity causes injuries or losses to others, the victim is entitled to obtain compensation from someone who commits the act of pollution, usually oil operators under these circumstances. However, several issues are unclear under these articles. For example, what constitutes ‘personal injuries’ and ‘economic losses’? Who can claim such losses? How can these forms of losses be assessed? A detailed discussion on the compensation for damage stemming from offshore drilling will be given in section 3 of this chapter, as well as chapters 4 and 5, where the above questions will be examined.

2.5.3 Restoring the *status quo ante*

Although Chinese scholars refer to restoring *the status quo ante* as a method to handle environmental pollution,³⁷¹ it is not admitted under the MEPL as a legal remedy to tackle marine pollution. Why is such a remedy welcomed in academia, yet not accepted by law?

One condition that should be satisfied before requiring the polluter to restore the *status quo ante* is that the affected property or certain area still exists and there is a possibility for the property or area to be recovered. It is evident that the victim can merely claim that the polluter bear this liability if the affected property or area has been so damaged that it is unlikely to be recovered. Unlike restoring a broken item (which is recoverable) to its original status, some literature proposes that, if the victim requires the affected environment to be restored to the original status, there may be no need for the victim to proceed with such a claim based on the economic rationality of the environment, as the environment itself is not included in ‘property’.³⁷² Since the ecological value of the environment may hardly be properly assessed and calculated

³⁶⁹ Hou (2014), 86.

³⁷⁰ Articles 1229-1235 of the *Civil Code*.

³⁷¹ Zhang (2014, 214-215; Yu *et al.* (2014), 234-235.

³⁷² *Ibid.*

using monetary approach, it is unlikely that appropriate limits will be set on the basis of economic rationality.³⁷³ However, if environmental damage is unconditionally compensated, considering economic rationality, the polluter is incapable of restoring the environment to its original status with monetary compensation in the sense that to fully restore a polluted area will be extremely costly and thus would lead to under-compensation of the victim and insolvency of the polluter. Even though the polluter has sufficient assets for such a payout, there may be few chances to apply this method when the environment is so damaged that it is unlikely that it can return to its original state. As a consequence, the feature of this remedy increases the difficulty for the court to determine how this remedy could be applied in real cases. This may explain why ‘restoring *the status quo ante*’ is not mentioned in the MEPL.

Theoretically, the one who suffers from the damage caused by offshore drilling can still require the polluter to restore the damaged environment to its unaffected status on the basis of Article 179 of the *Civil Code*, but the opposite is more likely in practice due to the aforementioned reasons.

2.5.4 Punitive damages

The term ‘punitive damages’, or ‘exemplary damages,’ is a method used to punish the tortfeasor (defendant) for outrageous conduct and to deter the tortfeasor and others from committing similar acts in the future.³⁷⁴ In theory, punitive damages are considered a punishment, as it is awarded in addition to actual losses under certain circumstances. Punitive damages are distinguished from monetary compensation in three ways. First, even though the main purpose of punitive damage is not to compensate the victims, they may still receive all or some of the punitive damages awarded.³⁷⁵ Second, punitive damages can be added to the compensatory damage, as it is usually imposed upon the tortfeasor accompanied by other liabilities. It is typically awarded at the court's discretion when the defendant's behaviour is found to be especially harmful.³⁷⁶ Third, the court may consider punitive damages when someone maliciously, not just negligently, conducted the wrongful act against the

³⁷³ *Ibid.*

³⁷⁴ Zhang (2014, 214-215; Yu *et al.* (2014), 251-253.

³⁷⁵ See Gao & Yu (2003), 106-112; Zhang (2014, 212-216; Yu *et al.* (2014), 252-255.

³⁷⁶ *Ibid.*

plaintiff. The court may particularly employ punitive damages when the plaintiff provides sufficient evidence to prove such a malicious act is at hand.³⁷⁷

Before the promulgation of the *Civil Code*, although legislators considered that one purpose of the *Tort Law* was to ‘punish tortious conduct so as to protect the legitimate civil rights and interests’,³⁷⁸ courts could only choose to adopt punitive damages under a few circumstances, such as product liability.³⁷⁹ Given this legislative fact, some scholars argued that punitive damages had not been a feature of Chinese civil litigation.³⁸⁰ Since 2021, the *Civil Code* for the first time allows punitive damages in the field of environmental pollution. Article 1232 clarifies that, if someone ‘violates laws and intentionally causes environmental pollution or ecological damage,’ he is held accountable for the negative consequences. Therefore, victims may claim punitive compensation.

The MEPL does not employ punitive damages in coping with marine pollution. Instead, it imposes administrative fines on anyone that pollutes the marine environment.³⁸¹ Moreover, administrative fines under the MEPL are capped at CNY 200,000,³⁸² which has raised much criticism, as the punishment is too little in comparison with the profits gained by an enterprise that causes marine pollution.³⁸³ After all, a fine of CNY 200,000 is extremely low in the case of damage stemming from offshore drilling, which barely has any deterrent effect on the polluter. As later shown in chapter 9, the authority in the Bohai case claimed that the liable party COPC had to pay at most CNY 200,000, whereas the 19-3 Oilfield could earn approximately CNY 10 million³⁸⁴ per day.³⁸⁵

3. Various types of damages arising from offshore drilling

After reviewing the environmental liability rules that are applicable to damage arising

³⁷⁷ *Ibid.*

³⁷⁸ Article 1 of the *Tort Law*.

³⁷⁹ Punitive damages are only addressed in Article 47 of the *Tort Law* in China. The Article states that ‘where a manufacturer or seller knowing any defect of a product continues to manufacture or sell the product and the defect causes death or any serious damage to the health of another person, the victim shall be entitled to require the corresponding punitive compensation.’

³⁸⁰ McElwee (2011), 258.

³⁸¹ Articles 73-74 of the MEPL.

³⁸² CNY 200,000 = approx. EUR 26,000 (The current exchange rate for the EUR/CNY was 0.13 in April 2019).

³⁸³ See CCTV 2012. The report was based on an interview with the head the Head of the SOA, Liu Cigui (刘赐贵). Also see Cao (2011), 40-42.

³⁸⁴ CNY 10 million = approx. EUR 1.3 million (The current exchange rate for the EUR/CNY was 0.13 in April, 2019).

³⁸⁵ SOA 2012.

from offshore drilling in section 2, a legal basis for compensating such damage is also found under the Chinese legal system. This section gives a description of rules addressing compensation for various types of damage stemming from offshore drilling.

To be specific, this section identifies which types of damages are recoverable under the Chinese legal framework. Section 3.1 sketches traditional damage that may occur in general, followed by a discussion on personal injury (section 3.2). Sections 3.3 and 3.4 separately examine property damage and other economic losses, where direct loss, indirect loss and pure economic loss are discussed. Section 3.5, in particular, presents compensation for losses in the fishing industry in the sense that this form of loss is a great concern caused by offshore oil activities. Section 3.6 focuses on compensation for marine ecological damage arising from offshore drilling. A summary is given in section 3.7.

As discussed in section 2.5, there are several types of damages arising from offshore drilling, such as personal injury, property damage, economic loss, and marine ecological damage. This section discusses whether these heads of damage and losses are compensable in the context of China, and the concept of ‘victim’ in this study is interpreted broadly to include both human victims and the marine environment.³⁸⁶

3.1 Traditional damage

Before 2021, Article 124 of the GPCL confirmed that the one ‘*who pollutes the environment and causes damage to others*’ should be liable for his act of pollution, but it did not clarify what constitutes ‘damage to others.’ To apply this provision in practice, one had to consider general provisions under the GPCL, such as Article 106. This provision required the encroachment of property or person to establish liability rather than adopting the term ‘property right’ or ‘personal right.’ This expression was explicit under Article 2 of the *Tort Law*,³⁸⁷ and anyone who infringed upon civil rights and interests should be subject to tort liability.

The *Civil Code* of 2021 also states that ‘*the personal rights, property rights, and other*

³⁸⁶ Liu (2013), 324-326.

³⁸⁷ Article 2 of the *Tort Law* stated that ‘*civil rights and interests*’ used in this Law shall include the right to life, the right to health, the right to name, the right to reputation, the right to honour, right to self image, right of privacy, marital autonomy, guardianship, ownership, usufruct, security interest, copyright, patent right, exclusive right to use a trademark, right to discovery, equities, right of succession, and other personal and property rights and interests.’

*lawful rights and interests of the parties to civil legal relations shall be protected by law.*³⁸⁸ Unlike the *Tort Law*, it does not list all the rights and interests in one provision. Instead, it regulates them separately under Article 109-126 and provides more detail for each type of civil right and interest.³⁸⁹

Article 26 of the *Civil Code* is an open provision, as it states that ‘*the parties to civil legal relations enjoy other civil rights and interests prescribed by laws.*’ In other words, someone who infringes upon civil rights and interests of others, i.e., various forms of personal and property rights and interests, should bear the liability,³⁹⁰ which provides a legal basis for compensating traditional damage, such as personal injuries and property damage. In addition, Article 1229 of the *Civil Code* stipulates that anyone who causes damage to others due to environmental pollution or ecological damage should be liable for his act of pollution. Thus, the one who causes personal injuries, property damage, and other losses to civil rights and interests of another via the environment is liable for these losses. As discussed above, ‘environment’ in this sense involves the ‘living environment and ecological environment.’³⁹¹ It confirms that traditional damage to the living environment as well as the ecological environment can be regarded as environmental pollution under the *Civil Code*.³⁹²

Given that a fundamental legal basis to compensate traditional damages via the environment is provided under the *Civil Code*. Damage to personal and property rights and interests via the environment are recoverable in the case of offshore drilling. In general, traditional damage via the environment is divided into several categories, namely personal injuries, property damage, and other economic losses apart from property damage.

3.2 Personal injury, physical injury and emotional damage

‘Personal injury’ is derived from Articles 109, 186 and 990 of the *Civil Code*. It

³⁸⁸ Article 3 of the *Civil Code*.

³⁸⁹ In the *Civil Code*, Article 110 states that a natural person enjoys the rights of life, inviolability and integrity of person, health, name, likeness, reputation, honour, privacy, and marital autonomy, among others. Article 12 states that ‘the personal rights of a natural person arising from marriage or family relations are legally protected.’ Article 13 addresses the property rights. Article 114 addresses the real rights. Article 118 concerns a creditor’s rights. Article 123 concerns intellectual property rights. Article 124 addresses the right of succession. Article 125 states stock rights and other investment rights.

³⁹⁰ Wang *et al.* 2005.

³⁹¹ Yang (2018a), 77; Yang 2010. Scholars discuss this issue based on Article 65 of the *Tort Law*, which now corresponds to Article 1229 of the *Civil Code*.

³⁹² Yu *et al.* (2014), 10. Yu discusses this issue based on the *Tort Law*, which corresponds to the relevant rules under the *Civil Code*.

basically refers to an injury to the body, mind or emotions, which means that both physical injuries and emotional distresses can be recoverable. Articles 1167 and 1183 provide general guidance on how to compensate physical injuries and emotional distresses.³⁹³

Furthermore, the SPC issued two judicial interpretations to harmonise the criteria for compensating physical injuries and emotional distresses, which are the *Interpretation of the Supreme People's Court of Some Issues concerning the Application of Law for the Trial of Cases on Compensation for Personal Injury (SPC Interpretation on PI)*³⁹⁴ and the *Interpretation of the Supreme People's Court on Problems regarding the Ascertainment of Compensation Liability for Emotional Damage in Civil Torts (SPC Interpretation on ED)*,³⁹⁵ the details of which will be addressed in chapter 4 (section 1).

3.2.1 Rules under the *Civil Code*, GPCL and Tort Law

Provisions related to injuries can be found Chapter VIII of the *Civil Code* (Article 176-187 and 1164), which basically copies the provisions related to civil liability under the GPCL.³⁹⁶ Article 3 of the *Civil Code* indicates that, to constitute a tort liability, the damage must be caused to the property or the person that is protected under the law. The protected rights or interests are not set out in the same Article but refer to all types of personal and property rights and interests that are enumerated in Articles 109-126.³⁹⁷ Thereby, it is presumed that the scope of recoverable damage is potentially broad under the *Civil Code*.³⁹⁸

Article 1179 of the *Civil Code* is fundamental to all tort claims, as it recognises the concept of 'compensation' for personal injury and specifies the scope of personal

³⁹³ Before 2021, 'personal injury' was derived from Article 119 of the GPCL. It basically refers to an injury to the body, mind or emotions, which means, both physical injuries and emotional distresses can be recoverable under the GPCL. Articles 2 of the Tort Law echoes this rule by listing quite a few specific personal rights and interests, while Articles 21 and 22 provide general guidance on how to compensate physical injuries and emotional distresses.

³⁹⁴ *Interpretation of the Supreme People's Court of Some Issues concerning the Application of Law for the Trial of Cases on Compensation for Personal Injury* (《最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释》) was adopted at the 1,299th meeting of the Judicial Committee of the Supreme People's Court on December 4, 2003, and it was amended on December 29, 2020. The 2020 Amendment came into force on January 1, 2021.

³⁹⁵ *Interpretation of the Supreme People's Court on Problems regarding The Ascertainment of Compensation Liability for Emotional Damage in Civil Torts* (《最高人民法院关于确定民事侵权精神损害赔偿责任若干问题的解释》) was adopted at the 1,161st Meeting of the Judicial Committee of the Supreme People's Court on February 26, 2001.

³⁹⁶ Chapter VI (Articles 106-134) of the GPCL.

³⁹⁷ It corresponds to Chapter V of the GPCL (Articles 71- 105).

³⁹⁸ Epstein (1988), 285.

injury that can be claimed.³⁹⁹ According to this Article:

'Where a tort causes any personal injury to another person, the tortfeasor shall compensate the victim for the reasonable costs and expenses for treatment and rehabilitation, such as medical treatment expenses, nursing fees, travel expenses, expenses for nutrition, and subsidies for food expenses during hospital stay, as well as the lost wages. If the victim suffers any disability, the tortfeasor shall also pay the costs of assistance equipment and the disability indemnity. If it causes the death of the victim, the tortfeasor shall also pay the funeral service fees and the death compensation.'

Based on this provision, a victim who suffers from an offshore accident is entitled to claim at least five types of losses, namely: (a) medical treatment expenses; (b) loss of income due to missed working time; (c) nursing expenses; (d) food allowances in hospital; (e) transportation expenses; and (e) expenses for nutrition. He can also require extra damages in the case of disability or death.

Nevertheless, Article 1179 of the *Civil Code* is relatively general, to be applied directly by the court to solve personal injury compensation claims in practice, as a few questions are still unanswered. For example, what do the above-listed compensation items mean? How should the lost income be estimated or calculated? Is the compensation for these losses capped at a certain amount of money? Who is entitled to claim the death compensation? The *Civil Code* does not give an answer to these questions.

3.2.2 Rules given by two *SPC Interpretations*

The SPC issued two judicial interpretations to harmonise the compensation criteria for personal injuries and to help local courts: the *SPC Interpretation on ED* and *SPC Interpretation on PI* in 2001 and 2003 respectively, and the latter was amended in 2020.

3.2.2.1 Personal injury under the *SPC Interpretation on PI*

The *SPC Interpretation on PI* constitutes one of the most frequently cited examples of

³⁹⁹ It corresponds to Article 119 of the GPCL and Article 16 of the Tort Law.

legislation in personal injury cases.⁴⁰⁰ It contains twenty-four provisions in total, which provide detailed guidance on areas where the *Civil Code* is vague in terms of compensating personal injury, and it widely extends the scope of recoverable damage under the *Civil Code*. Generally, it divides the possibilities into three circumstances: victims who get injured; victims who get disabled; and victims who die due to the injury.⁴⁰¹

For a victim who suffers from a personal injury without disability or death, Article 1179 of the *Civil Code* states that he is entitled to claim the following types of losses: (1) medical treatment expenses; (2) loss of income due to missed working time; (3) nursing expenses; (4) transportation expenses; (5) food allowances in hospital; and (6) expenses for nutrition.

If the victim becomes disabled due to the injury, he may enjoy the right to claim other forms of compensation to maintain his living, as he could be incapable of working. These types of compensation include (a) compensation for his disability and (b) expenses of buying mobility aids and equipment for the disabled.⁴⁰² Article 16 of the *SPC Interpretation on PI* stipulates that the living expenses of the person in need of his maintenance is included in (a). Article 6 of the *SPC Interpretation on PI* adds that the disabled victim cannot directly claim the above expenses that are intended to be paid in the future; he may only bring a lawsuit separately after the damage has actually occurred.

In terms of the costs that are incurred before the victim's death, such as expenses for treatment and loss of income, the same rules generally apply as in the previous part. However, if, unfortunately, the victim gets killed due to the accident, the tortfeasor is obliged to compensate other forms of losses. These losses are (a) compensation for his death and (b) funeral expenses. Likewise, Article 16 of the *SPC Interpretation on PI* stipulates that the living expenses of the person relying on the deceased victim for their maintenance or upbringing are included in (a).

3.2.2.2 Emotional injury under the *SPC Interpretation on ED*

According to Article 990 of the *Civil Code*, the scope of recoverable damage was

⁴⁰⁰ Wang (2017a), 306-307.

⁴⁰¹ Article 1179 of the *Civil Code*.

⁴⁰² Article 1179 of the *Civil Code*.

potentially broad, which may include damage for emotional distress.⁴⁰³ However, Article 179 of the *Civil Code* states that, in addition to monetary compensation, eliminating the negative effect of the injury, restoring reputation, and making an apology can also be adopted.⁴⁰⁴ Based on these two articles, some scholars argue that a victim who suffers ‘*pure emotional distress*’ may only be entitled to require the injurer to eliminate the ill effect, restore the victim’s reputation, and (or) make an apology to the victim.⁴⁰⁵ Put differently, the victim may not be able to claim monetary compensation, unless the emotional damage is accompanied by economic losses.⁴⁰⁶

Whether pure emotional damage alone is recoverable remains unclear under the *Civil Code*, as Article 1183 states that the victim suffering from serious emotional damage may claim compensation for his emotional damage, but it fails to specify whether pure emotional damage is recoverable.⁴⁰⁷ Theoretically, an offshore accident may result in both personal injury accompanied by serious emotional distress to the victim or just emotional damage to the victim without any bodily injury. The *Civil Code* makes clear that the victim can claim emotional damage in the first case, while it remains unclear whether or not the victim can file a lawsuit in the second case. No rules concerning emotional damage are found in the MEPL and or other regulations concerning offshore oil damage.

Even though the *Civil Code* allows compensation for emotional damage, the rules seem to be so general that they fail to answer the following questions: what is the meaning of emotional damage? The infringement of what kind of civil rights and interests lead to compensation for emotional damage? How should ‘serious’ be defined? How should the amount of compensation for emotional damage be calculated? Is pure emotional damage recoverable? This lack of clarity undoubtedly leads to inconsistency in the application of laws in practice.⁴⁰⁸

In order to harmonise answers to the questions that are outlined above, the *SPC Interpretation on ED* was issued. Promulgated in 2001, this judicial interpretation permits an individual to claim compensation for emotional distress, especially when

⁴⁰³ It corresponds to Article 120 of the GPCL.

⁴⁰⁴ It corresponds to Article 134 of the GPCL.

⁴⁰⁵ Wang & Mendelson (1996), 17-19.

⁴⁰⁶ *Ibid.*

⁴⁰⁷ It corresponds to Article 22 of the *Tort Law*.

⁴⁰⁸ Chen (2008), 327-361.

their rights or interests have been infringed.⁴⁰⁹ This Interpretation makes clear that recovery may also be allowed for some stand-alone emotional distress cases, for instance, infringements due to the death of a close relative and the harm to ‘*certain memento of personal significance*.’⁴¹⁰

As mentioned above, Article 1183 of the *Civil Code* requires that emotional damage cannot be compensated unless such damage is ‘serious.’ This Article, however, does not clarify the definition of ‘serious.’ Article 8 of the *SPC Interpretation on ED* echoes this provision by stating that the ‘serious’ requirement must be strictly interpreted. In other words, if the injurer’s behaviour does not cause the victim to suffer from a physical injury or property loss that results in ‘serious’ mental distresses, the injurer will only be obliged to cease infringement, restore reputation, eliminate negative effects of infringement, or make an apology.⁴¹¹ Some scholars argue that a claimant cannot claim compensation for emotional damage if he only suffers ‘occasional pain or unhappiness.’⁴¹² By comparison, if the claimant’s injury involves ‘an impairment of a physical, mental or emotional function that is severe enough to impact upon his daily work and life,’ the claimant may be qualified for a claim for emotional damage.⁴¹³ In the case of a personal injury relating to offshore drilling, no specific rules exist, and thus the general rules will be applicable.

More importantly, Article 10 of the *SPC Interpretation on ED* does not put a ceiling on compensating the emotional damage but stresses six factors that should be taken into account when determining the amount of compensation. These factors include: (1) the degree of the injurer’s fault; (2) specific circumstances regarding means, occasion, and manner of the infringement; (3) consequences of the infringement; (4) profits obtained by the injurer; (5) the injurer’s financial capability to pay the compensation; and (6) the average standard of living expenses where the court is located. In other words, the court should be allowed to determine the amount of compensation at its discretion on a case-by-case basis.

In all, both physical (i.e., medical expenses, nursing expenses) and emotional damage are recoverable under the *Civil Code*. More detailed rules on what these losses are and how these losses should be measured are further developed in the *SPC Interpretation*

⁴⁰⁹ Articles 1,3,4 of the *SPC Interpretation on ED*.

⁴¹⁰ Articles 2-4 of the *SPC Interpretation on ED*.

⁴¹¹ Article 8 of the *SPC Interpretation on ED*.

⁴¹² Xi (2010), 170-172.

⁴¹³ *Ibid.*

on PI and the SPC Interpretation on ED. The assessment of compensating physical injury is, to a large extent, standardised and tailored. The evaluation of emotional damage, in contrast, is based on six abstract benchmarks, which denies compensation for insignificant emotional damage.

3.3 Property damage

Article 3 of the *Civil Code* states that ‘property rights, and other lawful rights and interests of the parties to civil legal relations shall be protected by law.’⁴¹⁴ Put differently, only lawful property rights and interests are protected by the law, which means that the one who suffers from property damage may only be entitled to claim compensation if his property rights and interests are lawful. He will be not granted compensation for property damage in the case that such property was unlawfully obtained. The *Civil Code* also provides guidance on what losses can be covered and how the losses are compensated. The victim is entitled to compensation from the tortfeasor on the basis of his loss.⁴¹⁵

Issued in 2007, the *Property Law of the People’s Republic of China*⁴¹⁶ (hereinafter *Property Law*) clarified various forms of property rights and interest, including the ownership and usufructuary rights,⁴¹⁷ which provided a legal basis for compensation for property damage and other economic losses in the case of marine pollution. We could refer to these ideas in the Book Two - Real Rights (Article 206-462) of the *Civil Code*, as this part is almost the same as the *Property Law*. If the real right of certain property is injured due to the pollution, the right holder may also require the polluter to ‘repair, remodel or restore’⁴¹⁸ the damaged property. However, if the property is damaged to an extent that it cannot be restored to its original status, the right holder may claim monetary compensation from anyone who causes such losses.⁴¹⁹

⁴¹⁴ It corresponds to Article 71 of the GPCL.

⁴¹⁵ Article 1182 of the *Civil Code*.

⁴¹⁶ *The Property Law of the People's Republic of China* (《中华人民共和国物权法》) was adopted at the 5th session of the Tenth National People's Congress on March 16, 2007 and entered into force on October 1, 2007. It was annulled on January 1, 2021.

⁴¹⁷ Article 114 of the *Civil Code*, which corresponds to Article 2 of the *Property Law*.

⁴¹⁸ Article 237 of the *Civil Code*, which corresponds to Article 36 of the *Property Law*.

⁴¹⁹ Article 238 of the *Civil Code*, which corresponds to Article 37 of the *Property Law*.

3.4 Economic loss apart from property damage

3.4.1 Direct and indirect loss

When a property right is directly harmed, as mentioned above, it is regarded as a direct economic loss. *Direct economic loss*, usually in the form of property damage, is loss arising naturally, according to the usual course of the pollution, from the pollution itself, and is therefore foreseeable and recoverable.⁴²⁰ *Indirect loss*, or *consequential loss*, by contrast, refers to the loss caused as a result of contamination of one's property.⁴²¹ In other words, an indirect loss is a part of the profit the victim should have received if the damage did not occur. The victim is unable to undertake normal business and gain this profit due to the damage.⁴²² In an offshore accident, apart from direct losses to property rights and interests, damage resulting from offshore drilling may also cause indirect losses.

Property damage, as a form of direct economic loss, is recoverable under the *Civil Code*.⁴²³ Strictly speaking, property rights and interests protected by the *Civil Code* are limited to the property itself.⁴²⁴ By contrast, since an indirect economic loss is not clarified under the *Civil Code*, whether it can be compensated or not depends upon specific circumstances. If relevant regulations specify that indirect economic losses are recoverable, the victim is entitled to claim such losses in that specific case; otherwise, indirect economic losses may not be recoverable in the sense that no legal basis is provided.

Although indirect losses are not clearly described by law, some literature argues that the legal basis for compensating such losses exists.⁴²⁵ As a legal remedy, monetary compensation serves as a recoverable method to compensate the victim's losses.⁴²⁶ Therefore the injurer should bear the liability, as long as the losses are foreseeable and unavoidable; whether it has taken place or it is about to take place makes no difference. In this regard, in order to fully compensate the victim, in theory, both property damage (direct losses), as well as other reasonable economic losses (indirect losses) should be considered. The adoption of a certain scientific evaluation is also of

⁴²⁰ Zhang (2014), 214; Yu *et al.* (2014), 235.

⁴²¹ *Ibid.*

⁴²² *Ibid.*

⁴²³ Articles 3 of the *Civil Code*.

⁴²⁴ Zhang (2014); Yu *et al.* (2014), 247-249.

⁴²⁵ Zhang (2014), 214; Yu *et al.* (2014), 251.

⁴²⁶ *Ibid.*

great importance, as it helps with assessing the amount of indirect economic losses in practice.⁴²⁷

For instance, after an oil spill, fishermen are entitled to claim compensation for their losses, such as damage to their fish (*which is property damage*) and damage to marine culture gear or other equipment that has been caused by contamination by oil from the spill; these are examples of direct losses. If a fisherman's fishing gear or other business equipment has been contaminated with oil, he may claim his losses, such as not being able to use the gear until it has been cleaned or replaced, and this implies requiring compensation for indirect losses.⁴²⁸ In this sense, losses in the fishing industry involve property damage (direct losses) and other economic losses apart from property damage (indirect losses).

Given that damage stemming from offshore drilling can be a significant concern for maritime sectors such as the fishing industry, both property damage (direct losses) and other economic losses apart from property damage (indirect losses) that may take place are relevant. In practice, courts are faced with quite a few cases that are concerned with compensation for fishery losses as a result of marine pollution. Therefore section 3.5 will discuss whether these two types of losses to the fishing industry are recoverable and, if so, how to obtain compensation under the Chinese legal system.

3.4.2 Pure economic loss arising from 'vessel-induced' pollution

Notably, 'indirect loss' and 'pure economic loss' are two different terms with respect to different types of damages.⁴²⁹ There is no consensus on the exact content of the phenomenon of pure economic loss, as it covers a variety of totally different situations.⁴³⁰ However, there seem to be some generally accepted demarcation lines that can serve as a starting point.⁴³¹ A fundamental approach is that pure economic loss is always contrasted with damage arising from death or injury or damage to tangible objects.⁴³² The other approach would be that pure economic loss is irrelevant to a violation of legal rights or interests.⁴³³ Based on these ideas, it is uncertain

⁴²⁷ Zhang (2014); Yu *et al.* (2014), 247-249.

⁴²⁸ See *infra* section 3.5 of this chapter.

⁴²⁹ Han (2008), 56-62.

⁴³⁰ Van Boom (2004), 2.

⁴³¹ Van Boom (2004), 3.

⁴³² Koziol (1998), 30; Spier (1998) 122.

⁴³³ Van Boom (2004), 2-3.

whether or not ‘pure economic loss’ can be recoverable under the Chinese legal system, as laws and regulations do not explicitly address this type of loss. Even in academia, the definition of pure economic loss and whether or not it can be compensated is debated.⁴³⁴

However, the SPC sets forth detailed rules about compensation for pure economic loss caused by marine pollution, which is provided in the *Provisions of the Supreme People’s Court on Several Issues Concerning the Trial of Cases of Disputes about Compensation for Vessel-induced Oil Pollution Damage*⁴³⁵ (hereinafter *SPC Provision on Vessel-induced Pollution*). Although the rules addressed in this *Provision* concern pollution induced by vessels, it is the first time that compensation for pure economic loss arising from marine pollution is updated by law. Since both vessel-induced and offshore-related pollution are subject to marine pollution, an overview of the rules related to vessel-induced pollution may provide some guidance on handling the damage caused by offshore drilling.

The SPC addresses that fishery and aquaculture industries, coastal and marine tourism, as well as other companies, entities, and individuals offering maritime services, are granted the right to claim compensation for their losses of earnings caused by environmental pollution under specific conditions, where these claimants have to prove that a direct causal link exists between the pollution and their lost income. In other words, the SPC allows victims to pursue compensation for pure economic loss only when such loss reaches reasonable limits related to with the damage requirement and the causation requirement.⁴³⁶ Four specific factors are provided by the SPC to prove the causality under this circumstance: (a) the production or operation activities of claimants are located in or near the contaminated area; (b) claimants heavily depend on the resources in the contaminated areas for their living; (c) claimants find it extremely difficult to seek out other alternative resources or business opportunities; and (d) the production or operation activities of claimants are generally regarded as the sectors with a stable demand, which makes their business less sensitive to changes in the market.⁴³⁷ Companies in the last situation are, in general, less vulnerable and have relatively high dividend yields, and participants in these sectors usually have

⁴³⁴ *Ibid.*

⁴³⁵ *Provisions of the Supreme People’s Court on Several Issues Concerning the Trial of Cases of Disputes about Compensation for Vessel-induced Oil Pollution Damage* (《最高人民法院关于审理船舶油污损害赔偿纠纷案件若干问题的规定》) was issued in 2011.

⁴³⁶ Van Boom (2004), 15.

⁴³⁷ Article 14 of the *SPC Provision on Vessel-induced Pollution*.

stable and predictable income. The loss of their future income is unlikely to happen unless there are unexpected accidents, such as marine pollution.

Furthermore, the SPC restricts types of damages stemming from oil operations. The lost income of claimants will not be covered if the competent administrative department does not permit the activities they participate in ((i.e., in the fishery, aquaculture, tourism). They are still allowed to claim compensation for reasonable costs for cleaning, repairing, or replacing contaminated facilities, even if the activities are against the law.⁴³⁸

The following example shows how to apply the above rules in real cases:

An ice-cream parlour that is located on the beach was selling cold drinks and snacks without any business permit, the annual income of which was around CNY 80,000.⁴³⁹ The owner of this parlour temporarily closed it because of the marine pollution nearby. Given that no tourists or swimmers visited this beach after the pollution, the owner of the ice-cream parlour, Li Lei, was expected to lose approximately CNY 80,000 that he was expecting to earn in the next year. Moreover, some patio umbrellas, porch swings, patio chairs, and tables from the shop were polluted or broken due to the pollution. Li Lei paid CNY 10,000⁴⁴⁰ to clean the dirty materials and replace broken furniture. Given that he would not be allowed to reopen his shop because he did not have a business license, Li Lei could not claim CNY 80,000, as his ice-cream business was illegal, but his clean-up cost (CNY 10,000) caused by the pollution was recoverable.

Since the above rules in the *SPC Provision on Vessel-induced Pollution* only concern the damage arising from the vessel-caused incidents, it is too early to conclude that pure economic loss, such as the loss of expected income, is recoverable in the case of accidents caused by offshore drilling.

3.5 Loss in the fishing sector

After a discussion of property damage and economic loss in general, this section, in particular, presents compensation for losses in the fishing industry, as this form of

⁴³⁸ Article 15 states that 'if the party who suffers the damage claims for loss of earnings from the maritime aquatic breeding or maritime fishery business operated without the approval of the competent administrative department, the court shall not uphold it, but its claim for reasonable costs on cleaning, repairing or replacing the breeding or fishery devices shall be upheld.'

⁴³⁹ CNY 80,000 = approx. EUR 12,000 (The currency exchange rate of EUR/CNY is 0.15 in April 2022).

⁴⁴⁰ CNY 1,000= approx. EUR 1,500 (in April 2022).

damage is a significant concern in practice.⁴⁴¹ Marine pollution is a major cause of the decline of fishery resources in China's coastal waters; few fishing seasons exist there because of pollution, over-fishing and over-exploitation.⁴⁴² Captured fish, wild fish, and sea creature populations have declined dramatically, and no favourable return is indicated. To save the coastal waters is a task that should be undertaken without delay.⁴⁴³ It is against this background that fishery loss worries fishermen, industrial companies (that operate near fishing waters), and the government.

In China, the fishing industry and the oil industry are intertwined in a complicated relationship. Oil is a blessing for the national treasury but a curse when offshore drilling damages fishing waters.⁴⁴⁴ Offshore drilling may create various forms of pollution that have considerably adverse effects on fishing. Moreover, in the course of carrying out offshore oil activities, catastrophic oil spills and blowouts are great threats to the fishery sector. On the coast of China, while fishermen have to accommodate the oil industry, relevant laws and regulations oblige industrial operators to take preventive measures in case of damage created by their activities. Furthermore, all levels of government of coastal areas in China are required to take responsibility for protecting and improving the ecological environment in their respective water areas.

Offshore oil exploration and exploitation may pose a great threat to the fishing industry, aquaculture industry, as well as to other fish processing sectors, which may directly contribute to losses in the fishing industry or negatively impact this industry via polluting the marine environment of fishing waters. All these types of losses can

⁴⁴¹ In this regard, '*fishery*' refers to a place where people farm fish, while *fishing* is the industry whereby wild fish are caught for use or consumption, including harvesting captured fish and catching wild fish.

⁴⁴² For instance, the Bohai Bay was once a major fishing ground. Fish, shrimps, and swimming crab populations have declined dramatically. Likewise, during the 1970s Dalian Bay in the Yellow Sea yield 150,000 kg of sea cucumber, over 100,000 kg of scallop, and more than 100,000 kg of kelp per year. Both the sea cucumber and the scallop, however, have disappeared, and kelp cultivation ceased in the 1980s due to heavy pollution. In Shandong province, the 1989 Huangdao oil depot blowout leaked 630 tonnes of petroleum products into Jiaozhou Bay, contaminating a number of prawn ponds, mussel breeding areas, and aquaculture developments; the value of the loss was estimated at over CNY 20 million (over USD 240,000). One hundred and seventy species were recorded in the northwest part of Jiaozhou Bay in the 1970s, but only seventeen were found in 1989 (See Miao & Guan (1996), 1-5). The Yangtze estuary was a traditional ice-fish ground that, during the 1960s, yielded over 300 tonnes of ice-fish per year. When industrial effluent from sewer outfalls began entering the estuary in 1971, yields declined to such an extent that the ground disappeared in the 1980s. The volume of waste water discharged through the Yangtze estuary into the East China Sea is over two billion tonnes per year, a major threat to the Zhoushan fishing ground, the largest fishing ground in China. Also in the East China Sea, a portion of Xiamen has become organism-free. The amount of industrial and domestic wastewater discharged into the South China Sea through the Pearl River estuary is about 3.7 billion tonnes per year, killing a great number of fish, shrimp and crab. Fishery resources in the Pearl River estuary were almost eliminated due to water pollution and over-exploitation. (See Miyazaki *et al.* (2005), 64-65; Ma *et al.* (1996), 57-61).

⁴⁴³ Miyazaki *et al.* (2005), 63-64.

⁴⁴⁴ Badgley, 2011.

be categorised as ‘losses in the fishing industry’ or ‘losses to fishery.’

3.5.1 Fishery loss under the *Civil Code* and the *Fishery Law*

Recall that the *Civil Code* provides a legal basis for compensation for property damage and other economic losses. With regard to losses in the fishing industry, two forms of losses are recoverable. First, fishermen may claim compensation for direct losses of their fishery and aquaculture products (i.e., dead fish and seafood) and polluted fishing facilities (i.e., oiled fishing gear and broken fishing vessels) under Articles 238 and 237 of the *Civil Code* respectively.⁴⁴⁵ Second, in respect of some individual fishermen and fishery companies that obtain certificates of using sea areas and certificates of fishing or aquaculture, they may also require polluters to compensate their economic losses, as their rights of fishing or breeding are protected under Article 329 of the *Civil Code*.⁴⁴⁶

The *Fishery Law of the People’s Republic of China (Fishery Law)* was firstly promulgated in 1986. Although it was amended another four times in 2000, 2004, 2009, and 2013, the basic idea concerning compensating fishery losses remains the same. To be specific, Article 47 states:

‘Anyone who damages the ecological environment of fishery water areas or causes any fishery pollution accident shall be held liable in accordance with the provisions in the Marine Environmental Protection Law and the Water Pollution Prevention and Control Law.’

From the wording above, damage in the fishing industry is divided into two categories: ‘*pollution in a fishery accident*’ and ‘*ecological damage in the fishery areas*.’ Anyone who causes such damage will be held liable under the *Fishery Law*. Nevertheless, instead of giving detailed guidance on how to compensate the damage, the *Fishery Law* states that it will be dealt with by the relevant provisions under the *Marine Environmental Protection Law (MEPL)* and the *Water Pollution Prevention and Control Law (WPCL)*.

⁴⁴⁵ Article 238 of the *Civil Code* states that ‘*where a real right is injured and the right holder suffers losses from it, the right holder may claim compensation for the losses or the undertaking of any other civil liability.*’ Article 36 of the *Civil Code* states that ‘*Where a real property or movable property is damaged, the right holder may require repairing, remodelling or restoring the original status.*’ These two rules correspond to Article 36 and 37 of the *Property Law*.

⁴⁴⁶ Article 329 of the *Civil Code* states that ‘*...the right to use water areas or tidal flats for engaging in breeding or fishery shall be protected by law.*’ It corresponds to Article 123 of the *Property Law*. The right to use sea areas and the right of fishing and aquaculture will be discussed in section 1.2.1 of chapter 5.

Article 2 (2) of the WPCL states that *'this law applies to all kinds of surface waters and ground waters within the territory of China,'* while *'the Marine Environmental Protection Law governs the prevention and control of marine pollution.'*

Since oil exploration and exploitation happen offshore in waters within the jurisdiction of China,⁴⁴⁷ relevant provisions mentioned in Article 47 of the *Fishery Law* should refer to rules in the MEPL in the case of damage to the fishing industry as a result of offshore drilling. Article 47 fails to flesh out which rules are indicated under the MEPL, but it is apparent that the rule regarding the determination of liability and compensation for victims, in this case, can be seen as 'relevant' to address fishery losses, which refers to Article 89 of the MEPL.

Apart from requiring the one who damages the fishes or pollutes the fishing areas, usually the operator of offshore oil activities, to bear the liabilities, the *Fishery Law* also sets out legislative requirements for all levels of governments in coastal areas to take effective measures to protect the environment of fishing waters. Article 36 of the *Fishery Law* stipulates that relevant governments are authorised to take charge of *'supervising the ecological environment of fishery water areas and investigating fishery pollution accidents within their jurisdictions'* following relevant provisions under the WPCL and MEPL. As examined above, the *'relevant provision under Article 36'*, also refers to Article 89 of the MEPL.

3.5.2 The coverage of fishery loss

The *Fishery Law* provides detailed rules on what certificates are needed before having a right to catch or raise fish in China, and thus it helps to examine who can claim losses in the fishing industry. However, it does not address what these covered losses are. If someone lawfully engages in fishing or aquaculture in China and suffers from marine pollution, he is entitled to get compensation for his losses. Article 1(1) of the *Provisions on Several Issues concerning the Trial of the Relevant Cases Occurring in Sea Areas under the Jurisdiction of China (II)* (hereinafter *Provision II of Sea Areas*)⁴⁴⁸ stipulates what forms of fishery losses are recoverable, which reads as follows:

⁴⁴⁷ See the Difference Between Offshore and Onshore Oil Drilling, available at <http://www.oilscams.org/offshore-vs-onshore-oil-drilling> (accessed on April 15, 2022).

⁴⁴⁸ *Provisions on Several Issues concerning the Trial of the Relevant Cases Occurring in Sea Areas under the Jurisdiction of China (II)* (《2016 最高人民法院关于审理发生在我国管辖海域相关案件若干问题的规定(二)》) was issued by the SPC on August 2, 2016.

'Where a party who suffers damage due to such accidents as vessel collision and marine pollution files a claim for compensation for losses to the fishery vessel, fishing tackle, and aquatic products as well as income loss against the infringing party, the people's court shall support such claim.'

This Article addresses that anyone who suffers from vessel collision or marine pollution may file a claim to get compensation. Recoverable losses are limited to three forms: (a) loss of facilities for fishing, such as fishing gear, fishing vessels, and fishing tackles; (b) loss of fish; and (c) loss of expected income. The first two forms of loss are actual losses directly caused by marine pollution. The last form of loss is the economic loss apart from (a) and (b), and it is an indirect loss in nature, which is also stated under Article 27 of the *2016 Measure*.⁴⁴⁹ Some scholars hold that indirect losses in the case of marine oil pollution are recoverable and can also be claimed by the victim, such as losses of income that they should have received and foreseeable losses of property in the future.⁴⁵⁰

To summarise, recoverable losses in the fishing industry are limited to polluted fish and marine creatures, fishing gear, and losses of income as expected. When an oil spill accident causes damages to the fishery, fishermen may be unable to engage in fishing for a certain period due to marine pollution, or they may continue to catch fish or breed shellfish, yet the production of fishing is decreased because of the pollution. The expected earnings during this period will be reduced in this regard. The other situation is that the fishermen need to purchase new vessel facilities, because the old ones have been damaged as a result of the pollution. Therefore, affected individuals and fishery companies are entitled to get compensation from the polluter in this regard.

3.6 Ecological damage to the (marine) environment

This part first addresses whether there exists a legal basis for ecological damage to the environment. Then, as a particular environmental tort, ecological damage to the marine environment deserves a specific discussion in the sense that it is regulated separately under the MEPL.

⁴⁴⁹ Article 27 of the *2016 Measure* is a provision that specifies the types of damages stemming from offshore drilling. See *infra* section 3.7 of this chapter.

⁴⁵⁰ Yang (2004), 175; Du (2013), 11-15.

3.6.1 The (marine) ecological protection

Before going forward, this part sketches provisions relating to ecological protection under the EPL and MEPL (in section 3.6.1.1 and section 3.6.1.2 respectively). These rules concern more the role of administrative bodies taking environmental responsibility rather than the liability and compensation for ecological damage in civil cases. The overview of the rules related to ecological protection under these two pieces of legislation helps to understand the attitude of China towards ecological protection.

3.6.1.1 Ecological protection under the EPL

A. Ecological compensation mechanism

Revised in 2014, the new EPL devotes a whole chapter (Chapter III Environmental protection and improvement) to ecological protection. Article 31 of the EPL presents that the State will establish an ‘ecological compensation mechanism’ nationwide and relevant local governments will make good use of ‘*ecological compensation funds*.’ Furthermore, the EPL defines the areas that receive funds as ‘ecological benefited areas’ and ‘ecological protection areas,’ where ecological compensation should be made through ‘consultation’ or ‘under the market principle.’ However, this Article is too general to be directly applied by the court in practice, since neither this Article nor other provisions under the EPL provide any detailed explanation of this compensation mechanism or define the terms in relation to ecological protection. For example, what constitutes an ecological compensation fund and how does it work? Who is eligible to measure the issue of ecological compensation with whom? What does the ‘market principle’ mean in this context? What are the similarities and differences between ‘ecological benefited areas’ and ‘ecological protection areas’?

B. Ecological protection plan

In addition to establishing an ecological compensation mechanism, Article 30 of the EPL addresses that the State will formulate and implement ‘ecological protection plans’, i.e., ‘rehabilitation management plans’, in the course of developing natural resources, for the purpose of ‘*protecting biological diversity and ecological safety*.’

Hence, in theory, it seems that the State should also establish environmental protection plans to protect ecological safety in the course of offshore drilling. However, neither this provision nor other articles under the EPL clarify what the content of such plans is and what measures should be taken to ‘implement’ such plans.

Article 32 of the EPL addresses that the State should also establish rules concerning ‘*survey, monitoring, assessment and remediation*’ to ‘*strengthen the protection of air, water, soil and among others.*’ Seemingly, this provision roughly answers what measure can be taken to implement ‘ecological protection plans’, as it requires the State to build up schemes for surveillance, monitoring, assessment, and remediation. Again, no more information is given under this Article or any other provisions under the EPL to specify how such schemes should be established in practice.

C. Protecting the marine environment

Apart from guiding ecological protection in general, it worth noting that Article 34 of the EPL particularly set out rules on the marine environment, which read as follows:

‘The State Council and the local governments at all levels in coastal areas should strengthen the protection of the marine environment.

The discharge pollutants and the waste dumping into the sea shall follow certain requirements, and the construction of coastal or marine engineering projects shall comply with laws and regulations. Any damage to the marine environment shall be prevented or mitigated.’

The first sentence of this Article presents that the State Council and local governments at all levels in coastal areas should pay attention to the protection of the marine environment. The second sentence stipulates that any pollution or damage to the marine environment should be restricted in the case of discharging pollutants, dumping waste, or constructing coastal or marine engineering projects. However, this provision does not point out who should observe relevant laws, regulations, and standards while conducting the above marine activities. Furthermore, if someone fails to adhere to the relevant rules and his activity causes marine ecological damage, will he bear any liability for the damage? Who can be the claimant to require compensation? How should the amount of damage to the marine environment be assessed? The EPL keeps silent on these matters, which makes it harder for the court

to apply these rules in practice.

3.6.1.2 Ecological protection under the MEPL

Similar to the EPL, the MEPL also devotes an entire chapter (Chapter III Marine Ecological Protection) to marine ecological protection, which is divided into two parts: to establish a compensation system for protecting the marine environment and to accomplish the same goal by taking other preventive measures.

A. Marine ecological compensation mechanism

Article 24 of the MEPL echoes Article 31 of the EPL by stating that the marine ecological compensation mechanism has to be established, yet both of them give few clues on how these systems work.⁴⁵¹ Article 24 merely states that marine resources should be exploited and utilised based on ‘*marine functional zone schemes*’ and ‘*red lines of ecological protection.*’ Article 20 of the MEPL addresses that the State Council and local governments at all levels should take effective measures *ex ante* to keep those typical and fragile marine ecosystems from being affected, and relevant authorities also take responsibility to restore the damaged marine ecosystems as much as possible *ex post*. No more details are found under the MEPL.

B. Other preventive measures

Chapter III provides guidance on what actions can be taken to prevent the marine environment from being negatively affected.

The first preventive measure is to establish marine nature reserves. Articles 21-23 of the MEPL stipulate that the State Council, as well as relevant governments at the provincial level, may establish ‘marine nature reserves,’ where ‘marine ecosystem conservation’ can be maintained. Furthermore, Articles 25-28 address how to reduce the effects of four types of human activities that may influence the marine environment. To be specific, (1) Article 25 that concerns the introduction of marine species should be scientifically assessed in advance so as to avoid biological damage

⁴⁵¹ The current marine ecological environment management in China should be established on the basis of ecological compensation mechanisms. At present, a lack of laws and regulations for overall marine ecological environment management is the key factor restricting the practice of marine ecological environment management. See Qu *et al.* (2016), 1267.

(disturbance) to the marine ecosystem. (2) In the case of exploiting an island, ‘*strict ecological protection measures*’ are adopted under Article 26 to keep the ‘*ecological environment of surrounding sea areas*’ from being polluted. (3) In addition to taking measures to protect the environment of islands, comprehensive treatment in the coastal areas is required by law as well. Article 27 states that ‘*shore protection installations, coastal shelter belts as well as other necessary greening projects in coastal cities and towns*’ should be systematically designed and constructed by local government in coastal areas. (4) Furthermore, to improve the overall marine condition, Article 28 provides that the government should also encourage fishing and aquaculture industries to be developed in an ecologically friendly way. The first step is to adopt environmental impact assessments before establishing a new area for fishing or aquaculture, and the second move is to strictly control the use of chemicals in fish management so as to reduce the risk of polluting relevant sea areas.

To summarise, Chapter III of the EPL and Chapter III of the MEPL⁴⁵² focus more on establishing ecological projection systems by relevant administrative bodies in advance to prevent ecological damage from happening rather than handling ecological damage after it has been taken place. Indeed, provisions under these two pieces of legislation give guidance on preventing marine pollution and reducing the adverse effects of human behaviours. However, relevant rules under the EPL and MEPL are silent on how to deal with liability and compensation for ecological damage in particular cases. More importantly, the rules outlined above are too general to be directly applied in judicial practice. As a few provisions under the MEPL are related to the supervision and administration of activities that might have an influence on the marine environment, some Chinese scholars hold that these articles are administrative rules in nature.⁴⁵³ Moreover, a few terms in these rules are so ambiguous that they increase the difficulty of applying them in practice. For example, the meanings of ‘ecological protection mechanism,’ ‘ecological protection fund’, and ‘ecological

⁴⁵² Article 90 of the *MEPL of 1999* firstly provides guidance on how to determine liability for the marine pollution, which filled the gap that existed in the 1983 version. The content of this article remains the same in the following amendments (in the *MEPLs of 2013, 2016, 2017*). The *MEPL of 1999* also firstly put forward the idea of marine ecological protection and marine functional zone schemes to further protect the marine environment (chapter III). In response to the *Outline of the 12th Five-Year Plan for the National Economic and Social Development of the People's Republic of China* (《国民经济和社会发展第十二个五年规划纲要》) (*12th Five-Year Plan*), the *MEPL of 2013* was replaced by the *MEPL of 2016*. Based on the revised text in 2016, the idea of marine ecological protection and marine function schemes are further developed. Articles 24 and 47 of the *MEPL of 2016* respectively state that the marine ecological protection compensation system and national major marine function zoning plans should be established and developed by the State.

⁴⁵³ Wang (2011), 227-229.

protection plan’ are not precise under the EPL. For this reason, even though the EPL and MEPL roughly declare that polluting behaviours should be strictly restricted or even prohibited by law, it is more like statutory guidance, as it barely mentions who is liable for the ecological damage and how to cope with it.

For liability and compensation for damage to the marine environment, relevant provisions are given in a different chapter of the MEPL (Article 89 (2)) as well as developed in several administrative regulations, administrative measures as well as SPC interpretations, which are discussed in the following sections.

3.6.2 Rules relating to the (marine) ecological damage

After addressing compensation for traditional damage to the environment under the Chinese legal system, this section examines rules related to ecological damage to the marine environment resulting from offshore drilling, the point of which is to examine whether ecological damage to the marine environment is admitted as being recoverable. In addition, it is worth noting that a compensation system for traditional damage caused via the environment and pure ecological damage to the marine environment are not always separable: the rules may apply to both forms of damage. Thus, when relevant, the compensation system for traditional damage will be briefly sketched as well.

This study adopts the term ‘ecological damage to the environment,’ or ‘ecological damage’ for short, to indicate the damage to the environment itself, without involving personal injury and property damage, while ‘environmental pollution’ or ‘environmental damage’ represents the overall impact on the environment caused by the act of pollution, which includes both ecological damage to the environment and traditional damage to the environment.

Although ecological damage has been admitted as being recoverable under the *Civil Code* since 2021, this type of damage has been uncompensated for decades. All the cases of environmental torts that happened before 2021 did not apply the new provision. Therefore, a discussion about the rules regarding ecological damage before the *Civil Code* is also important to study the evolution of environmental law in China. Sections 3.6.2.1 and 3.6.2.2 respectively discuss the situations before and after 2021.

3.6.2.1 Ecological damage to the environment before 2021

Before 2021, Articles 106 and 124 of the GPCL did not clarify what constitutes ‘damage to others,’⁴⁵⁴ while Article 2 of the *Tort Law* stipulated the infringement of ‘civil rights and interests’ instead of ‘civil right’ as a requirement to establish the liability. The term ‘civil rights and interests’ was further defined by listing eighteen civil rights and interests. This Article also made clear that only legal ‘rights and interests’ are protected under the *Tort Law*. More importantly, Article 2 was an open rule in the sense that it not only defines the term ‘civil rights and interests’ by listing specific rights and interests but it also leaves more space for ‘*other personal and property rights and interests*’ that were not on the list.⁴⁵⁵ Legislators used a catchall expression in this Article due to two concerns. On the one hand, given that more civil rights and interests might appear with the development of society, it was unlikely to exhaust all forms of rights and interests within a piece of legislation. The *Tort Law* might be applicable to newly created rights and interests even though they were not explicitly listed in the provision.⁴⁵⁶ On the other hand, existing rights and interests that used to be excluded from the legal system might be reinterpreted and then legislatively permitted due to the growing awareness of certain matters.⁴⁵⁷ For instance, as the tendency of urbanization grew in China with economic development, it was accompanied by increased global environmental awareness as well,⁴⁵⁸ which might trigger legislators to pay more attention to environmental issues and then reflected it in their law-making.⁴⁵⁹ It was presumed that these new rights and interests could be introduced into the legal system. Due to these concerns, this open rule under the *Tort Law* left more space for adding new tortious acts to its system.⁴⁶⁰

Seemingly, the catchall expression of Article 2 enabled some interests to be protected under the *Tort Law* even though they were not explicitly listed under the *Tort Law*.⁴⁶¹ Even so, this Article restricted the protected rights and interests within the scope of ‘personal and property rights and interests.’ Theoretically, at least two prerequisites were required to establish the liability for ecological damage to the environment in

⁴⁵⁴ Hou (2014), 49.

⁴⁵⁵ *Ibid.*

⁴⁵⁶ Yang (2010), 26.

⁴⁵⁷ Hou (2014), 49.

⁴⁵⁸ *Ibid.*

⁴⁵⁹ *Ibid.*

⁴⁶⁰ Yang (2011), 29.

⁴⁶¹ Hou (2014) 49.

this case: first, an ‘environmental right’⁴⁶² had to be stipulated under the Chinese legal system; and second, such a right was considered a ‘civil right or interest’ by law. Neither requirement was fulfilled under the Chinese legal system. No existing laws or regulations addressed ‘environmental rights,’ which made it impossible for the court to protect such a right by applying specific rules.

In fact, the concept ‘environmental right’ itself was highly debated in academia.⁴⁶³ Even though the term ‘environmental right’ was not included in any legal instruments, some Chinese scholars advocated that an environmental right existed as it is rooted in some rules presented by legislators. In their opinion, given that the ecological environment was generalised in the concept ‘environment,’ provisions addressing liability for environmental pollution under the *Tort Law* (Articles 65-68) were also applicable for liability for ecological damage: therefore anyone who caused harm to the ecological environment should also bear the tort liability.⁴⁶⁴ Based on this argument, pure ecological damage, such as the damage to an ecosystem and natural resources, could be treated as environmental damage as well.⁴⁶⁵ Traditional damage to the environment and ecological damage to the environment might fall within the scope of ‘environmental pollution’ under Article 65 of the *Tort Law*.⁴⁶⁶ However, this view was problematic, according to some of the legal doctrine.⁴⁶⁷

Although the terms ‘environmental pollution’ and ‘ecological damage to the environment’ were commonly adopted in the context of the environment, a distinction existed between them. *Environmental pollution* stressed the contamination of environmental ecosystems, such as air, light, water, sea.⁴⁶⁸ In contrast, *ecological damage to the environment* might involve ecological degradation or ecological deterioration, which meant to break down the current ecosystem, to move to a level below the present level, such as the extinction of marine creatures and the degradation of ecosystems because of contaminated waters.⁴⁶⁹ Admittedly, these two terms were not mutually exclusive, as the ecosystem of a certain polluted area might be destroyed due to marine pollution.

⁴⁶² For more information about the ‘environmental right,’ see Hou (2014), 85-100; Xu & Tian (2004); Yu 2010; Zhou 2003; Lv 2005; Zou (2010), 1-40; Wan (2001), 1-12; Cao (2000), 9-25.

⁴⁶³ Hou (2014), 49-50, 85-100; Zou (2010), 19-29.

⁴⁶⁴ Yang (2018a), 82.

⁴⁶⁵ Liang (2009), 51-55.

⁴⁶⁶ Yang (2018a), 77; Yang 2010.

⁴⁶⁷ Yu *et al.* (2014), 44.

⁴⁶⁸ *Ibid.*

⁴⁶⁹ Yu *et al.* (2014), 12-13; Lv (2010), 124-133.

In addition, ecological damage to the environment could be divided into ‘ecological damage directly resulting from environmental pollution’ and ‘ecological damage as a result of ecological deterioration.’⁴⁷⁰ In this study, since ecological damage resulting from offshore drilling was a form of damage due to t pollution, ‘ecological damage to the environment’ mainly referred to the former notion.

On the one hand, it seemed illogical to treat ecological damage as a type of environmental pollution in the sense that these two forms of damage, in essence, share various features.⁴⁷¹ On the other hand, it was inappropriate to completely exclude ecological damage from environmental pollution, due to the interplay between them. Furthermore, adding ‘ecological damage to the environment’ to *Tort Law* was inconsistent with the legislative purpose of the *Tort Law*, as it aims at protecting ‘civil rights and interests’ from being affected and damaged.⁴⁷² Environmental rights, however, were not specified under the present Chinese legal system, and thus it is unknown whether it falls within the scope of ‘civil rights and interests.’⁴⁷³

The legislators also noticed this problem and hesitated whether to address ecological damage under the tort system or not. Before the promulgation of the *Tort Law*, it had been drafted and revised four times in total. The third draft of the *Tort Law* (2009) stated that ‘*the polluter shall bear the liability when his act pollutes the living environment or the ecological environment.*’⁴⁷⁴ However, the wording of the third draft was then modified, and the term ‘*ecological damage*’ was deleted in the final version.⁴⁷⁵ Instead of clarifying the term ‘ecological damage to the environment,’ *Tort Law* remained silent on this issue, as neither Article 65 nor other provisions of the law provide any guidance, which created more uncertainty on this matter.

In a nutshell, before 2021, neither the GPCL nor *Tort Law* provided a solid legal basis for the compensation of ecological damage to the environment. As a result, whether damage to the environment itself (without personal injury and property damage) could be recoverable or not remained unknown.⁴⁷⁶

⁴⁷⁰ Yu *et al.* (2014), 10-11.

⁴⁷¹ Zhang 2014; Yu *et al.* (2014), 151-153.

⁴⁷² See Articles 1-2 of the *Tort Law*. See, Yu *et al.* (2014), 12-13.

⁴⁷³ Hou (2014), 48-50.

⁴⁷⁴ The third draft of the *Tort Law* (2009). See Hou (2014), 34-36.

⁴⁷⁵ Yu *et al.* (2014), 30.

⁴⁷⁶ Liu (2013), 324-326.

3.6.2.2 Ecological damage to the environment after 2021

In 2021, the promulgation of the *Civil Code* completely changed the situation, as Article 1234 clearly shows that anyone who pollutes the ecology and environment is liable for ‘remediation’ within time limits on the condition that their behaviour was against the law. If the polluters refuse or fail to perform their duties, specific departments or organisations will be authorised by law to take over the duty of recovery in the first place and then claim reimbursement from the polluters.

Furthermore, Article 1235 lists ecological damage can be compensated in the form of five types of damage, which is seen as follows:

- (a) *The losses resulting from the damage of service functions from the time when damage is caused to the ecology and environment to the completion of remediation.*
- (b) *The losses resulting from permanent damage to ecological and environmental functions.*
- (c) *Expenses of investigation, authentication, and assessment of ecological and environmental damage.*
- (d) *Expenses of pollution removal and ecological and environmental remediation.*
- (e) *Reasonable expenses incurred to prevent the occurrence and aggravation of damage.*

From the provision cited above, the types of losses can be classified into several categories: (a&b) ecological damage, (c) expenses of investigation, and (d) clean-up costs with (e) other reasonable expenses if necessary. It is indeed inspiring to see that legislators, for the first time, regard ecological damage to the environment as recoverable and specify the types of recoverable damages, despite that more detailed guidance is yet to come. After all, we are not sure who will be the specific departments or organisations authorised by law to undertake the duty of recovery; how to estimate and calculate the ecological damage; and what is the procedure for ecological restoration. Therefore, legislators are expected to issue a bunch of administrative regulations, measures, and SPC Interpretations addressing these issues afterwards.

It is probably in response to this new piece of legislation that the Central Government, together with the SPC, issued the ***Administrative Measure Concerning Compensation Funds for Ecological Environment Damage (Trial)*** (*hereinafter the*

Measure of Ecological Compensation Fund) in March 2020,⁴⁷⁷ the focus of which is to handle the ecological damage in case it is unlikely that the contaminated areas can be fully recovered or the liable parties fail to perform their duty. It is *de facto* a legal instrument to standardise the procedures of allocation and prevent the competent authority from using the funds improperly. Compensation funds aiming at ecological damage, under this *Measure*, refer to the non-tax income paid by the liable polluters to the government for the purpose of ecological rehabilitation, which can either be settled through negotiation or judgment. Put simply, the compensation fund under the 2020 *Measure* concentrates on the ecological losses to the State, where the allocation of the funds will be in the control of the public administration, who represents the State and receives payments from the potential polluters to restore the affected areas.

3.6.2.3 Marine ecological damage under the MEPL

Unlike ecological damage to the environment that has not been recoverable until 2021, the situation is different when it comes to ecological damage to the marine environment, or marine ecological damage for short. This is because the MEPL not only provides guidance on compensating ecological damage to the marine environment but also sets out rules on who can claim such compensation. Article 89 (2) of the MEPL states that

‘For any damage caused to marine ecosystems, marine aquatic resources or marine protected areas that result in heavy losses to the State, the interested department empowered by the provisions of this Law to conduct marine environment supervision and control shall, on behalf of the State, claim compensation from those held responsible for the damages.’

As a consequence, ecological damage to the marine environment is compensable under the MEPL, as long as certain conditions are satisfied. First, the State is considered as the victim if the marine ecosystem is damaged as a result of certain activities, such as offshore drilling. Second, the interested department empowered by

⁴⁷⁷ *Administrative Measure Concerning Compensation Funds for Ecological Environment Damage (Trial)* (in Chinese: 《生态环境损害赔偿资金管理办法（试行）》) was jointly drafted by seven departments of the Central Government, the Supreme People’s Court, and the Supreme People’s Procuratorate. The full text is available at http://www.gov.cn/gongbao/content/2020/content_5519954.htm (accessed on April 20, 2022). According to Article 2 of the *Ecological Compensation Fund Measure* of 2020, the coverage of the ‘fund’ is limited to (i) the ecological damage that cannot be recovered and (ii) the losses that the polluters fail to perform or fully perform their duties. In other words, the damages that have been recovered by polluters or other third-party institutes are excluded from this *Measure*.

the MEPL represents the State to claim compensation for marine ecological damage. Last, only when ecological damage causes ‘serious losses’ to the State could the interested department be authorised to claim compensation from polluters.

However, it is unclear which department is the ‘interested department,’ to what extent the losses can be deemed ‘serious,’ and which forms of damage to the marine ecosystems are covered. Moreover, some literature considers that this provision only applies to ‘serious losses’ caused to the natural resources, and there is no rule on if and how to compensate the losses that are not considered ‘serious.’⁴⁷⁸ Answers to some questions can be found in an administrative measure and a judicial Interpretation, namely the *Measures Concerning Compensation of Marine Ecological Damage for the State (2014 Measure)* and the *Interpretation on Several Issues concerning the Trial of Cases of Disputes over Compensation for Marine Natural Resources and Ecological Damage (2018 SPC Interpretation)*.⁴⁷⁹

In fact, the only field where damage to the environment is admitted as recoverable and an operable procedure exists is marine oil pollution.⁴⁸⁰ The MEPL empowers certain administrative bodies to claim such damage in theory and cases relating to this issue do exist in practice.⁴⁸¹

Summarising, the compensation for ecological damage to the environment is not clearly determined under the Chinese legal system. By contrast, as a form of specific environmental damage, ecological damage to the marine environment is well addressed under the MEPL, and thus it provides a legal basis for compensating such damage. Consequently, since ecological damage arising from offshore drilling is basically in the form of marine ecological damage, it can be compensated under the MEPL.⁴⁸²

3.6.2.4 Compensation for marine ecological damage under the 2014 Measure

Recall that ecological damage to the marine environment is recoverable under Article 89 (2) of the MEPL if three prerequisites are satisfied.⁴⁸³ The details of marine

⁴⁷⁸ Wang (2011), 229.

⁴⁷⁹ See *infra* section 3.6.2.5 of this chapter and section 4 of chapter 4.

⁴⁸⁰ Faure & Liu (2013), 290-311.

⁴⁸¹ *Ibid.*

⁴⁸² Given that ecological damage to the marine environment is recoverable under the MEPL, details on what damages are covered, how damages are assessed, and who can claim, are discussed separately in section 3.6 (of this chapter), section 4 (of chapter 4), and section 1 (of chapter 5).

⁴⁸³ See *supra* section 3.6.2.3 of this chapter.

ecological damage are stipulated under *Measures Concerning Compensation of Marine Ecological Damage for the State*⁴⁸⁴ (hereinafter *2014 Measure*). It is developed based on Article 89 (2) to strengthen the protection of the marine ecological environment and provide detailed guidance on compensating marine ecological damage.⁴⁸⁵ It specifies which types of losses are covered and to what degree the losses are considered ‘serious’ to the State in terms of marine ecological damage, which reads as follows:

‘The compensation for marine ecological damage to the State includes:

(1) Expenses paid by the State to control, mitigate and eliminate marine ecological damage; expenses paid to cope with secondary pollution caused by the clean-up actions and measures mentioned above;

(2) Damage to marine biological resources and to the carrying capacity of the marine ecosystem⁴⁸⁶ as a result of marine oil pollution during the period before polluted sea areas are restored to the unaffected status;

(3) Reasonable costs of monitoring, evaluation, and professional consultation conducted to determine the nature, scope, and degree of marine ecological damage;

(4) Reasonable costs of restoring the polluted marine ecosystem to the unaffected status and investigation costs of such restoration actions; reasonable costs of formulating plans with regard to remediation technologies for contaminated sea areas; reasonable costs of remodelling alternative marine ecosystems if the polluted marine ecosystem is unable to be restored to the unaffected status;

(5) Other reasonable costs if needed.

The damage is considered a ‘serious loss’ to the State when the above cost in total is beyond CNY 300,000.^{487,488}

Above all, Article 89 (2) of the MEPL provides that interested departments are authorised to claim compensation only when the damages lead to ‘serious losses,’ yet no more details are given to measure ‘serious losses.’ By contrast, the *2014 Measure* clarifies that marine administrative departments enjoy the right to claim compensation

⁴⁸⁴ *Measures Concerning Compensation of Marine Ecological Damage for the State* was issued in 2014.

⁴⁸⁵ Article 1 of the *2014 Measure*.

⁴⁸⁶ The carrying capacity of the marine ecosystem in this context means the maximum population size of the species that this marine ecosystem can sustain and clean itself. The carrying capacity of a biological species in an environment is the maximum population size of the species that the environment can indefinitely sustain, given the food, habitat, water, and other necessities available in the environment.

⁴⁸⁷ Article 3 of the *2014 Measure*. CNY 300,000 = approx. EUR 45,000 (The current exchange rate for the EUR/CNY is 0.15 in April 2022).

⁴⁸⁸ The translation is made by the author.

when the total losses in terms of marine ecological damage are beyond CNY 300,000. Furthermore, a cautious attitude is adopted to explain compensation for marine ecological damage under the *2014 Measure*: only ‘reasonable costs’ and ‘other reasonable costs if necessary’ are recoverable. It makes it clear that four types of marine ecological damage are recoverable, namely (a) clean-up costs; (b) losses in the course of restoration; (c) costs of evaluation, investigation, and research; and (d) costs of restoration.

3.6.2.5 Compensation for marine ecological damage under the 2018 SPC Interpretation

Similar to the *2014 Measure*, the purpose of the *2018 SPC Interpretation* is also to facilitate implementing Article 89 (2) of the MEPL.⁴⁸⁹ Article 7 of the *2018 SPC Interpretation* provides guidance on the coverage of marine ecological damage, which reads as follows:

‘Damage to marine natural resources and marine environment includes:

(1) Clean-up costs and costs of preventive measures: reasonable costs paid to implement contingency plans to mitigate and prevent marine environmental pollution, ecological deterioration and depletion of natural resources as a result of the polluters’ activities.

(2) Costs of restoration: expenses paid for reasonable measures that have been taken or are about to be taken in order to recover or partially recover the damaged marine natural resources and the polluted marine environment.

(3) Losses in the period of restoration: losses that occurred before the damaged marine ecosystem fully recovered to its unaffected status, involving damage to marine biological resources and the carrying capacity of the marine ecosystem⁴⁹⁰ as a result of marine pollution during the period before polluted sea areas are restored to the unaffected status;

(4) Costs of investigation and assessment: expenses paid for investigating, inspecting and monitoring polluted sea areas; expenses paid for assessing actual

⁴⁸⁹ Article 1 of the *2018 SPC Interpretation*.

⁴⁹⁰ The carrying capacity of marine ecosystem in this context means the maximum population size of the species that this marine ecosystem can sustain and clean itself. The carrying capacity of a biological species in an environment is the maximum population size of the species that the environment can sustain indefinitely, given the food, habitat, water, and other necessities available in the environment.

*losses and expenses paid for assessing the risk of marine ecological damage.*⁴⁹¹

Similar to Article 3 of the *2014 Measure*, Article 7 of the *2018 SPC Interpretation* also provides detailed guidance on which marine ecological damage is covered and can be compensated by polluters, namely (a) clean-up costs; (b) costs of restoration; (c) losses in the period of restoration; and (d) costs of investigation and assessment.

Although the wording of the rules is slightly different, the scope of marine ecological damage under Article 7 of the *2018 SPC Interpretation* and Article 3 of the *2014 Measure* is nearly the same with two exceptions. The *2018 SPC Interpretation* adopts a more cautious attitude towards compensation for marine ecological damage: only ‘reasonable costs’ and ‘reasonable measures’ that ‘have been taken or are about to be taken’ are recoverable. Furthermore, unlike the *2014 Measure*, which uses an open article to address the coverage of compensation for marine ecological damage,⁴⁹² the *2018 SPC Interpretation* restricts the scope to the above four forms.

3.7 Types of damages resulting from offshore drilling under the 2016 Measure

Based on the provisions under the *Civil Code*, the one who suffers from personal injury and property damage from the damage to the environment is entitled to claim compensation. In addition, ecological damage to the marine environment may also be compensated under the MEPL. The MRL also addresses the fact that victims are entitled to get compensation for damage stemming from mineral resource-related activities, as such damage can result in losses to others. However, these laws only provide compensation for the damage in a general way rather than setting out specific rules on damage stemming from offshore drilling. In fact, an administrative measure does provide rules typically concerning compensation for damage stemming from offshore drilling, namely *Measures for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation*,⁴⁹³ (hereinafter *2016 Measure*).

This *Measure*, as illustrated in its name, is an administrative measure⁴⁹⁴ and

⁴⁹¹ The translation is made by the author.

⁴⁹² Article 3 of the *2014 Measure*.

⁴⁹³ *Measures for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (《中华人民共和国海洋石油勘探开发环境保护管理条例实施办法》) was issued by Order No. 1 of the State Oceanic Administration on September 20, 1990 and amended at the first executive meeting of the Ministry of Land and Resources on January 5, 2016.

⁴⁹⁴ Based on Article 1 of the *2016 Measure*, this measure is developed for the purpose of implementing the *Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation*.

particularly concerns environmental pollution in the course of offshore oil exploration and exploitation. Article 27 specifies the coverage of damage resulting from offshore drilling:

'Compensation liabilities include:

1. Expenses paid by the victims for clean-up actions resulting from the marine environmental pollution damage caused by operators' behaviours, which involves costs of restoring the seawater quality of affected areas to its original status and costs of protecting affected marine resources.

2. Lost income of victims as a result of marine pollution caused by oil activities; costs of repairing or repurchasing the broken manufacturing facilities and tools, and expenses paid by victims for taking reasonable measures to prevent the pollution from happening or spreading.

*3. Costs of investigation for the pollution accident caused by offshore oil exploration and exploitation.*⁴⁹⁵

As shown above, no personal injury or property damage is mentioned in this Article, whereas compensation for the damage stemming from offshore oil exploration and exploitation is classified into three types under the *2016 Measure*:

(a) Clean-up costs, which are regulated in Article 27(1) and the latter part of Article 27(2). Compensation is payable for the cost of reasonable clean-up measures and other measures taken to prevent or minimise the damage.

(b) Economic losses, which are regulated in Article 27(2). Compensation is payable for reasonable costs of cleaning, repairing or repurchasing property that has been contaminated by oil. Moreover, compensation is payable for losses of earnings from being out of work as a result of the accident. One example of economic losses is fishermen's income that may shrink when their nets become oiled after an oil spill, which prevents them from fishing until their nets are either cleaned or replaced. Therefore, the victim can also claim compensation for consequential losses arising from offshore drilling under this *Measure*.

(c) Costs of investigation, which are regulated in Article 27(3). Compensation is payable for the costs of post-spill studies and investigation, provided that they are related to pollution damage, including studies to establish the nature and extent of environmental damage caused by an oil spill so as to determine the reason why the

⁴⁹⁵ The translation is made by the author.

accident happened.

This provision provides detailed guidance on what losses are covered in an offshore accident. However, it does raise more many questions than it answers. Even though it provides detailed guidance on what losses can be covered after an offshore accident, it is not well developed, as not all the damages stemming from offshore drilling are listed; moreover, the listed damages are not explicitly defined. For example, how should it be measured what is ‘reasonable’ in terms of a clean-up cost? Are both preventive measures that have been taken and are about to be taken recoverable? Are the costs of post-spill studies and investigations recoverable, provided that they are related to pollution damage? How should marine ecological damage be compensated? Given that both the *2014 Measure* and *2016 Measure* set out rules on what losses are covered after marine pollution, it is worthwhile to compare relevant articles under these two administrative measures. Article 3 of the *2014 Measure* and Article 27 of the *2016 Measure* share some similarities, yet apparently Article 3 provides further details in terms of compensation for marine ecological damage, while Article 27 of the *2016 Measure* intends to cover economic losses caused by the offshore oil exploration and exploitation. This is because these two administrative measures were developed for different purposes.⁴⁹⁶ The *2016 Measure* aims at preventing damage to the marine environment in the course of offshore oil exploration and exploitation, while the *2014 Measure* focuses on providing detailed rules on the coverage of marine ecological damage. Hence, Article 27 of the *2016 Measure* not only provides that clean-up costs, as well as costs of investigation, may be paid to restore the environment, it also involves economic losses caused by the offshore oil exploration and exploitation.

To be specific, first, both Measures state that compensation is payable for the reasonable costs of clean-up actions and other measures taken to prevent or minimise pollution. However, clean-up costs are classified into two categories under the *2014 Measure*: expenses paid by the State to eliminate or minimise the pollution and expenses paid to cope with the secondary pollution, as a result of clean-up actions.

Second, both Measures state that compensation is payable for the costs of

⁴⁹⁶ The *2016 Measure* is developed for the purpose of implementing the *Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (Article 1 of the *2016 Measure*); while the *2014 Measure* is developed based on Article 89 (2) for the purpose of strengthening the protection of the marine ecological environment and providing detailed guidance on compensating the marine ecological damage. (Article 1 of the *2014 Measure*.)

investigation about damage, yet the *2014 Measure* extends its scope from ‘*costs of investigation on the offshore accident*’ to ‘*costs of investigation, monitoring, assessment the damage.*’ Hence, contributions may be made to the costs of a variety of post-spill studies and investigation, provided that they are related to the damage under the *2014 Measure*. For instance, it may include studies to establish the nature and extent of environmental damage caused by an oil spill and to determine whether or not reinstatement measures are necessary and feasible. Furthermore, costs of investigation under Articles 3(2) and 3(4) of the *2014 Measure* not only mean the payment for investigating marine ecological damage and formulating remediation plans for damaged areas, but they also involve the costs of investigation under exceptional circumstances: payment for rebuilding an alternative marine ecosystem when the polluted marine ecosystem is too damaged to be recovered.

Last but not the least, Articles 3 (2) and (4) of the *2014 Measure* provides sufficient guidance on compensation for marine ecological damage, and thus compensation is payable for the costs of reasonable reinstatement measures aimed at accelerating the natural recovery of environmental damage. More specifically, compensation for marine ecological damage is divided into two categories. The first is the losses to marine resources and marine ecosystems during the period of restoration. If, unfortunately, the polluted marine ecosystem is unlikely to be restored to its original status, the second is the cost of rebuilding a marine ecosystem that replaces the damaged one. By contrast, Article 27 of the *2016 Measure* omits this matter.

Based upon Article 1234 of the *Civil Code* and Article 89 of the MEPL, Article 3 of the *2014 Measure* and *Article 7 of the 2018 SPC Interpretation* clarify the scope of losses to marine ecological damage, while Article 27 of the *2016 Measure* also provides for it in the context of offshore oil exploration and exploitation. Based on these provisions, the following four types of losses are compensated in terms of marine ecological damage resulting from offshore drilling: (a) clean-up costs and costs of preventive measures; (b) costs of restoration; (c) losses in the period of restoration; and (d) costs of investigation and assessment. One requirement is that the costs should be sufficiently reasonable to be paid and the measures should be reasonably taken or about to be taken to eliminate ecological damage to the marine environment.

4. Summary

To summarise, a series of legislation provides a legal basis for environmental liability relating to offshore drilling incidents. The *Civil Code*, as a fundamental law for general civil issues, states that anyone who pollutes the environment in violation of laws should bear the liability for the pollution. It incorporates most rules related to environmental torts under the GPCL and *Tort Law*, providing for them in a more systematic way. The EPL is a special law that develops this idea, which states that the violation of relevant provisions is no longer an essential requirement for environmental claims. For tort claims arising from marine pollution in particular, the MEPL echoes the above three laws, as it also employs strict liability. Although these laws have few specific provisions addressing liability for damage resulting from offshore drilling, the general provisions concerning liability for environmental pollution in these laws apply to this specific case. That is, anyone that pollutes the marine environment and causes damage in the course of offshore oil operations should bear the liability for the damage. Based on the strict liability, a causal link between the pollution and the damage determines whether or not the polluter will bear the liability for damage compensation.

Due to the joint operating agreement in the Chinese offshore industry, foreign operators and the CNOOC are likely to undertake the full liability in different phases respectively, rather than undertake joint and several liability to compensate the damage. Furthermore, in cases where the damage resulting from offshore drilling is because of a third party's fault, the court should recognise this when the polluter claims to reduce or avoid the liability. However, a third party's fault in the liability for personal injury of platform workers does not mean that the employer company is exempted from liability, but it means that joint liability with the right of subrogation is adopted, where the employers can claim reimbursement from the third party after the payment.

On the whole, at least three types of damages stemming from offshore drilling are recoverable in the Chinese legal system; namely, personal injury, property damage and economic loss, as well as marine ecological damage. These types of damages are handled using several legal remedies, such as eliminating the damage, compensating the losses, and restoration to the unaffected status. In particular, monetary compensation is preferable in dealing with marine pollution.

The *Civil Code* (previously the GPCL and *Tort Law*) provides a legal basis for compensating traditional damage, as damage arising from offshore drilling may lead to people getting injured, especially for platform employees who work on or near the offshore installations. Personal injury may refer to physical injury and emotional damage, which are dealt with by two SPC interpretations. The *SPC Interpretation on PI* and the *SPC Interpretation on ED* provide detailed guidance on the coverage of personal injury. Guided by a few special regulations, property damage is not limited to direct loss, but it may extend to indirect loss and pure economic loss under certain circumstances, such as fishery losses under the *Fishery Law* as well as *Provision II of Sea Areas*. Rules of compensation for fishery loss deserves special attention, as it is a great concern in practice; whereas compensation for pure economic loss, which is often the case in the tourism industry, is only updated in the regime of vessel-induced pollution but not mentioned in the laws dealing with damage caused by offshore drilling. Moreover, ecological damage in general is recoverable under the *Civil Code* for the first time. In particular, the only field where damage to the environment has been admitted as compensable is marine oil pollution, which has been regulated under the MEPL. Two other legal instruments - the *2014 Measure* and the *2018 SPC Interpretation* - provide detailed guidance on handling this type of damage.

In particular, the *2016 Measure*, as an administrative measure addressing damage compensation caused by offshore drilling, provides that the types of damages caused by an offshore oil incident may cover clean-up costs, costs of investigation, and consequential loss in some specific forms, which also echoes the types of losses mentioned in Article 1235 of the *Civil Code*. Nevertheless, not all damages stemming from offshore drilling are listed, as it does not explicitly mention ecological damage to the marine environment. In the following two chapters, rules related to damage compensation resulting from offshore drilling will be further examined. After considering the extent and means of damage compensation (chapter 4), chapter 5 will examine procedural rules and identify who can claim compensation for different types of damages.

Chapter 4 Extent and means of compensation of types of loss

The previous chapter sketched out what types of damages may occur in the offshore drilling operations and whether these damages are recoverable under the current legal system in China. This chapter further examines the extent and means of compensation for these damages, namely: personal injury (section 1); property damage and economic loss (section 2); fishery loss in particular (section 3); and marine environmental damage (section 4). Furthermore, specific issues of compensation like thresholds and caps, the amount of damage for non-pecuniary damage, compensation awarded as an instalment payment or as a lump sum, and the assessment of these payments are addressed.

1. Personal injury - two *SPC Interpretations*

Chapter 3 introduced the scope of personal injuries. The next question is how to calculate or estimate the aforementioned losses listed under the *Civil Code*,⁴⁹⁷ namely: (A) medical treatment expenses; (B) the loss of income due to missed working time; (C) food allowances in hospital; (D) expenses for nutrition; (E) nursing expenses; (F) cost of assistant equipment for the disabled; (G) compensation for disability; (H) compensation for death; (I) funeral expenses; (J) loss of maintenance; (K) payment for serious emotional distress; and (L) other reasonable costs such as travel expenses and accommodation expenses. Section 1.1 sets out how to calculate each loss provided by Articles 6-29 of *SPC Interpretation on PI*; then section 1.2 provides two examples to present how these rules can be applied in practice. A discussion of types of payment is given in section 1.3.

1.1 Types of indemnities stemming from personal injuries

A. Medical treatment expenses

Costs of medical treatment and for care are stated in the *Civil Code* and interpreted by the SPC, where all costs have to be covered by the defendant as long as they are necessary under the circumstances as well as reasonable in light of the correlation

⁴⁹⁷ See Article 1179 of the *Civil Code*.

between the kind of harm suffered and the means required for treatment.⁴⁹⁸ Article 6 of the *SPC Interpretation on PI* demonstrates how to determine medical expenses and whether or not they are necessary. It addresses that the medical expenses will be calculated on the basis of bills issued by the medical institution for medical expenses, while other relevant evidence such as medical records and records of the diagnosis will also be considered.

B. Losses of income due to missed working time

Article 7 of the *SPC Interpretation on PI* concerns a person's lost income due to missed working time. The term 'missed working time' is decided based on proof issued by the medical institution where the victim is treated. If a disabled victim misses working time continuously due to disability caused by the injury, the missed working time may be calculated up to the day before the disability is determined.

In terms of 'loss of income,' Article 7 considers the victim according to two categories based upon how he gets paid. If the victim has a fixed income, his lost wages because of missed working time will be calculated according to the actual loss of his income. By contrast, if the victim does not have a fixed income, his loss of income will be calculated on the basis of his average income during 'the latest three years.' In the latter case, if the victim is unable to prove his average income in the last three years, an alternative to estimate such a loss may be based on the previous year's average income of the employees in the same or similar industry where the court hearing the case is located.

C. Food allowances in hospital

Generally speaking, 'food allowance in hospital'⁴⁹⁹ means the amount of money for

⁴⁹⁸ Koch & Koziol (2002), 420.

⁴⁹⁹ Hospital food in China is different from that in many western countries. Hospitals do not serve food to patients for free. Usually, patients in the hospital have three ways to get their daily meals. (1) They can buy food from hospitals (which usually have own dining halls); (2) they can buy food from restaurants and ask food delivery; (3) their relatives can also cook for them and bring the meal to the patients while visiting. This system may be unfamiliar to readers who are not from China. In western countries, hospitals serve 'free' meals to their patients because such expenses are prepaid by every citizen through the social insurance system. For example, in the UK, patients will have a daily visit from a lady having a menu for breakfast, lunch, and dinner. Patients also have a choice of meals, three times a day, with desserts. The cost is all on the National Health System of the UK. In the US, ideally, hospitals create hospital-specific menus and serve their patients at any given time. They span all ages and most require specialised diets. Patients may be in the hospital for 24 hours or weeks, and they can order meals in a variety of ways, including round-the-clock room service that allows them to request whatever they are in the mood for, whenever they want it. In Canada, food in hospitals can provide a small touch of normalcy in the

meals when the victim is staying at the hospital, which is stated as recoverable under Article 10 of the *SPC Interpretation on PI*. To calculate this cost, the court may refer to the standard travel allowance for a business trip for civil servants in the location court hearing the case, and therefore these standards are not clarified by law in China. Notwithstanding, most governments at the provincial level adopt an amount of CNY 100⁵⁰⁰ as the standard of expenses for three meals in a day, which is derived from the *2016 Standard Travel Allowance of Business Trip for Civil Servants of the Central Government*.⁵⁰¹ Local courts usually adopt this standard when calculating the food allowance for the victim in hospital.

Article 10 (2) adds an exception when compensating food allowances. When the victim needs to be treated in another city or the victim is unable to stay at the hospital for some objective reasons, he may still be compensated for the costs of his meals. To be specific, the actual costs of the food for the victim as well as the person(s) in his company may also be compensated to a reasonable extent. An unclear problem is whether the number of persons accompanying the victim is limited.

D. Expenses for nutrition

Article 11 of the *SPC Interpretation on PI* stipulates that expenses for nutrition are also recoverable, and the determination of such costs should be based on the opinions given by medical institutions. The *SPC Interpretation on PI* is the only legal instrument that includes this form of expense, yet it fails to provide any guidance on calculating or estimating this cost.

In practice, expenses for nutrition are usually at issue when the victim has suffered extreme bodily injuries and cannot absorb sufficient nutrients just having regular meals.⁵⁰² Therefore, the victim needs the doctor to help him with nutrition to promote healing after a surgery or other treatment, and the cost paid for such treatment is labeled expenses for nutrition.⁵⁰³ However, it seems difficult for the court to determine the compensation of expenses for nutrition, since Article 11 barely explains

patient's daily routine. Hospitals have a specific budget for it. See Shoffman 2014; William& Saine, 2015; Murphy 2017.

⁵⁰⁰ CNY 100 = approx. EUR 15 (The current exchange rate for the EUR/CNY was 0.15 in April, 2022).

⁵⁰¹ Ministry of Finance of the PRC (财政部) (April 1, 2016), *Standard Travel Allowance of Business Trip for Civil Servants of the Central Government* (《中央和国家机关差旅费管理办法》), available at http://xzzf.mof.gov.cn/zhengwuxinxi/zhengcefabu/201604/t20160413_1947939.html?flyarg=1&flyarg=2 (accessed on April 14, 2022).

⁵⁰² Ai 2008.

⁵⁰³ *Ibid.*

how to assess it and how to adopt the opinions of medical institutions. A view commonly adopted by local courts is that the expenses for nutrition should not be too high.⁵⁰⁴ In fact, the victim may only obtain compensation for costs of nutrition as well as a food allowance if s/he stays in hospital and the compensation is restricted to the expenses incurred during that time.

Based on the opinions of the qualified medical institutions, the court may rely on their discretion to determine the level of expenses for nutrition, which leaves some questions unsolved. For instance, what is the legal effect of the opinions given by the medical institution? How is 'medical institution' defined? Who is qualified to give such opinions? What is the standard of nutrients? Does it only refer to nutritional medicine? Is nutritious food also recoverable?

E. Nursing expenses

The total nursing expenses are determined on the basis of: (a) how many nursing persons they are; (b) how much each person usually earns; and (c) how long the nursing is required for. These three standards are given under Article 8 of the *SPC Interpretation on PI*.

Obviously, the number of nursing persons is easily calculated and, in principle, it is capped at one.⁵⁰⁵ Nevertheless, the number of nursing persons is not fixed. If the medical institution relating to this case or qualified institutions give a definite opinion on this matter, holding that the victim is in need of more than one nursing person, the court may take into account their suggestions and reconsider the number of nursing expenses.

For the payment of nursing persons, Article 8 (2) divides it into two categories. If the nursing person has other sources of income, he will be paid based on the losses of income due to missed working time. If the nursing person has no income, or the person is specialised in nursing care (i.e., a nurse), the payment will be calculated based on the earnings of the person who specialises in nursing care where the court hearing the case is located.

The last concern regarding this expense is how long the nursing takes. In general, the nursing period will be calculated up to the time when the victim has recovered his

⁵⁰⁴ Huang *et al.* (2004), 309-310.

⁵⁰⁵ Article 8 of the *SPC Interpretation on PI*.

ability to take care of himself. If the victim is so severely injured after the accident that he may not fully recover to be able to look after himself, a reasonable period of having nursing care will be estimated considering several factors, such as his age and his health condition, but such a period is capped at twenty years. Put differently, even though the disabled victim is so badly injured that he has to hire somebody to look after him for the rest of his life, he is merely entitled to claim compensation for costs of nursing for at most 20 years.

In general, the severity of disability is assessed according the degrees of severity.⁵⁰⁶ The nursing care, depending on how serious the victim is injured, how severely he is in need of nursing care and how the disability equipment can help him is also classified into different degrees under Article 8 of the *SPC Interpretation on PI*.

F. Cost of assistant equipment

Expenses for purchasing aid and equipment for the disabled are calculated based on actual prices of applicable devices and the duration of using the aid.⁵⁰⁷ If the disabled victim requires continuing compensation for purchasing mobility aids and equipment after the given duration, the court should accept it. If the victim is indeed in need of the continued use of the equipment, the court should require the liable party to continue to pay the relevant expenses for five to ten years.⁵⁰⁸ The duration of using the aid and the period of compensation for disability are not fixed, as it can be changed flexibly based on the suggestions of medical institutions.⁵⁰⁹

G. Compensation for disability

Article 12 lays down uniform criteria for calculating compensation for disability, where it states that compensation for living expenses of a disabled victim should be calculated on the basis of ‘average annual living costs.’ To be specific, it refers to ‘*the previous year’s average disposable income of urban residents in the city where the court is located, or the average net income of rural residents where the court is*

⁵⁰⁶ A discussion on the classification of the severity of disability, see *infra* H, compensation for disability in this section.

⁵⁰⁷ Article 13 of the *SPC Interpretation on PI*. An instruction on this matter is also given in the *Measures for the Administration of the Allocation of Aid Devices Covered by the Work-related Injury Insurance* (《工伤保险辅助器具配置管理办法》). Also see Ai 2008.

⁵⁰⁸ Article 19 of the *SPC Interpretation on PI*.

⁵⁰⁹ Article 13 of the *SPC Interpretation on PI*. See, also Ai 2008.

located.’ If the victim is age 60 or over, the period shall be reduced by one year for each year of age added; if the victim is age 75 or over, the period should be calculated as five years. This is the second part of ‘average annual living cost’ standard.

For a disabled victim, the compensation should be paid for twenty years of the ‘average annual living cost,’ from the day when the disability is determined, which constitutes the final part of the standard. The compensation for a disabled victim should be based on the extent of his inability to work and the degree of his injury.⁵¹⁰ Moreover, if the victim becomes disabled, yet his actual income is not reduced or he is not severely injured, but his employment has been heavily affected due to specific requirements for the job, the compensation for disability can be adjusted accordingly by the court.

Currently (2022), three standards constitute a classification system of disability in China:⁵¹¹ the *Classification Standard of Severity of Disability Caused by Physical Injuries (2017 Disability Standard)*,⁵¹² the *Standard for Identification Work Ability-Gradation of Disability Caused by Work-related Injuries And Occupational Diseases (2015 Work-related Injury Standard)*⁵¹³ and the *Standard on the Assessment Criteria and Codes for Injuries and Disability in Personal Insurance (2014 Personal Insurance Standard)*.⁵¹⁴

The *2017 Disability Standard* uniformly applies to forensic identification institutions and judicial appraisers when they identify and classify the personal injuries of victims in relevant cases.⁵¹⁵ Before its promulgation, there were only a few specific standards to identify the severity of disability, such as standards for injuries as a result of road traffic accidents⁵¹⁶ or work-related injuries.⁵¹⁷ The court used to adopt Standards in

⁵¹⁰ *Ibid.*

⁵¹¹ Yu et al. 2018.

⁵¹² *Classification of Severity of Disability Caused by Physical Injuries (《人体损伤致残程度分级》)* was issued on April 1, 2016 and came into force on January 1, 2017.

⁵¹³ *Standard for Identification Work Ability-Gradation of Disability Caused by Work-related Injuries and Occupational Diseases (GB/T 16180—2014) (《劳动能力鉴定职工工伤与职业病致残等级》)* was issued in 2014 and entered into force in 2015. It should be noted that this Standard is a recommended national standard (GB/T) and thus has no binding force. More information about the standard scheme in China is given in the *Standardisation Law of the People’s Republic of China*; see *infra* section 3.1.3 of chapter 4.

⁵¹⁴ *Standard on the Assessment Criteria and Codes for Injuries and Disability in Personal Insurance (《人身保险伤残评定标准》)* was issued on January 17, 2014 and came into force the same day. By assessing the extent of injuries and disability resulting from accidents, it helps to determine the classification of the extent of injuries and disability in the field of personal insurance.

⁵¹⁵ *Announcement of the Supreme People’s Court, the Supreme People’s Procuratorate, the Ministry of Public Security, and Other Departments on Issuing the Classification of Severity of Disability Caused by Physical Injuries (《最高人民法院、最高人民检察院、公安部等关于发布《人体损伤致残程度分级》的公告》)* was issued on April 18, 2016. It is a judicial document jointly promulgated by the three bodies mentioned in its title.

⁵¹⁶ *Standard on the Assessment of Disability for Injured Victims in Road Traffic Accidents (GB 18667-2002) (《道路交通事故受伤人员伤残评定》)*. This standard used to be a compulsory national standard, but it was annulled in

these specific fields as a reference to determine the severity of the disability in personal injuries, but it triggered difficulties in practice, as no standard was widely acknowledged to deal with personal injuries in general cases.⁵¹⁸ In this situation, victims who were physically injured due to offshore drilling would have difficulties in assessing how serious they were injured, as no general standard could be applied. It was against that background that the *2017 Disability Standard* was issued to solve this inconsistency. This *Standard* is applicable to assess and to identify the personal injury of victims.⁵¹⁹ If the victim suffers from a work-related injury, the *2015 Work-related Injury Standard* will prevail.⁵²⁰ The seriousness of the disability is classified into ten degrees of severity in all these Standards,⁵²¹ with a coefficient of compensation descending from 100 percent to 0 percent respectively (each degree decreases by 10 percent).⁵²² However, detailed criteria of assessment are different in these standards, and thus the court determines which *Standard* prevails in a particular case on the basis of specific circumstances.⁵²³

Therefore, the *2017 Disability Standard* is applicable to persons who are injured due to an offshore incident, whereas the *Worker-related Injury Standard* prevails when victims are employees who are injured in the workplace or at work, such as platform workers.⁵²⁴ The *2014 Personal Insurance Standard* helps with the classification of the extent of injuries for the purposes of insurance.

H. Compensation for death

Similar to compensation for disability under Article 12, Article 17 sets out uniform criteria for calculating compensation for death. It addresses that compensation for living expenses of a deceased victim should be calculated on the basis of the ‘average annual living cost’ standard as well. In other words, for either a disabled victim or a deceased victim, the ‘average yearly living cost’ standard applies to calculate compensation for disability and compensation for death.

January 2017. Since then, *2017 Disability Standard* applies to personal injuries resulting from road traffic accidents as well.

⁵¹⁷ See the *Standard for Identification Work Ability-Gradation of Disability Caused by Work-related Injuries and Occupational Diseases* (GB/T 16180—2014) (《劳动能力鉴定职工工伤与职业病致残等级》).

⁵¹⁸ Wang 2009.

⁵¹⁹ Zhan *et al.* 2019.

⁵²⁰ Yu *et al.* (2018), 64.

⁵²¹ It refers to the three the Standards discussed above.

⁵²² An example will demonstrate the calculation method in the following paragraphs of this section.

⁵²³ Chen *et al.* 2012b.

⁵²⁴ See *supra* section 2.3.3 of chapter 3.

I. Funeral expenses

For a deceased victim, the expense for his funeral is also recoverable, the standard of which is based on the average monthly wage of employees at the place of the court hearing the case of the previous year, multiplied by six months.⁵²⁵ Normally, the amount is changed with the development of the economy in that area. It is worth noting that a fixed table is given by the government every year showing the average monthly wage of employees in different areas.⁵²⁶

Article 18 adds that, if the victim can prove that the average disposable or net income at their place of residence is higher than the rates at the place of the court hearing the case, the compensation for disability or death can be estimated, based upon the higher standard. The same principle also applies when calculating the living expenses of the dependent.⁵²⁷

Based on these articles, it seems that personal injury, especially injuries in the form of disability or death of a person, is not individualised in China.⁵²⁸ Instead, the damage is estimated and calculated by employing an average disposable net income with an adjustment for age and region.

J. Loss of maintenance

Previously, the ‘loss of maintenance’ was listed separately under the *SPC Interpretation on PI of 2003*.⁵²⁹ By contrast, in the amended *SPC Interpretation on PI (2020)*, the living expenses of the dependents are included in the (H) compensation for disability and (I) compensation for death.⁵³⁰

Apart from the ‘average annual living cost’ standard,⁵³¹ the *SPC Interpretation on PI* also employs an ‘average annual allowance’ standard. Based on *the SPC Interpretation on PI*, the ‘average annual allowance’ standard refers to ‘*the previous year’s average disposable income of urban residents in the city where the court is located, or the average net income of rural residents where the court is located.*’⁵³²

⁵²⁵ Article 29 of the *SPC Interpretation on PI*.

⁵²⁶ Each year, statistical bureaus of each province in China will issue a report that contains relevant data. A specific example is given in the following paragraphs of this section.

⁵²⁷ Article 18 of the *SPC Interpretation on PI*.

⁵²⁸ Conk (2007), 946-947.

⁵²⁹ Article 17 of the *SPC Interpretation on PI of 2003*.

⁵³⁰ Article 16 of the *SPC Interpretation on PI*.

⁵³¹ See *supra* section 1.1.G of this chapter.

⁵³² Article 15 of the *SPC Interpretation on PI*.

Notably, the calculation methods of both standards are the same. It is one standard adopted under two circumstances with two names. If a disabled or deceased victim has dependents, the ‘average yearly allowance’ standard is applied to calculate how much living expenses a dependent is entitled to claim. Specifically, (a) if the dependent is less than eighteen years old (which is a minor in China),⁵³³ the period should be calculated up to the age of eighteen. (b) If the dependent cannot work and has no other sources of income, the period should be calculated as twenty years. (c) If the dependent is over sixty but less than seventy-five, the period should be reduced by one year for each year of the age added; if the dependent is over seventy-five, the period should be calculated as five years.

So far, even though the dependent is grouped into three categories, it is still not clear who is considered a ‘dependent person’ that is in need of maintenance and being raised. Article 15 (2) clarifies this term: a minor (under eighteen years old) to whom the victim is lawfully obliged for maintenance and being raised, or a close relative of the victim, who is an adult person but has lost the ability to work and has no other source of income. If the person in need of maintenance or being raised can be maintained and brought up by any persons, the compensation will be limited to the proportion that the victim should receive by the law.

Moreover, if there is more than one person in need of maintenance and being raised, the annual amount of compensation in total should not exceed the number of average consumption expenditures of urban residents of the last year or the amount of average annual living consumption expenditures of rural residents of the last year.⁵³⁴

K. Payment for emotional damage

Compared with the *Civil Code*, the *SPC Interpretation on ED* provides more precise answers to questions such as whether damage for emotional distress is recoverable and if so under what circumstances. In this sense, the *SPC Interpretation on ED* makes it easier for the victim to receive compensation for their emotional distress.⁵³⁵

Given that emotional damage can hardly be valued in money, several alternative

⁵³³ A person under eighteen years old is a minor under the *Civil Code*. Article 17 of the *Civil Code* states that ‘a citizen aged eighteen or over shall be an adult. He shall have full capacity for civil conduct, may independently engage in civil activities and shall be called a person with full capacity for civil conduct.’ It corresponds to Article 11 of the GPCL.

⁵³⁴ Article 15 of the *SPC Interpretation on PI*.

⁵³⁵ Zhang (2002), 600.

factors and valuations are taken into account when calculating the redress, such as costs and standards of living, the notion of prevention, as well as the notion that liability should be kept within reasonable limits.⁵³⁶ Unlike expenses for compensating physical injury, criteria to measure emotional damage seems to be intangible, as Article 10 of the *SPC Interpretation on ED* sets out six abstract benchmarks rather than providing specific calculation methods for measuring emotional damage.⁵³⁷ Although it is difficult to measure, an unavoidable question for the court is how to calculate emotional damage in specific cases.

There is nevertheless no nationwide statutory cap on emotional damage, but provinces have set their standards on this type of damage. It is common to see local courts impose a cap on emotional damage; yet levels of the cap are different across different provinces and areas.⁵³⁸ The following paragraphs separate these provinces into three categories, relying on how they assess emotional damage.

Table 5 The amount of compensation for emotional damage in selected provinces (unit: CNY)⁵³⁹

Provinces	The scope of compensation	Cap
Shandong ⁵⁴⁰	In general: 1,000-3,000, Serious: 3,000-5,000 An entity as the injurer: multiplied by 5-10 times	Individuals as injurers: 5,000 Entities as injurers: 50,000
Anhui ⁵⁴¹	In general: 1,000-5,000 With disability: 8,000-50,000 With death: 50,000-80,000	80,000

⁵³⁶ Koch & Koziol (2002), 433.

⁵³⁷ See *supra* section 3.2.2.2 of chapter 3.

⁵³⁸ Zhang (2013c), 97-100.

⁵³⁹ The table was made by the author. The current exchange rate for the EUR/CNY is about 0.15 in April 2022.

⁵⁴⁰ Article 85 of the *Opinions of the Shandong Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases* (《山东高级人民法院关于审理人身损害赔偿案件若干问题的意见》). The document was issued by the Shandong Higher People's Court on February 22, 2001.

⁵⁴¹ Article 25 of the *Guiding Opinions of the Anhui Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases* (《安徽省高级人民法院审理人身损害赔偿案件若干问题的指导意见》). The document was issued by the Anhui Higher People's Court on July 18, 2006.

Fujian ⁵⁴²	In general: 1,000-10,000 Serious: 10,000-50,000 Extremely serious: 50,000-100,000	100,000
Yunnan ⁵⁴³	In general: up to 50,000 With special approval: up to 100,000	100,000
Henan ⁵⁴⁴	5,000-100,000	100,000

(1) In provinces like Anhui, Shandong, Fujian, Shanxi, Yunnan, and Henan, the Higher People's Courts set specific limits on compensation for emotional damage in general, which is illustrated in the table above. Some provinces also provide special rules in addition to setting limits for emotional damage. For instance, although the upper limit of emotional damage in Shandong is relatively low (up to CNY 5000), the Higher People's Court of the Shandong Province distinguishes an individual injurer from an injurer as an entity, i.e., a company or organisation. In the latter case, the upper limit should be multiplied by five to ten times, which can be up to CNY 50,000.⁵⁴⁵ Theoretically, if a victim in an offshore accident from Shandong is severely injured, and he intends to claim for emotional damage against the oil company, the court may require the company to compensate at most CNY 50,000 instead of CNY 5,000.

(2) Beijing and Sichuan aim to compensate emotional damage, but they do not have specific limits on the compensation for emotional damage. Instead, in the documents issued by the Higher People's Courts in both areas, compensation for emotional damage is regarded as a part of the compensation for disability and compensation for death, which echoes Article 9 of the *SPC Interpretation on ED*. For instance, in Beijing, compensation for disability is based on the 'previous year's average disposable income of urban residents in Beijing' (average annual living cost of Beijing), multiplied by at most five times; while compensation for death is multiplied

⁵⁴² Article 25 of the *Opinions of the Fujian Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases* (《福建省高级人民法院关于审理人身损害赔偿案件若干问题的意见》). The document was issued by the Fujian Higher People's Court on December 19, 2001.

⁵⁴³ Article 4 of the *Meeting Minutes of the Yunnan Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases* (《云南省高级人民法院《关于审理人身损害赔偿案件若干问题的会议纪要》》). The Yunnan Higher People's Court issued the document on August 1, 2009.

⁵⁴⁴ Article 30 of the *Guiding Opinions of the Henan Higher People's Court on Several Issues Concerning the Trial of Civil Cases* (《河南省高级人民法院关于当前民事审判若干问题的指导意见》). The Henan Higher People's Court issued the document in November 2003. It states that compensation for emotional damage is seen as compensation for death or disability in the case that the victim has died or became disabled due to the tortious act. If the victim is physically injured, yet without disability or death, compensation for the emotional distress arising from such injuries are regarded as compensation for emotional damage.

⁵⁴⁵ Article 85 of the *Opinions of the Shandong Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases*.

by at most ten times.⁵⁴⁶ Although the document states that emotional damage is considered and involved when calculating the above compensation, it seems unclear whether the emotional damage is involved in the total compensation and, if so, what is the percentage of the compensation for emotional damage in compensation for disability or death.

(3) Although the Higher People's Courts of Jiangsu, Chongqing, and Guangdong give guidance on compensating emotional damage, rules addressing emotional damage in these areas only concern specific fields. For example, a document issued by the Higher People's Court of Jiangsu Province⁵⁴⁷ states that the upper limit of emotional damage arising from a traffic accident is up to CNY 50,000. A document issued by the Higher People's Court of Chongqing⁵⁴⁸ states that the emotional damage as an intellectual property claim is capped at CNY 100,000. Another document issued by the Higher People's Court of Guangdong⁵⁴⁹ stipulates that the amount of compensation for emotional damage is no more than CNY 300,000 in cases related to State compensation. It worth noting that this CNY 300,000 limit deals with emotional damage in the case of State compensation cases rather than civil cases. Put another way, the local courts in Guangdong cannot use this limit to determine the amount of compensation on emotional damage when a civil case is at issue.

A distinction must be made between 'emotional damage in regular civil cases' and 'emotional damage in State compensation cases' to avoid a misunderstanding in the study. The latter is stipulated in the *Opinions of the Supreme People's Court on Issues concerning the Application of Compensating Emotional Damage in the State Compensation Cases Heard by the Compensation Committees of the People's Courts*⁵⁵⁰ (hereinafter the *SPC Opinion on State Compensation*), which is developed

⁵⁴⁶ Articles 1-3 of *Opinions of the Beijing Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases* 《北京高级人民法院关于审理人身损害赔偿案件若干问题的意见》. The document was issued by the Beijing Higher People's Court on July 11, 2000.

⁵⁴⁷ Article 28 of the *Guiding Opinions of the Jiangsu Higher People's Court & Jiangsu Provincial Public Security Bureau on Several Issues Concerning the Compensation for Road Traffic Accidents* (《江苏省高院、公安厅关于处理交通事故损害赔偿案件有关问题的指导意见》). Jiangsu Higher People's Court issued the document on August 15, 2005.

⁵⁴⁸ Article 20 of the *Guiding Opinions of the Chongqing Higher People's Court on Several Issues Concerning Determination of the Amount of Compensation for Intellectual Property Torts* (《重庆市高级人民法院关于确定知识产权侵权损害赔偿数额若干问题的指导意见》). Chongqing Higher People's Court issued the document on April 12, 2007.

⁵⁴⁹ Article 5 of the Meeting Minutes of the Guangdong Higher People's Court on Several Issues Concerning the Application of Compensating Emotional Damage in the State Compensation Cases (《广东省高院关于在国家赔偿工作中适用精神损害抚慰金若干问题的座谈会纪要》). Guangdong Higher People's Court issued the document on March 22, 2016.

⁵⁵⁰ *Opinions of the Supreme People's Court on Issues concerning the Application of Compensating Emotional Damage in the State Compensation Cases Heard by the Compensation Committees of the People's Courts* (《最高

from the *State Compensation Law of the People's Republic of China*⁵⁵¹ (hereinafter *State Compensation Law*). These two legal instruments specifically concern emotional damage in the case that the government is liable for compensating the victim. Given that the State compensation is barely relevant in accidents arising from offshore drilling, where foreign enterprises and Chinese enterprises (the CNOOC) are potentially the companies that are liable for the marine pollution during their activities, therefore the rules and standards of compensation for emotional damage in State compensation cases are not applicable in such a case. The former belongs to disputes between civil relations, while the latter, referring to a dispute between an individual and the government, is a topic in the realm of administrative law. Therefore, relevant standards concerning State compensation under this *SPC Opinion* are excluded from this study.

Roughly speaking, emotional damage in China is approximately capped at CNY 100,000 (i.e., in Yunan, Fujian and Henan provinces) or lower: CNY 80, 000 (i.e., in Anhui province). In the Shandong province, the limits differ for an individual injurer and an entity injurer. A few provinces failed to lay down general criteria on this issue. Some provinces aim to compensate emotional damage without setting limits (i.e., in Beijing and Sichuan), while others only set limits in specific fields (i.e., in Jiangsu, Chongqing, and Guangdong). However, the reason some local courts have imposed these monetary thresholds for emotional damage, why the upper limits are capped at a specific amount, and why other local courts only set limits in certain fields, are unknown.

1.2 Two specific examples

The following paragraphs describe two examples to present how to assess and calculate the losses of personal injury in practice.

To calculate compensation in the case of a deceased victim in an offshore accident, a court usually considers the following items: (A) medical treatment expenses before his death; (B) loss of income from work; (H) compensation for death (including (J)

《最高人民法院关于人民法院赔偿委员会审理国家赔偿案件适用精神损害赔偿若干问题的意见》) was issued by the SPC on July 29, 2014.

⁵⁵¹ *State Compensation Law of the People's Republic of China* (《中华人民共和国国家赔偿法》) was initially adopted on May 12, 1994 at the 7th session of the Standing Committee of the Eighth National People's Congress and promulgated on the same day. The law was amended according to the Decision on Amending the Law of the People's Republic of China on State Compensation made at the 14th Meeting of the Standing Committee of the Eleventh National Peoples Congress on April 29, 2010.

the loss of maintenance); and (I) funeral expenses; (K) compensation for serious mental distress; and (L) other reasonable costs such as traffic costs, accommodation expenses, etc. An example is given below:

A woman of forty years old was hired by an enterprise specialised in fishing, with a regular monthly income of CNY 5,000, living in the urban area of Qingdao, Shandong province, and she has an eight-year-old daughter to raise. The amount of compensation is calculated as follows, provided that she stayed in the hospital for five days before her death. During these days, the medical expenses are CNY 10,000, and the transport costs are CNY 500. (in 2017)

A (which is 10,000) + H (which is $20 \times 36,789$ + J (which is $(18-8) \times 23,072$)) + B (which is $5 \times 5,000/30$) + I (which is $6 \times 62,305/12$) + K (max. 50,000) + L (which is 500) = max. CNY 1,059,486⁵⁵² = approx. EUR 158,923.⁵⁵³

To calculate compensation in the case of a disabled victim in an offshore accident, a court usually considers the following items: (A) medical treatment expenses; (B) the loss in income due to missed working time; (C) food allowances in hospital; (D) expenses for nutrition; (E) nursing expenses; (F) costs of assistant equipment for the disabled; (G) compensation for disability (including (J) the loss of maintenance); (K) payment for serious emotional distress; and (L) other reasonable costs.

A woman of forty years old lost a leg (the second degree of seriousness) after an accident originating from offshore drilling, with a regular monthly income of CNY 5,000, living in the urban area of Qingdao, Shandong province, and she has an eight-year-old daughter to raise. The amount of compensation is calculated as follows. Provided that this woman has stayed in hospital for thirty days and hired a nurse (whose salary is CNY 3,000 per month during her stay in hospital, the medical expenses are CNY 10,000, the expenses for nutrition are CNY 500, the costs of buying equipment for disabilities are CNY 10,000 and the transport costs are CNY 500. (in 2017)

⁵⁵² In 2017, the ‘average consumption expenditure of urban residences’ (城镇居民人均消费支出) was CNY 23,072, the ‘average disposable income of urban residences’ (城镇居民人均可支配收入) was CNY 36,789, and the ‘average yearly wage of employees’ (在岗职工年平均工资) was CNY 62,305 in Shandong Province. The data is collected by the Statistical Bureau of the Shandong province, see the detail in its official website, available at http://www.stats-sd.gov.cn/art/2018/2/28/art_6196_812195.html (accessed on April 14, 2022).

⁵⁵³ The current exchange rate for the EUR/CNY was 0.15 in 2022.

A (which is 10,000) + B (which is $30 \times 5,000/30$) + C (which is 100×30)⁵⁵⁴ + D (which is 500) + E (which is 3000) + F (which is 10,000) + G (which is $20 \times 36,789 \times 90\%$ + J (which is $(18-8) \times 23,072 \times 90\%$)⁵⁵⁵) + K (max. 50,000) + L (which is 500) = max. CNY 981,850 = approx. EUR 147,278⁵⁵⁶

Summing up, the basic principle for compensating personal injury is that these costs should be reasonable and generally based on the loss suffered.

1.3 Types of payment

Restitution in kind is typically not possible in cases of personal injury or death. The discussion should, therefore, in this case focus on monetary compensation.⁵⁵⁷ Personal injury caused by offshore incidents is often likely to be enduring, including pecuniary loss (i.e., medical expenses, nursing expenses, the loss of income), and non-pecuniary loss (mainly refers to mental damage). One crucial issue is whether damages are to be paid in a lump sum or instead as a recurring payment or instalment.⁵⁵⁸ The answer here is relevant in all aspects of compensation.

When the damage has taken place, the polluter and the victim may discuss which method is used to pay the compensation. If no agreement is reached on this issue, then the *Civil Code* provides two methods that can be used for the compensation to be paid to the victim. First, Article 1187 states that generally the court should determine the actual amount of compensation for the losses in a lump sum.⁵⁵⁹ However, if the polluter has difficulty paying the total amount of compensation at once, an alternative method of compensating the victim is instalments can be used with relevant guarantees. That is, the person who is liable for the damage may choose to pay at regular intervals under certain circumstances so that the payment can be made partially over some time.

Article 20 of the *SPC Interpretation on PI* also set out similar rules about the payment method, yet it adds that the ‘instalment payment’ method is only to be adopted to pay

⁵⁵⁴ See D food allowances in hospital of this section.

⁵⁵⁵ The seriousness of the disability is classified into ten degrees of severity in all these Standards, with a coefficient of compensation descending from 100% to 0% respectively (each degree decreases by 10%).

⁵⁵⁶ The current exchange rate for the EUR/CNY was 0.15 in 2022.

⁵⁵⁷ Koch & Koziol (2002), 430.

⁵⁵⁸ *Ibid.*

⁵⁵⁹ ‘A lump sum’ implies that the total amount of compensation is the amount of money that is paid in one large amount on one occasion, not consisting of several smaller amounts or instalments. It corresponds to Article 25 of the *Tort Law*.

(a) compensation for disability, (b) living expenses of the dependent, and (c) expenses related to buying mobility aids and equipment for the disabled. It also states that the person who is liable for the damage must provide a financial guarantee for such payments, but the term ‘financial guarantee’ is unclear, since no interpretation is provided. Furthermore, it is prohibited to apply this method for the expenses that have been paid by the end of the first instance trial procedure, compensation for death, and compensation for emotional damage. In these cases, the liable person has to compensate the victim with a lump sum.

Another requirement is that the court needs to record ‘*the time and method of the instalment payment, and the rate of each instalment*’⁵⁶⁰ in the relevant legal documents. If the relevant statistical data is changed during the period of performance, the amount to be paid should be ‘adjusted accordingly.’ When using the instalment payment method, compensation for the victim will be given based on his real life span, but not restricted to the time limit for compensation as mentioned in the *SPC Interpretation on PI*.⁵⁶¹

In light of the compensatory function of tort law, one could follow that monetary compensation is only available as a reimbursement for existing harm, which would favour instalment payments that compensate the loss of each period retrospectively.⁵⁶² Another argument in support of this kind of compensation is the fact that it allows for redress, which can be tailored more precisely to the actual loss. In contrast, a lump sum necessarily has to be assessed on the basis of some prognosis of future developments. However, there are several reasons that a lump sum arrangement is preferable: (a) it can be difficult for victims if they require instant cash in order to set up a new source of income; (b) victims bear an obvious risk of insolvency, especially for operators suffering from an offshore oil accident, which was destructive and costly; (c) the amount of the payment has to be adjusted over time, which forces victims to deal with the harmful incident repeatedly instead of considering it closed; and, indeed, (d) recurring payments over a longer period of time are both cumbersome and troublesome.

Since both types of compensation have their advantages and disadvantages, one can hardly say that either option is preferable for victims (plaintiffs) in a specific case.⁵⁶³

⁵⁶⁰ Article 20 of the *SPC Interpretation on PI*.

⁵⁶¹ *Ibid.*

⁵⁶² Koch & Koziol (2002), 430.

⁵⁶³ Koch & Koziol (2002), 431.

China currently considers the lump sum as a primary option, while allowing instalment payments under certain circumstances for personal injuries. Furthermore, it provides lump-sum compensation for non-pecuniary loss (emotional damage) exclusively. There seems to be a preference in favour of the lump sum arrangement.

2. Property damage and economic loss

In an accident arising from offshore drilling, economic losses can either be direct damage to the property or indirect losses, which may include fixed assets, current assets, losses of agricultural production (i.e. losses of fisheries), and reasonable expenses for preventing property from being damaged (i.e., payment for cleaning polluted fishing gears). Indirect losses are not clarified by law and may only be compensated under certain circumstances in China, i.e., in the case of a fishery pollution accident.⁵⁶⁴ Therefore methods for assessing reasonable indirect losses in specific cases will be discussed below. This section focuses on ways to assess and calculate economic losses.

2.1 Calculating property damage under the 2014 Recommendation Methods

Article 1184 of the *Civil Code* sets out a basic rule to estimate the amount of loss to property, which is to be calculated on the basis of the market price of the property when the damage has taken place.⁵⁶⁵ The details on how to estimate and calculate economic losses are given in the *Recommendation Methods of Assessing Environmental Damage (II)*⁵⁶⁶ (hereinafter *2014 Recommendation Methods*). It was issued by the Ministry of Environmental Protection (hereinafter MEP) in 2014, and although this document has no binding force, it provides scientific methods for the assessment of environmental damage, which helps greatly for the court to assess and determine the losses caused by environmental pollution in practice.

To be specific, the *2014 Recommendation Method* addresses the calculation methods in terms of losses of (i) fixed assets; (ii) losses of current assets; and (iii) agricultural losses respectively.

⁵⁶⁴ A discussion on economic losses in the fishing industry, see *supra* section 3.5 of chapter 3.

⁵⁶⁵ It corresponds to Article 19 of the *Tort Law*.

⁵⁶⁶ *Recommendation Methods of Assessing Environmental Damage (II)* (《环境污染损害数额计算推荐办法(二)》) was issued by the Ministry of Environmental Protection in 2011, with the purpose of improving the evaluation work by providing scientific calculation methods for the environmental damage.

For (i) fixed assets, if the property is destroyed, the loss will be the price of remodelling or purchasing the property. The formula is:

$$L_{\text{fixed asset}} = C \cdot (1 - A \cdot L) \cdot D^{567}$$

L: Loss of fixed assets; (CNY)

C: Cost of remodelling or purchasing the property; (CNY)

A: Annual depreciation rate; (%)

L: Lifetime of the property/ the effective time the property has been used; (year)

D: Damage rate(%).

If the property is partially damaged, the methods in this situation can either be to follow the above formula or calculate the cost to repair the property.

For (ii) current assets, the calculation formula⁵⁶⁸ is:

$$L_{\text{current asset}} = A \cdot P \cdot V$$

L: Loss of current assets; (CNY)

A: The number of current assets;

P: Prices of current assets when purchased; (CNY)

V: Residual value after current assets are damaged (CNY).

The third is (iii) the loss of agricultural production, usually in the form of crops or agricultural products of poor quality. In the case of an accident originating from offshore drilling, it may not only happen in the fishing industry but also in coastal areas. Methods to assess and calculate losses in the fishing industry are provided for by a handful of scientific standards and specific documents such as the ***Calculation Method on the Economic Loss of Fishery Pollution and Accidents*** (GB/T 21678-2018),⁵⁶⁹ which was issued in 2018 and entered into force in 2019. The next section (section 3) will provide a discussion of the losses in the fishing industry.

2.2 Pure economic loss - lessons from vessel-induced pollution

Recall that chapter 3 (section 3.4.2) addresses that compensation for pure economic loss is adopted in the *SPC Provision of Vessel-induced Pollution*, where the scope and quantification of pure economic losses are stipulated. This section sketches relevant rules under this *Provision* to give insights concerning the assessment of pure economic losses arising from offshore drilling.

Article 16 of the *SPC Provision* mainly introduces two approaches to measure the loss

⁵⁶⁷ See the *2014 Recommendation Method*, 14.

⁵⁶⁸ *Ibid.*

⁵⁶⁹ See *infra* section 3.2.2 of this chapter.

of expected income. The first method is built upon a principle: if claimants believe their contaminated property or lost income was caused by marine pollution, the loss of expected income equals *'the average net income during the same period over the last three years'* minus *'the actual net income during the period of pollution;'* in addition, other factors that impact the income should also be equally considered. If the first method cannot be applied, as the average net income during that particular period is unknown or uncertain, the SPC provides a second method: the expected income is assessed on the basis of official statistics or data provided by the government; alternatively, *'the average income of operators of the same industrial sector in the same area during the same period'* can be used as a reference. In some cases, victims may take adequate measures to avoid losing their income before they claim compensation. As a consequence, they are also allowed to claim for polluters to cover such expenses. The court usually considers such expenses as recoverable, yet the sum is capped at the amount of lost income. For instance, if an affected fisherman spent CNY 50,000 to protect his fishpond (which could give him an income of CNY 10,000 shortly), this CNY 50,000 would be too expensive to be recoverable.

We should bear in mind that such pollution described above is caused by a vessel-induced accident rather than by an offshore drilling one. The reason for describing calculation methods concerning vessel-induced pollution is merely to give insights into compensation for pure economic loss as regards marine pollution. To illustrate this point in a more normative fashion, part III of this study will analyse whether compensation for pure economic loss should be allowed or not in the case of offshore drilling.

3. Loss to the fishing sector

When compensation for fishery loss is concerned, an inevitable question arises as to how losses are quantified and calculated, followed by two sub-questions: how to determine whether or not someone pollutes certain fishery areas, and how to estimate the fishery loss in specific cases.

3.1 Evaluating the quality of fishing waters

This part examines the first sub-question by quantifying the water quality of certain sea areas. Specifically, to quantify whether or not the affected water area is 'polluted,'

China implements two standards to tackle this issue: the seawater quality standard and the water quality standard for fishing waters.

Under the Chinese legal framework, the method to determine whether a specific sea area is polluted or not is to measure the water quality in that area- a standard which refers to two national standards as mentioned above. Based on the *Water Pollution Prevention and Control Law (WPCL)*, these standards take the form of assessing the quality of water pollutants discharged under Article 10 of the WPCL, which states that:

‘Any water pollutant discharge shall not exceed the standards for water pollutant discharge and the total control target for major water pollutant discharge as specified by the State or local government.’

Two standards are referenced in this Article: (a) a standard of water pollutant discharge, and (b) a standard of the total control target for primary water pollutant discharge. In practice, the standard for quantifying the water quality of certain polluted water areas implies the former one.⁵⁷⁰ Put differently, the first standard is not only employed as the criteria to guide behaviours of companies that discharge pollutants in China but also helps to determine whether certain water areas affected by acts of pollution are polluted or not. In order to avoid misunderstanding, the water quality standard discussed in this section is limited to the standard of water pollutant discharge.

Article 11 of the WPCL addresses that the Ministry of Environmental Protection (MEP) should develop *‘national standards to measure the environmental water quality.’*⁵⁷¹ Furthermore, administrative bodies at local levels are permitted to establish their standards for pollutants that are not specified or not included in the national standards.⁵⁷²

3.1.1 Standards of fishing waters

Based on the WPCL, the MEP has developed several standards as regards *‘environmental water quality.’* The standard most frequently used to assess water quality in practice is the *Surface Water Quality Standard (GB3838-2002)*.⁵⁷³ Two

⁵⁷⁰ McElwee (2011), 151.

⁵⁷¹ Article 11 of the WPCL.

⁵⁷² Different segments of a water body may be assigned different category designations.

⁵⁷³ McElwee (2011), 150-151.

other standards relating to water quality that are commonly used in China are the water quality standard for sea areas and the water quality standard for fishery waters, which are provided in the two normative documents, respectively: *Fishery Water Quality Standard* (GB 11607-1989) and *Seawater Quality Standard* (GB3097-1997). Both standards scientifically divide water bodies into four categories and set limits for the concentration of certain pollutants in each category.⁵⁷⁴ Since this study focuses on the pollution resulting from offshore drilling, the maximum permissible concentration of oil in certain water areas is the indicator that is important here in the two Standards. To be precise, on the one hand, when the maximum permissible concentration of oil is below 0.05ml/l, the water quality of certain water areas is considered clean enough (which is not polluted) for fishing on the basis of the *Fishery Water Quality Standard*. Such water areas can be used for fishery or aquaculture. The *Seawater Quality Standard*, on the other hand, was first introduced in 1982⁵⁷⁵ but revised in 1997.⁵⁷⁶ Compared to the initial version, which divided the standard of seawater quality into three categories, the new version divides it into four functional categories based on the functions and services provided by different sea areas. More importantly, the seawater quality standard for fishery and aquaculture zones is explicitly illustrated under the *Standard* (relevant contents are marked in bold in the table below). As shown in table 6, a seawater body is designated as Category II water (which is fishable). The maximum concentration of petroleum in this form of a body of water is also 0.05 mg/l.

Table 6 Standard of seawater quality (ml/l)⁵⁷⁷

Pollutant	Category I	Category II	Category III	Category IV
Certain sea areas	Areas designated for fishing , national nature reserves and habitats for endangered species	Areas designated for aquaculture , swimming areas, areas for general industrial use relating to food and entertainment (involving direct human contact)	Areas for general sightseeing, areas for general industries (not involving direct human contact)	Port areas and areas for marine industries

⁵⁷⁴ There are thirty-five types of pollutants are involved in this *Standard*.

⁵⁷⁵ GB 3097-1982.

⁵⁷⁶ GB 3097-1997.

⁵⁷⁷ The table was made by the author based on the *Seawater Quality Standard* of China (GB 3097-1997).

Petroleum	≤0.05	≤0.05	≤0.30	≤0.50
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Interestingly, although areas designated for fishing and aquaculture are classified as Category I and Category II, the standard for petroleum is the same in both categories (which is below 0.05 ml/l). Furthermore, the standard is exactly the same as that under the *Fishery Water Quality Standard* as mentioned above. As a result, when assessing the water quality of affected water areas for fishing or aquaculture, the areas are considered polluted and thus not qualified when the actual maximum concentration of petroleum is above 0.05 ml/l. In other words, when the figure is above 0.05ml/l, certain areas are treated as ‘polluted’ and unsuitable for fishing or aquaculture due to the poor water quality. In this regard, anyone that causes such pollution may bear the relevant liability and have to compensate losses to the victim, such as individual fishermen or fishery companies.

3.1.2 Standards of some marine creature

In terms of wild or farmed shellfish, rather than fish, an additional, yet necessary, step is to quantify marine biological quality due to their special features.⁵⁷⁸ The ***Marine Biological Quality Standard*** (GB18421-2001) gives detailed guidance on this issue, which is adopted to assess the residual chemical hazard in the bodies of shellfish collected from the affected (tested) water areas. By contrast, the standards under the *Seawater Quality Standard* and the *Fishery Water Quality Standard* deal with the assessment of water quality in certain sea areas. The wild shellfish in nature reserves and farmed shellfish in certain aquaculture zones are categorised as Category I (see table 7), where the standard of maximum concentration of petroleum is 15mg/kg. For instance, for one-kilogram shellfish in certain water areas, there should be no more than 15-milligrams of petroleum left in their bodies.

Table 7 Standards of shellfish (net weight, unit: ml/kg)⁵⁷⁹

Pollutant	Category I'	Category II'	Category III'
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⁵⁷⁸ Shellfish filter large volumes of water to extract their food. Pollutants that exist in the marine environment partition into particular organs, according to their chemical characteristics. There are a number of contaminants in the marine environment which give rise to concern both from an environmental and a public health point of view. These are contaminants (such as oil) that are known to accumulate in marine organisms. Bio-accumulation occurs when an organism absorbs a toxic substance (from its environment or from dietary sources) at a rate higher than that at which the substance is lost, leaving the organism with a high internal concentration. See Guéguen *et al.* 2011.

⁵⁷⁹ The table was made by the author based on the *Marine Biological Quality* (GB18421-2001).

Petroleum	≤15	≤50	≤80
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Summing up, when an accident resulting from offshore drilling occurs, the water areas of fishing or aquaculture will be treated as ‘qualified’ (not polluted) if the maximum concentration of petroleum in certain sea areas is below 0.05ml/l. For shellfish, apart from when the above assessment is adopted, another standard is that the maximum concentration of petroleum in shellfish bodies collected from the affected water areas should be less than 15 mg/kg.

Several technical issues are provided in a normative document issued by the MEP: *Specifications on Spot Location of Monitoring Sites Related to Coastal Area Environment*.⁵⁸⁰ Questions such as how to choose specific sites as test areas when quantifying the water quality, and how to select an appropriate location for monitoring the assessment, are answered. Even though this document is not a piece of legislation and thus has no legal force, it is used by local courts as a reference to tackle technical problems in practice.

3.1.3 National standards under the *Standardisation Law*

Any individual or company that intends to engage in fishing is required to follow the standards mentioned above. However, what is the legal force of these standards? What are the legal consequences if someone fails to meet these standards?

Three standards mentioned above are all in the form of a set of certain numbers followed with ‘GB.’ In fact, ‘GB standards’ are short for the Chinese national standards. Based on the *Standardisation Law of the People's Republic of China* (hereinafter *Standardisation Law*), ‘national standard’ refers to the technical requirements that need to be uniform in certain industrial sectors and fields in China, which are classified into mandatory standards and recommended standards. Generally speaking, mandatory standards are prefixed with a ‘GB’⁵⁸¹ and must be implemented nationwide. Civil liabilities will be imposed on companies or individuals if they fail to meet the mandatory standards and cause damage to others.⁵⁸²

Article 10 of the *Standardisation Law*,⁵⁸³ together with Article 18 of the *Regulation*

⁵⁸⁰ *Specifications on Spot Location of Monitoring Sites Related to Coastal Area Environment* (《近岸海域环境监测规范》) (HJ 442-2008) was issued on January 1, 2009.

⁵⁸¹ GB refers to ‘Guojia Biaozhun’ (国家标准, 国标) in Chinese.

⁵⁸² Article 36 of the *Standardisation Regulation*.

⁵⁸³ Article 10 of the *Standardisation Regulation* states that ‘mandatory national standards shall be developed for

*for the Implementation of the Standardisation Law of the People's Republic of China*⁵⁸⁴ (hereinafter the *Standardisation Regulation*), addresses that standards with regard to environmental discharge pollutants and environmental quality should be developed into mandatory standards.

Accordingly, the *Seawater Quality Standard*, the *Fishery Water Quality Standard*, and the *Marine Biological Quality Standard* are all mandatory national standards, since the authority formulates these Standards to protect the marine environment from being polluted by industrial activities, i.e., damage originating from offshore drilling. For example, if certain fishing waters are affected by offshore drilling, the water quality of these areas fails to meet the mandatory standards regulated under the GB standards discussed above, i.e., the maximum concentration of petroleum of the fishing water areas is above 0.05 ml/l. As a consequence, oil operators who pollute these water areas are held liable for compensating the damage.

3.2 Estimating fishery loss

After assessing the water quality of the affected fishing water areas, the final step is to assess the economic losses to the fishing or aquaculture industry. In the field of water pollution (including marine pollution), there used to be two standards guiding the quantification of fishery losses: the *Rules on Calculating Fishery Losses Caused by Water pollution Accidents* (hereinafter *1996 Rule*)⁵⁸⁵ and the *Calculation Methods For the Economic Loss Caused by Fishery Pollution Accidents* (hereinafter *2008 Standard*).⁵⁸⁶ The *1996 Rule*, however, expired in 2017;⁵⁸⁷ whereas the *2008 Standard* was revised in 2018. The new *Calculation Methods on the Economic Loss of Fishery Pollution Accidents*⁵⁸⁸ (hereinafter *2018 Standard*) entered into force in

technical requirements that protect human health and life and property safety, that maintain national security and environmental safety, and that meet the basic needs of economic and social administration.'

⁵⁸⁴ The *Standardisation Law of the People's Republic of China* (《中华人民共和国标准化法》), hereinafter the *Standardisation Law*) was first issued in 1988 and the latest revision was revised in 2017. Article 18 of the *Standardisation Regulation* states that 'standards include national standards, industry standards, local standards, group standards, and enterprise standards. National standards are classified into mandatory standards (GB) and recommended standards (GB/T). Industry standards (HY) and local standards are voluntary standards. The standard for the discharge of pollutants concerning environmental protection and standards for environmental quality should be seen as mandatory standards.'

⁵⁸⁵ *Rules on Calculating Fishery Losses Caused by Water pollution Accidents* (《水域污染事故渔业损失计算方法规定》) was issued by the Ministry of Agriculture in 1996 and expired in 2017.

⁵⁸⁶ *Calculation Methods For the Economic Loss Caused by Fishery Pollution Accidents* (GB/T 21678-2008) (《渔业污染事故经济损失计算方法》) was issued in 2008 and revised in 2018.

⁵⁸⁷ *Decision of the Ministry of Agriculture on Amending and Repealing a Portion of Rules and Regulatory Documents* (《农业部关于修改和废止部分规章、规范性文件的决定》) was issued on November 11, 2017.

⁵⁸⁸ *Calculation Methods on the Economic Loss of Fishery Pollution Accident* (GB/T 21678-2018) (《渔业污染事

2019, when the standard GB/T 21678-2018 replaced the standard GB/T 21678-2008 under the *2008 Standard*. As a result, the *2018 Standard* is now applicable to assess the economic loss in the fishing industry.

3.2.1 Independent accreditation institute

Given that the assessment of fishery losses is a complicated task that requires scientific research and professionals in most cases, judicial authentication by qualified accreditation bodies is needed in practice when tackling a specific case. The requirements for a qualified accreditation body are provided in the *Measures on the Judicial Qualification for Investigation on the Fishery Pollution Accidents*.⁵⁸⁹ An accreditation body is mandated to obtain a ‘certificate of investigation on fishery pollution accidents’ (hereinafter ‘*investigation certificate*’) before it can launch an investigation.⁵⁹⁰ After being admitted as qualified accreditation bodies, they are also classified into three different categories: Category A, B, and C, which will be indicated on the investigation certificate. To be specific, accreditation bodies in Category A can handle all types of fishery pollution accidents, including foreign-related accidents; accreditation bodies in Category B are authorised to investigate fishery pollution accidents that cause economic losses of no more than CNY 10 million;⁵⁹¹ accreditation bodies in Category C only have the right to investigate fishery pollution accidents that result in economic losses lower than CNY 1 million.⁵⁹² Although accreditation bodies in Categories B and C cannot be involved in business abroad, they may have activities throughout the whole country as long as it is irrelevant with regard to international issues.

Professionals in these accreditation bodies should specialise in assessing losses in the fishing industry, have profound knowledge of technical standards, and must be familiar with relevant legal instruments.⁵⁹³ Moreover, all accreditation bodies should possess technical equipment and have laboratories to undertake relevant investigations and assessment.⁵⁹⁴ For example, when dealing with agricultural losses

故经济损失计算办法》) was issued on June 7, 2018 and entered into force on January 1, 2019.

⁵⁸⁹ *Measures on the Judicial Qualification for investigation on the Fishery Pollution Accidents* (《渔业污染事故调查鉴定资格管理办法》) was issued by the Ministry of Agriculture on April 12, 2000.

⁵⁹⁰ Paragraph 2 of the *2000 Qualification Measure*.

⁵⁹¹ CNY 10 million = approx. EUR 1,300,000 (The current exchange rate for the EUR/CNY was 0.13 in 2019).

⁵⁹² CNY 1 million = approx. EUR 130,000 (The current exchange rate for the EUR/CNY was 0.13 in 2019).

⁵⁹³ Paragraphs 1-4 of the *2000 Qualification Measure*.

⁵⁹⁴ Paragraph 5 of the *2000 Qualification Measure*.

originating from environmental accidents, there is a special standard titled *Judicial Authentication Rules on Calculating and Estimating the Economic Loss Caused by Environmental Pollution Accidents Related to Agriculture*, where the 2018 Standard (GB/T 21678) is adopted.⁵⁹⁵

3.2.2 The 2018 Standard assessing the fishery loss

As discussed above, the 2018 Standard is applicable to assess economic losses in the fishing industry since January 1, 2019. This Standard divides the assessment of losses in the fishing industry into two steps: (a) to estimate the extent of losses of fishing resources as a result of the pollution, and (b) to calculate the economic losses based on the first step.⁵⁹⁶

A. Estimating the extent of losses of fishery resources

The 2018 Standard recommends nine methods⁵⁹⁷ on how to estimate the losses of fishing resources and what is the extent of the total damage due to the pollution. When estimating the amount of lost or damaged fishing resources, one or several methods will be adopted on the basis of several factors: the type of water bodies, the size of polluted areas, the hydrological conditions of polluted areas, the characteristics of affected creatures, the historical backgrounds of polluted areas and other specific circumstances resulting from the pollution.⁵⁹⁸

B. Calculating the economic losses

According to the 2018 Standard, there are three types economic losses in the fishing industry after an accident: (i) direct losses; (ii) losses of spawning losses; and (iii) costs of restoration in terms of natural fishing resources.⁵⁹⁹ First of all, if an accident negatively impacts fishing or aquaculture and causes losses to anyone who engages in

⁵⁹⁵ *Judicial Authentication Rules on Calculating and Estimating the Economic Loss Caused by Environmental Pollution Accidents Related to Agriculture* (SF/Z JD 0601001—2014) (《司法鉴定技术规范：农业环境污染事故司法鉴定经济损失估算实施规范》) Issued in 2014, this technical standard is adopted by accreditation bodies to assess environmental pollution related to agriculture, available at http://www.moj.gov.cn/government_service/download/file/file/20170901/6a9a61f76cf643f88c68c2cb4fad8833.pdf (accessed on April 15, 2022).

⁵⁹⁶ The 2018 Standard, 1.

⁵⁹⁷ The nine methods include a calculation method, comparative method, survey-based method, experimental method and five other methods. See the 2018 Standard, 1-3.

⁵⁹⁸ The 2018 Standard, 1-3.

⁵⁹⁹ The 2018 Standard, 8-9.

fishing, only direct losses are considered in the assessment; if an accident damages natural fishing resources, both direct losses and restoration costs are involved. In the first case, there are only fishery losses to individuals or companies that engage in fishing. By contrast, in the second case, both losses of natural fishery resources and environmental damage to certain water areas are covered, where indirect losses may be considered recoverable.⁶⁰⁰ Second, given that the market prices of fish and marine creatures vary a lot, the total economic losses should be calculated respectively. To be specific, the *2018 Standard* proposes a few formulas to calculate direct losses as well as restoration costs.

(1) For direct economic losses, the formula is:

$$L = \sum(Y_i \cdot P_i - F_i)^{601}$$

L = Amount of loss of fishery resources; (CNY)

Y_i = *Y* refers to the number of losses of fishery resources, which is calculated in the first step; *Y_i* refers to the number of losses of 'i' form fish or marine creature;

P_i = *P* refers to market prices of different forms of fishes or marine creatures; *P_i* refers to the market price of 'i' form fish or marine creature; (CNY)

F_i = *F* refers to post-payout after fishery resources are harvested; *F_i* refers to the payout of 'i' form fish or marine creature after it is harvested. (CNY)

(2) The Standard also set out a formula to calculate losses due to the reduced price of fish and seafood products after the pollution,

$$L = \sum Y_i \cdot (\bar{P} - P)^{602}$$

L = Amount of loss of fishery resources; (CNY)

Y_i = *Y* refers to the number of existing fishery resources after the pollution; *Y_i* refers to the number of existing 'i' form of fish or marine creature after the pollution;

P_{ai} = *P_a* refers to average prices of different forms of fishes or marine creatures in the local market; *P_{ai}* refers to the average price of 'i' form fish or marine creature in the local market; (CNY)

P_{bi} = *P_b* refers to prices of different forms of polluted fishes or marine creatures after the pollution; *P_{bi}* refers to the reduced price of 'i' form fish or marine creature after the pollution. (CNY)

(3) As mentioned above, the loss of spawning (and juvenile fish) is involved when calculating economic losses, the formula is:

$$L = Y \cdot P \cdot K^{603}$$

L = The amount of Loss of spawning and juvenile fish; (CNY)

Y = The number of spawning and juvenile fish;

P = Average price of fish fries in the local market; (CNY)

⁶⁰⁰ *Ibid.*

⁶⁰¹ *The 2018 Standard*, 6.

⁶⁰² *The 2018 Standard*, 7.

⁶⁰³ *Ibid.*

K= The percentage of fish fries growing up with full size (which can be sold): the spawning is estimated as 1% the juvenile fish is estimated as 5%.

The methods for calculating restoration costs as a result of losses of natural fishery resources are different. Either an estimation method or a calculation method may be applicable to assess such costs, depending on specific circumstances. For the first method, the costs of restoration are based on the actual losses, multiplied by at least three times.⁶⁰⁴ In the opinion of the MEP, natural fishery resources are more environmentally sensitive in comparison to farmed fishery resources, and thus the *Standard* takes the expenses of ecological restoration into consideration.⁶⁰⁵ The second method - calculation method - will not be presented in this study due to its complexity. In general, it is a qualified accreditation body that copes with these technical problems and then provides a report as a reference for the court.

The *2018 Standard* also makes clear that polluted fishing gear, missing facilities as well as clean-up costs due to the accident are all treated as actual costs and included in the economic losses. Moreover, expenses for investigation, quantification, and assessment are also admitted as recoverable.⁶⁰⁶

The following example explains the procedures to estimate and calculate the fishery loss after an accident.

A fisherman, Li Lei, has a certificate to use certain sea areas and a certificate for aquaculture, which specifies the sea areas he can use for fishing covering 1,000,000 m² in the coastal area of Qingdao, Shandong. Li raised sea cucumbers in this area. Unfortunately, a blowout took place near Li's aquaculture area in 2018. The liable party, an offshore oil company S, polluted part of Li's aquaculture area due to the blowout; and the affected area was around 500,000 m² (half of Li's area of aquaculture). It is noted that the oil discharged by S company was the main reason for the loss of sea cucumbers. A qualified accreditation body Q was entrusted to launch an investigation on the polluted area and gave an assessment report of this pollution.

Following the required procedures, the accreditation body Q selected certain sites in the affected aquaculture area to collect sea cucumbers. The actual density of sea cucumbers in the polluted area after the pollution was 0.009 kg/m². (1) The court

⁶⁰⁴ *The 2018 Standard*, 8.

⁶⁰⁵ *Ibid.*

⁶⁰⁶ *The 2018 Standard*, 9.

recognised this report and relevant data. Moreover, the total number of sea cucumbers that were harvested before the pollution was 5,000kg based on the Li's record (which was confirmed by the court), and the market price of sea cucumbers in Qingdao was 180 CNY/kg in 2018. Before the blowout, the density of sea cucumbers in the unaffected area was 0.029 kg/m².

The actual amount of losses for sea cucumbers = (0.029-0.009) × 500,000 - 5,000 = 5,000 kg

*The amount of lost earnings of Li due to the accident = 5,000 × 180 = CNY 900,000 = approx. EUR 135,000.*⁶⁰⁷

*As a result, the offshore oil company S should compensate Li in the amount of CNY 900,000 in terms of the economic losses of aquaculture due to the blowout.*⁶⁰⁸

To summarise, after an accident originating from offshore drilling, quantifying fishery losses means evaluating whether the water quality of certain sea areas meets the national standards for fishery water and seawater. If the water quality of certain sea areas is still suitable for fishing, fishery losses will not be linked to the accident. In contrast, if the water quality of certain sea areas fails to meet the national standard, such areas are regarded as 'polluted' by law and the next step is to calculate economic losses caused by the polluter. Calculation methods of losses are different in specific circumstances. Generally speaking, a qualified accreditation body will launch an investigation at the request of the court and will give an assessment report. The court will take the report and the opinions of experts into account when deciding the case.

4. Marine Ecological damage

As far as compensation for ecological damage to the marine environment is concerned, an unavoidable question that arises in practice is how such damage can be quantified.

⁶⁰⁷ The current exchange rate for the EUR/CNY was 0.15 in April 2022.

⁶⁰⁸ A similar case occurred in practice. See the Civil Ruling of the Retrial Regarding *Qinhuangdao Economic & Technological Development Zone Power Company v. Qinhuangdao Development Zone State-owned Asset Operation Co. Ltd Regarding Liability Dispute for Marine Pollution Settlement* given by the Supreme People's Court (秦皇岛经济技术开发区港务有限公司、秦皇岛开发区国有资产经营有限公司海上、通海水域污染损害责任纠纷再审审查与审判监督民事裁定书 (2017 最高法民申 5080 号), available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=b504af62853243598371a968012fce34> (accessed on April 15, 2022).

4.1 A three-tier compensation scheme under the 2018 SPC Interpretation

Following Article 7 of the *2018 SPC Interpretation*, Articles 8 and 9 give more details on assessing these forms of losses, which constitutes a three-tier system of compensation for marine ecological damage.⁶⁰⁹

4.1.1 The first-tier compensation

The first tier of the compensation system can be found in Article 8, which stipulates how to measure marine ecological damage in general. For the costs of restoration, it is *'limited to reasonable costs that have been spent and are about to be spent in the future, including expenses paid for formulating and implementing restoration schemes and costs of monitoring and supervision.'*

In order to assess whether or not *'reasonable costs and losses in the period of restoration'* are *'necessary in the future,'* relevant parties may entrust *'certain qualified accreditation bodies'* to evaluate the losses and then provide a professional report to demonstrate whether or not relevant costs are necessary in particular cases. The accreditation body should obey the applicable regulations and follow technical requirements issued by national regulatory authorities when conducting an investigation and assessment on this issue. The report may be invalid in the case that the other party (usually the polluter) has sufficient evidence to rebut the report. Moreover, if the liable party requests a reduction to the amount of compensation by claiming that he has already taken preventive measures to restore the damage, the court should uphold such claims.

As illustrated above, Article 8 of the *2018 SPC Interpretation* addresses general methods to determine the losses of marine ecological damage, which constitutes the first tier of the compensation scheme. If, however, the court has difficulty in determining ecological damage to the marine environment via Article 8 of the *2018 Interpretation*, how should the court proceed with this situation?

The SPC may draw inspiration from Article 1182 of the *Civil Code*, which states *'if the loss sustained by the victim is difficult to determine and the tortfeasor obtains any benefit from the tort, the tortfeasor shall pay compensation based on the benefit obtained by it. ...If the benefit obtained by the tortfeasor from the tort is difficult to*

⁶⁰⁹ China Court 2018. The report is based on an Interview with the head of the Civil Division IV of the Supreme People's Court concerning the *2018 SPC Interpretation*.

*determined, the people's court shall determine the amount of compensation based on the actual situations.*⁶¹⁰

As a result, when the loss sustained by the victim is impossible or unlikely to be assessed in practice, the *Civil Code* provides two basic rules to deal with this situation. The first is that the polluter pays compensation based upon the benefit obtained from the act of pollution. An alternative is to allow the court to determine the amount of compensation based on actual situations,⁶¹¹ which leads to Article 9 of the *2018 SPC Interpretation*.

4.1.2 The second-tier compensation

Supported by the idea under Article 1182 of the *Civil Code*, the SPC provides another two methods under Article 9 to determine the restoration costs and losses in the period of restoration when the general method under Article 8 cannot be applied.

Article 9 (1) of the *2018 SPC Interpretation* offers an alternative as the second-tier of the compensation scheme. It states that ‘*when restoration costs and the losses during the period of restoration are difficult to be determined under Article 8 of this Interpretation, the court can estimate the number of reasonable costs on the basis of profits gained from the polluting activities or the reduced costs that should have been paid for the clean-up actions.*’

From the above wording, when marine ecological damage is impossible or unlikely to be estimated, and someone who pollutes the marine environment benefits from his act of pollution, the court may require the polluter to pay compensation based on the direct benefit he received from his act. Alternatively, if someone who pollutes the environment avoids paying to take preventive measures, the polluter will be mandated to compensate for marine damage based on the expenses he should have spent on taking preventive measures. Again, the amount of compensation decided by the court should be ‘reasonable.’

4.1.3 The third-tier compensation

If the benefit gained or the expenses saved by the polluter is uncertain or unable to be assessed, and thus the method under Article 9 (1) cannot be applied by the court in

⁶¹⁰ It corresponds to Article 20 of the *Tort Law*.

⁶¹¹ Qi (2018), 56.

practice, the court may still use the third option: to estimate the amount of reasonable costs based upon ‘*statistical materials provided by relevant authorities*’ or ‘*other evidence that can illustrate an average income of similar operators or indicate an average cost of clean-up actions in the same sector at the same time*’. This constitutes the third-tier of this compensation system.

Under Article 9, in order to determine reasonable costs, several requirements should be followed. First, the average income used as a reference should be limited to the earnings from the same industrial sector in the same region during the same period; second, the average payment used as a reference should depend on the costs of preventive measures during the same period; third, to ensure the reliability and validity of the sources, all the data mentioned above should be collected from relevant statistical materials provided by the authorities or other reliable sources.

Summing up, Article 9 of the *2018 SPC Interpretation* provides two alternatives in addition to the general method under Article 8 to determine the restoration costs and losses in the period of restoration. Notably, the idea of compensation under Article 1182 of the *Civil Code* can be found in this provision.⁶¹² Article 9 may help to determine the amount of compensation when the general method is not applicable to specific cases. Based on Articles 8 and 9, three methods exist under the *2018 SPC Interpretation* to estimate the restoration costs and the losses in the period of restoration. A three-tier compensation scheme for marine ecological damage is established.

4.2 Assessing marine ecological damage under the *2014 Measure* and two *Guidelines*

Based upon Article 6 of the *2014 Measure*, after finding that some human activities are probably a significant threat to the marine ecosystem or receiving reports on suspected pollution, marine administrative departments should undertake a preliminary assessment of the activity that has probably contributed to the pollution. If the assessment indicates that marine ecological damage to the State is severe enough, namely the amount of the losses is higher than CNY 300,000,⁶¹³ certain marine administrative departments should entrust an accreditation body, usually an

⁶¹² Zhai & Chang (2018), 389; Yang (2012), 96; Wu (2012), 183; Gao & Gao (2011), 153-157.

⁶¹³ Article 3 of the *2014 Measure*.

independent accreditation institute specialising in relevant fields, to launch an investigation. This accreditation body will estimate and calculate the amount of damage and offer technical services as requested.

Article 7 of the *2014 Measure* addresses that an accreditation body should follow assessment standards and technical specifications regarding marine ecological damage, yet it does not contain other instructions.

Technical standards and specifications on how to assess marine ecological damage are provided in two normative documents: the *Technical Guidelines for Identification and Assessment of Eco-environmental Damage* (hereinafter *Environmental Guideline*)⁶¹⁴ and the *Technical Guidelines for Marine Ecological Damage Assessment* (hereinafter *Marine Guideline*).⁶¹⁵ The Ministry of Environment published the former *Guideline* in 2016, providing detailed guidance on how to conduct an environmental damage investigation. By comparison, the latter *Guideline* was firstly issued by the SOA in 2013 as a temporary document and has developed into a formal one in 2018, for the purpose of establishing standards in terms of assessing marine ecological damage. In terms of technical standards and specifications on how to assess marine ecological damage, two normative documents, namely the *Technical Guidelines for Identification and Assessment of Eco-environmental Damage* (hereinafter *Environmental Guideline*)⁶¹⁶ and the *Technical Guidelines for Marine Ecological Damage Assessment* (hereinafter *Marine Guideline*),⁶¹⁷ may provide solutions. The *Environmental Guideline* stipulates how to conduct an investigation regarding environmental damage. The *Marine Guideline* is more specific, as it consists of two parts: part I is about general rules considering marine ecological damage, while part II particularly concerns marine ecological damage stemming from oil spills. Specifically, it introduces four steps that are taken to assess marine ecological damage: (a) conduct a preliminary assessment and then collect relevant data; (b) launch an investigation on the affected areas and all

⁶¹⁴ *Technical Guidelines for Identification and Assessment of Eco-environmental Damage: General Principle* (《生态环境损害鉴定评估技术指南：总则》) was issued by Ministry of Environmental Protection in June 2016.

⁶¹⁵ *Technical Guidelines for Marine Ecological Damage Assessment* (GB/T 34546.1 -2017) (《海洋生态损害评估技术导则》). Promoted by the SOA, this *Marine Guideline* was drafted by the National Technical Committee 283 on Marine of Standardisation Administration of China (TC283 全国海洋标准化技术委员会) and issued in 2017.

⁶¹⁶ *Technical Guidelines for Identification and Assessment of Eco-environmental Damage: General Principle* (《生态环境损害鉴定评估技术指南：总则》) was issued by Ministry of Environmental Protection in June 2016.

⁶¹⁷ *Technical Guidelines for Marine Ecological Damage Assessment* (GB/T 34546.1 -2017) (《海洋生态损害评估技术导则》). Promoted by the SOA, this *Marine Guideline* was drafted by the National Technical Committee 283 on Marine of Standardisation Administration of China (TC283 全国海洋标准化技术委员会) and issued in 2017.

the coastal areas nearby; (c) measure the range of affected areas and estimate the extent of types of losses and the amount of restoration costs, and (d) analyse the case and write a final report based on the investigation. Given that these two technical guidelines are respectively enacted based on the EPL and the MEPL,⁶¹⁸ it is expected that both guidelines are likely to play a crucial role in the future, since they provide specific methods to help to tackle technical problems in practice.

Both Guidelines employ a series of standards, including national standards and industry standards specifically for the marine sectors. To be precise, national standards prefixed with ‘GB’⁶¹⁹ are mandatory and must be implemented while national standards prefixed with ‘GB/T’ are recommended. The standard named with a prefix ‘HB/T’⁶²⁰ refers to industrial standards in certain sectors. ‘T’ (tuijian), in both GB/T standard and HB/T standard, refers to ‘recommendation’ (推荐) in Chinese. For example, the *Marine Guideline* itself is a recommended standard, since it is numbered GB/T 34546.1 -2017, which implies that it is recommended by the State and applied nationwide; it is a national standard issued in 2017.

Recall that the *Standardisation Law* only imposes mandatory standards (GB standard), while it encourages the adoption of recommended standards (GB/T standard and HY/T standard).⁶²¹ As a result, except the mandatory standards adopted under the *Environmental Guideline* and *Marine Guideline*, other standards, namely all the GB/T and HY/T standards, are used voluntarily by relevant actors in their sectors. Put simply, except the mandatory national standards employed in the *Environmental Guideline* and *Marine Guideline*, the remaining part of the Guidelines have no full legal force as they are neither legislative instruments nor legally mandatory standards.

5. Summary

This chapter discussed the extent and means of compensation of different types of damages. Based on the *Civil Code*, the SPC issued two interpretations that specify how to estimate and calculate personal injury and emotional damage. Compensation rules for personal injury are more detailed, and they are also widely accepted by courts in real cases. According to the SPC, China considers the lump sum as a

⁶¹⁸ See the *Introduction of the Environmental Guideline* and the *Introduction of the Marine Guideline*.

⁶¹⁹ See *supra* section 3.1.3 of this chapter.

⁶²⁰ ‘HB’ (Hangye Biao Zhun in Chinese) refers to industrial standards in different sectors.

⁶²¹ *Ibid.*

primary option, while allowing for instalment payments under certain circumstances regarding personal injury; in contrast, it provides exclusively for lump-sum compensation for emotional damage.

For property damage and economic loss in general, the *2014 Recommendation Method* is adopted nationwide. Compensation for pure economic loss is an exception in this case, as it is considered only when such loss is caused by vessels rather than by offshore drilling.

Moreover, compensation for some specific sectors is calculated based upon particular standards. For instance, in the fishery and aquaculture industry, there are professional accreditation bodies that apply the *2018 Standard* when calculating the fishery loss.

Qualification of marine ecological damage is even more technically challenging; and accordingly, the *2018 SPC Interpretation*, *2014 Measure* and some guidelines are all used to estimate and calculate the damage to the marine environment. Notably, specific instructions for assessment and qualification are usually provided by normative documents rather than by laws or regulations.

Chapter 5 Procedural rules concerning damage resulting from offshore drilling in China

Chapter 3 examined various types of damage arising from offshore drilling and affirmed that they are recoverable on a strict liability basis, while chapter 4 addressed the extent and means of different types of damages respectively. Based on the description of substantive laws, the next concern relates to the procedural rules and devices used to claim compensation. This chapter is structured as follows: after this brief introduction, section 1 examines *locus standi* in terms of each type of damage. The right of affected victims or legitimate claimants may differ, depending on the specific harm that they sustain. In particular, the claimant of marine ecological damage merits much attention, as the victim of such damage is an abstract concept - the State - under the MEPL. For different types of harm arising from offshore drilling, victims are allowed to claim compensation via more than one approach. Section 2 will sketch the legal basis for each of them, discussing if there are particular hurdles for victims when claiming damages, followed by a discussion on the burden of proof concerning causation in section 3. Section 4 concludes this chapter.

1. Legitimate victims and claimants

1.1 Personal injury

While oil rig technology has improved considerably in the twenty-first century, the possibility of serious injury still remains every time a person steps onto the rig.⁶²² The potential for human error can only be reduced so much, after all. The reality when doing any work on an offshore oil platform is that there will always be a chance of severe accidents, and thus platform workers open themselves up to a host of potential injuries. Serious burns, back injuries, loss of sight, and loss of limbs are merely some of the examples,⁶²³ not even mentioning the possibility of death. Moreover, accidents arising from offshore drilling also endanger the people who live around offshore platforms or visit relevant areas when the accident takes place. For instance, an accident may put fishermen who catch fish in neighbouring areas at risk

⁶²² Ernst 2014a.

⁶²³ Ernst 2014d.

or swimmers or sunbathers nearby may get injured. For these potential victims, they may consider filing an accident claim. Notably, the victim may suffer not only from physical injury but also emotional distress. The latter deserves equal attention.⁶²⁴

Rules on compensating personal injuries as a result of offshore drilling, in essence, are the same as other kinds of injuries to persons, which is regulated in the *Civil Code* and several SPC Interpretations. This section examines who can claim personal injuries. It first sketches general rules as regards compensation for personal injuries under the *Civil Code*, followed by a discussion on the interpretations given by the SPC.

1.1.1 Standing in personal injury cases

Article 1229 of the *Civil Code* states that the polluter who causes environmental pollution should be liable for the damage, and thus he is responsible for paying the compensation.⁶²⁵ However, the *Civil Code* does not contain a rule addressing who is entitled to claim such compensation for damage to the environment. Given that personal injury arising from offshore drilling is in essence a kind of damage the same as other kinds of personal injuries, Article 120 of the *Civil Code*⁶²⁶ generally states that ‘*the victim of a tortious act shall be entitled to require the tortfeasor to assume the tort liability.*’ In other words, an injured victim in an offshore accident enjoys the right to claim compensation.

Article 1181 of the *Civil Code* addresses the person who can claim the compensation if the victim is dead.⁶²⁷ As for a deceased victim, his close relatives are entitled to require the tortfeasor to bear the liability. Furthermore, apart from his close relatives, anyone who pays the medical expenses, funeral expenses, and other reasonable costs for the deceased can also claim compensation these expenses from the tortfeasor. Furthermore, if the victim is an entity (i.e. a company) rather than a person, and such an entity has been split or merged after the accident, the new entity will succeed in the rights of the previous entity and require the tortfeasor to bear the liability. In this sense, the new entity also enjoys the right to obtain compensation from the tortfeasor.

⁶²⁴ Wang (2008), 877.

⁶²⁵ It corresponds to Article 65 of the *Tort Law*.

⁶²⁶ It corresponds to Article 3 of the *Tort Law*.

⁶²⁷ It corresponds to Article 18 of the *Tort Law*.

This provision is further explained in the *SPC Interpretation on PI*. Article 1 of the *SPC Interpretation on PI* clarifies that a person is entitled to claim compensation for losses due to an injury to his life, health or body.⁶²⁸ It makes clear that the person in this sense may refer to: (a) the victim who directly suffers from personal injury due to a tort or any other cause of injury and (2) close relatives of the deceased victim.⁶²⁹ In other words, apart from the victim himself, statutory defendants may have a right of action if the victim is deceased.

1.1.2 Standing in emotional damage cases

A significant factor in the case of an offshore accident is the emotions of the people directly and indirectly affected. For instance, if there is a major injury, the workers themselves are affected. Their families will have to cope with the impact of the accident for some time, especially if the platform worker is the one who provides most of the family's income. Even if there is no serious physical injury to the workers, there is always the chance that the incident left everyone badly shaken.⁶³⁰ For this reason, it is necessary to consider the compensation for emotional damage resulting from an offshore accident.

As emotional damage is also one form of personal injury as stipulated under the *Civil Code*, there is a legal basis providing for the victim to claim compensation for emotional damage. Thereby a related question arises as to who else can claim compensation for emotional damage. The SPC answers this question in the *SPC Interpretation on ED*. According to Article 7, apart from the victim himself, a deceased victim's spouse, parents, offspring(s), or other close relatives are entitled to claim compensation for emotional damage. That is, as successors of the victim, heirs can also sue for damages, which is even true for non-pecuniary loss.

1.2 Economic loss - fishery loss

Recall that the Article 3 of the *Civil Code* states that the law only protects legal property rights and interests. Moreover, prescribed in Article 120, the victim of a tort is entitled to require the tortfeasor to bear the liability. Based on these two articles, the

⁶²⁸ Article 1 of the *SPC Interpretation on PI*. Compared with the previous *Interpretation (of 2003)*, the 2020 Amendment deleted 'persons who are in need of maintenance and upbringing of the victim.'

⁶²⁹ *Ibid.*

⁶³⁰ Ernst 2014b.

one whose lawful property rights or interests have been harmed in an offshore accident is the victim of the loss. S/he is entitled to claim compensation for lawful property damage and economic loss. However, s/he is not allowed to receive compensation for property damage in the case that the property was unlawfully obtained; s/he is also not entitled to claim compensation for property damage when s/he has no relations with such damage. The victim can be an individual, entity, or the State.

Recall that compensation for pure economic loss arising from offshore drilling is not provided for in the current Chinese legal system, whereas the same loss is recoverable in the case of vessel-induced pollution. As a consequence, people are now allowed to claim compensation for pure economic losses arising from offshore drilling.

As far as compensation for damage to the fishing industry is concerned, the victim, based on Articles 237-238 of the *Civil Code*, is considered to be anyone whose property is damaged originating from offshore drilling, i.e., individual fishermen, fishery companies, and aquatic companies.

It is also worth noting that not everyone is legally permitted to use sea areas to develop fishing, and thus not everyone who suffers from offshore drilling is entitled to claim compensation for their fishery losses.⁶³¹ The following part discusses if and how the economic losses are compensated in these circumstances.

1.2.1 Certificate for using sea areas

Both the *Civil Code* and the *Law of the People's Republic of China on the Administration of Sea Areas*⁶³² (hereinafter the *Sea Areas Law*) require that ‘*the right to use sea areas*’ should be lawfully obtained by an entity or individual. It is because ‘*the sea areas belong to the state, and the State Council shall exercise ownership over the sea areas on behalf of the State.*’⁶³³

Chapter IV of the *Sea Areas Law* introduces the right to use sea areas in detail. Articles 19 and 20 of the *Sea Areas Law* states that individuals and entities are prohibited from using sea areas unless they obtain the ‘certificate for using sea areas’

⁶³¹ Du (2013), 12-14.

⁶³² *Law of the People's Republic of China on the Administration of Sea Areas* (《中华人民共和国海域使用管理法》) was adopted at the 24th meeting of the Standing Committee of the National People's Congress of the People's Republic of China on October 27, 2001 and was promulgated on January 1, 2002.

⁶³³ See Article 329 of the *Civil Code* (which corresponds to Article 123 of the *Property Law*); also see Article 3 of the *Sea Areas Law*.

via registration, and this certificate is authorised via an application, tender, or auction. Under this registered system, *the Fishery Law* protects the right to use sea areas⁶³⁴ and the proceeds obtained from using the lawfully registered right.⁶³⁵

1.2.2 Using sea areas under a functional division system

In fact, the other necessary prerequisite for using sea areas is to follow a ‘functional division system’ to use sea areas systematically, which is illustrated in Article 4 of the *Sea Areas Law*.⁶³⁶ Article 15 further states that ‘*the use of sea areas by trade such as fishery or aquaculture shall be in conformity with the functional divisions of sea areas,*’ while Article 7 states that maritime and the fishery administrative departments in local areas should be in charge of supervising the use of sea areas. It indicates that certain departments, i.e., maritime and fishery administrative departments, are authorised to determine which sea areas can be utilised for fishing.

1.2.3 Certificate of fishery or aquaculture

In order to develop fishery or aquaculture in certain sea areas, individual fishermen, fishery companies, and aquatic companies are required to obtain another certificate: ‘certificate of fishery’⁶³⁷ or ‘certificate of aquaculture,’⁶³⁸ based on which activity the individual or the company intends to specialise in.

Article 23 of the *Fishery Law* stipulates that ‘*the State implements a licensing system in the fishing industry.*’ Articles 24 and 25 further regulate how to obtain a fishing certificate via application and what the obligations applicants have after obtaining this certificate. Notably, anyone must obtain a fishing certificate before he lawfully engages in the fishing industry. When he catches or raises fish in certain areas, he is mandated to follow the requirements written on the certificate, such as the type of operation, fishing site, quantity of fishing gear, and fishing quota.⁶³⁹

Similar to a fishing certificate, Article 11 of the *Fishery Law* concerns a certificate of aquaculture. After obtaining a certificate of aquaculture issued by the authority in

⁶³⁴ Article 6 (1) of the *Sea Areas Law*.

⁶³⁵ Article 23 (1) of the *Sea Areas Law*.

⁶³⁶ Article 4 of the *Sea Areas Law* states that ‘*the State practises the system of the functional division of the sea. The use of sea areas shall conform the functional divisions of the sea.*’

⁶³⁷ Article 23 of the *Fishery Law*.

⁶³⁸ Chapters II and III of the *Fishery Law* address aquaculture and fishery industry separately, which are explained below respectively.

⁶³⁹ Article 25 of the *Fishery Law*.

charge of fishing, the user is permitted to engage in aquaculture (marine culture in the sea areas) in certain areas. The right obtained under the law to use certain sea areas for marine culture is called ‘aquaculture right,’ or ‘right of aquaculture.’ More details about this right are provided in the *Measure for Licensing and Registration of Aquaculture in Waters and Tidal Flats*.⁶⁴⁰ Rules concerning the procedures for registering and licensing this ‘aquaculture right’ are provided in this *Measure*.

Therefore, in order to lawfully engage in the fishing or aquaculture industry within the sea areas of China, one must obtain specific certificates issued by the authority.⁶⁴¹ For the fishing industry, a certificate for using sea areas and a fishing certificate are required. For the aquaculture industry, both a certificate for using sea areas and a certificate of aquaculture are necessary. Furthermore, certain sea areas should be used in conformity with the functional divisions of sea areas. In this sense, individuals or companies that are caused damage from offshore drilling are entitled to claim compensation for their losses in the sense that the right for using sea areas, the right of fishing, and the proceeds obtained from their lawful activities are protected under the *Fishery Law*.

The next question addresses whether and if so what legal consequences there will be if someone engages in the fishing industry without obtaining the above certificates? Articles 42-51 of *Sea Areas Law* stipulate that a person or entity will be punished by the government if he illegally occupies or uses any sea areas without approval, while Articles 48-49 of the *Fishery Law* provide that administrative penalties or even criminal sanctions will be imposed if he engages in fishing without official permission.

When someone illegally engages in fishing in the sea areas, they may suffer from marine pollution as a result of offshore drilling. Fishermen or fishing companies may also expect to claim compensation for their losses. The question is, without the certificates issued by the authority, do they have the right to get compensation from polluters in an offshore accident?

Recall that Article 3 of the *Civil Code* stipulates that only ‘legitimate rights and

⁶⁴⁰ *Measure for Licensing and Registration of Aquaculture in Waters and Tidal Flats* (《中华人民共和国水域滩涂养殖发证登记办法》) was examined and adopted at the sixth executive meeting of the Ministry of Agriculture on May 6, 2010 and entered into force on July 1, 2011. The Ministry of Agriculture issued this ministerial administrative measure in 2010 to protect the lawful rights and interests of aquaculture farmers and companies.

⁶⁴¹ Dai & Pei (2017), 36-41.

*interests of parties in civil law relationships*⁶⁴² are protected under the Chinese legal system. It seems that this Article provides a negative answer to the above question. Further explanation of this issue is provided in the Article 1 (2) of the *Provisions on Several Issues concerning the Trial of the Relevant Cases Occurring in Sea Areas under the Jurisdiction of China (II)* (*Provisions II of Sea Areas*).⁶⁴³ It stipulates how compensation is negatively impacted when someone does not obtain a fishing certificate, which reads as follows:

'Anyone who, in violation of Article 23 of the Fishery Law, engages in offshore fishing operations without obtaining a fishing certificate files a claim for income loss in accordance with the provision of the preceding paragraph, the people's court shall not support such a claim.'

Article 1(1) of the *Provision II of Sea Areas* addresses that anyone who suffers from a vessel collision or marine pollution may file a claim to get compensation. As shown, the scope of compensation is limited to losses to the fishery vessel, fishing tackle, aquatic products, and income loss from the infringing party. The first three losses to the victim are direct economic losses, while the income losses of the victims are indirect economic losses caused by marine pollution. As discussed above, if someone catches or raises fish in the fishing industry, they must have certain certificates in advance. Article 1(2) of the *Provision II of Sea Areas* clarifies the *Fishery Law* by stating that victims may not be compensated if they engage in fishing without holding certain certificates as required.⁶⁴⁴

Fishing activities by fishermen or fishery companies without permission are illegal. As a result, the income or proceeds derived from such illegal activities are unlawful

⁶⁴² Article 1 of the *Tort Law* states that this law is formulated in order to protect the legitimate rights and interests of parties in civil law relationships, clarify the tort liability, prevent and punish tortious conduct, and promote the social harmony and stability.

⁶⁴³ *Provisions on Several Issues concerning the Trial of the Relevant Cases Occurring in Sea Areas under the Jurisdiction of China (II)* (《最高人民法院关于审理发生在我国管辖海域相关案件若干问题的规定(二)》).

⁶⁴⁴ Under specific circumstances, despite the fact that victims of the pollution do not hold certain certificates as required, they may still enjoy the right to claim compensation as long as they have been authorised to fish through other ways. For example, in the case of *Zeng Qinglin v. Ondimar Transportes Maritimos Insurance Association Ltda. Regarding the Dispute of Marine Pollution Settlement* (曾青林与昂迪玛海运有限公司、博利塔尼亚船舶保险协会海上污染损害责任纠纷) (2005), although the plaintiff did not get a certificate for using sea areas and a certificate of aquaculture, the polluted areas belong to the military. Since the military of the People's Republic of China is separate from the administrative structure and manages production in their areas independently, the polluted areas were beyond the control of relevant fishery departments and thus could not issue certificates to the plaintiff. Given that the plaintiff got the right to use the areas for fishing after signed a contract with the military, he was permitted to fish, and relevant proceeds from his fishing should be protected by law. Therefore, the court supported the plaintiff's compensation claim for the damage he suffered from the pollution. See the Civil Judgment of Dalian Maritime Court, available at <http://wenshu.court.gov.cn/content/content?DocID=8183ae8a-5c9a-4d64-952d-a8f600f9cd2b&KeyWord=%E5%A4%A7%E8%BF%9E%E6%B5%B7%E4%BA%8B%E6%B3%95%E9%99%A> (accessed on April 15, 2022).

earnings, and thus they are not allowed to claim compensation for their losses in such cases.⁶⁴⁵ Although the *SPC Provision of Vessel-induced Pollution* states that affected fishermen or fishery companies without approval are still allowed to claim clean-up costs,⁶⁴⁶ it is unclear whether this rule can be applied to damage arising from offshore drilling in practice, given that China implements a licensing system in the fishing industry.⁶⁴⁷

1.3 Marine ecological damage

1.3.1 Marine administrative department

1.3.1.1 Article 89 (2) of the MEPL

Recall that the *Constitution* stipulates that ‘*all mineral resources, waters, and other natural resources are owned by the State*,⁶⁴⁸ and the State should ‘*ensure the rational use of natural resources*’ and protect any natural resources from being damaged by individuals or entities. Seemingly, this provision provides a fundamental legal basis for the State to be the victim in the case of marine pollution in sea areas as the State owns their mineral resources (i.e., oil and gas) within the jurisdiction of China. As far as compensation for marine ecological damage is concerned, an inevitable question arises as to who can claim such damage from polluters. The answer is given under the MEPL. Article 89 (2) stipulates that ‘*interested departments*’ are authorised to represent the State and claim compensation for ecological damage to the marine environment, which reads as follows:

‘Empowered by this law, the interested department in charge of the marine environment is authorised to represent the State to claim compensation for any damage to marine ecosystems, marine resources, as well as marine protected areas that result in serious losses to the State from those held liable for the damage.’⁶⁴⁹

This provision not only confirms that ecological damage to the marine environment is

⁶⁴⁵ Dai & Pei (2017), 26-27.

⁶⁴⁶ Article 25 of the *SPC Provision of Vessel-induced Pollution*. See *supra* section 3.4.2 of chapter 3.

⁶⁴⁷ Article 23 of the *Fishery Law*.

⁶⁴⁸ Article 9 (2) of the *Constitution*.

⁶⁴⁹ This provision has been included in the MEPL since its first amendment in 1999. The MEPL was firstly promulgated in 1983 and revised another four times in 1999, 2013, 2016, and 2017 respectively (MEPL 1999, 2013, 2016, 2017).

admitted as recoverable under the MEPL,⁶⁵⁰ but it also makes clear that the interested department empowered by the MEPL is granted the right to claim compensation for marine pollution, including marine ecological damage, from polluters.

Since Article 89 (2) only states that the interested department is the department that is 'empowered by this Law,' one more question which arises from this Article is which department is considered an 'interested department' to represent the State in charge of claiming compensation for marine ecological damage. Article 5 of the MEPL may help to understand this sentence.

Article 5(1) of the MEPL stipulates that '*administrative departments in charge of marine environmental protection under the State Council*' take responsibility for '*centralised control over the environmental protection issue nationwide*', for the purpose of '*preventing marine pollution caused by land-based pollutants and coastal construction projects*'.⁶⁵¹ To be specific, Articles 5(2)(3)(4) respectively address that the State oceanic administrative department, the State administrative department in charge of maritime affairs, the State fishery administrative department, and the environmental protection department of military are responsible for preventing marine pollution within their field.

Enacted by the SPC, the *Interpretation of the Supreme People's Court on Several Issues concerning the Trial of Cases of Disputes about Compensation for Marine Natural Resources and Ecological Damage*⁶⁵² (2018 SPC Interpretation) reiterates the MEPL. It states that '*when administrative departments in charge of marine environmental protection under Article 5 of the MEPL claim ecological damage to the marine environment and file such a lawsuit based on their duties, the court shall accept the case.*'⁶⁵³

In other words, based on Article 5 of the MEPL marine administrative departments can bring a case to the court and claim compensation for damage to the marine ecological environment based on their duties. It sometimes distinguishes four specific situations: (a) if the damage results from marine construction projects or dumping of waste in the sea, the State ocean administrative department is authorised to claim

⁶⁵⁰ See *supra* section 3.6.2 of chapter 3.

⁶⁵¹ *Ibid.*

⁶⁵² *Interpretation of the Supreme People's Court on Several Issues concerning the Trial of Cases of Disputes about Compensation for Marine Natural Resources and Ecological Damage* (《最高人民法院关于审理海洋自然资源与生态环境损害赔偿纠纷案件若干问题的规定》) was issued on December 29, 2017 and entered into force on January 15, 2018.

⁶⁵³ Article 3 of the 2018 SPC Interpretation.

compensation on behalf of the State; (b) if the damage is caused by non-military vessels within the port waters, or non-fishing vessels and non-military vessels outside the port waters, the State administrative department in charge of maritime affairs is empowered to represent the State and claim compensation; (c) if the damage is caused by non-military vessels within the fishing port waters or caused by fishing vessels outside the fishing port waters, the State fishery administrative department enjoys the right to claim compensation on behalf of the State;⁶⁵⁴ And (d) if the damage is caused by military vessels, the environmental protection department of the military is responsible for the investigation of marine pollution and compensation from polluters on behalf of the State.⁶⁵⁵

Although Article 5 of the MEPL, together with Article 3 of the *2018 SPC Interpretation*, addresses that certain marine administrative departments enjoy the right to claim compensation, these provisions may not be applicable in the case of ecological damage arising from offshore drilling. As discussed above, this provision only covers damage stemming from five forms of vessels, namely fishing vessels, non-fishing vessels, military vessels, non-military vessels, and foreign vessels, where damage arising from offshore drilling is not explicitly prescribed in Article 5. Strictly speaking, it is unclear whether damage to the marine environment resulting from offshore drilling is applicable to this provision or not.

In cases where offshore drilling operations in China pollute the marine environment, it is the interests of the State that are violated, while such a violation is caused by liable offshore operators and the State-owned CNOOC. In other words, when the State is deemed to be the victim of marine ecological damage, both conflicting parties in this regard are somewhat related to the State: the claimants are marine administrative bodies (the State Oceanic Administration and its branches) on behalf of the State to require compensation, whereas the State-owned CNOOC can be one of the liable parties. As addressed in chapter 2 (section 2.3.3), the above provisions may raise doubts about the independence of marine administrative bodies from the CNOOC, as both parties are closely related to the authority.

Does this State-feature of both parties have an impact on the liability distribution? Will the marine administrative bodies hesitate to claim compensation from the State-owned CNOOC and only initiate claims against foreign offshore operators? Are

⁶⁵⁴ Article 5 of the MEPL.

⁶⁵⁵ *Ibid.*

the State-owned enterprise and administrative bodies subject to the same authority at a higher level? Do they have different budgets from the government? According to the particular government system in China explained in chapter 2, theoretically, it seems that both the administrative bodies and the SOEs are independent of each other. However, it cannot be guaranteed that the State-feature of the CNOOC will not influence the decision taken by the competent marine authority to handle the compensation claims.

1.3.1.2 Article 2 of the 2014 Measure

Issued by the State Oceanic Administration (SOA), the *Measure Concerning Compensation of Marine Ecological Damage for the State*⁶⁵⁶ (2014 Measure) clarifies the question mentioned above. Article 2 of the 2014 Measure states as follows:

‘For any marine pollution or ecological damage caused by following activities that result in serious losses to the State, the interested department empowered by the provisions of the Marine Environmental Protection Law to take charge of marine environmental protection shall, on behalf of the State, claim compensation from those held liable for the damage:

(1) constructing, remodelling, and expanding coastal or marine engineering projects;

...(7) developing marine oil exploration and exploitation;

...(11) environmental emergency and accidents;

(12) other activities that should be compensated by polluters.’

Article 2 of the 2014 Measure illustrates that the ‘interested department’ empowered by the MEPL is authorised to represent the State to claim compensation in the case of ecological damage originating from marine oil exploration and exploitation. As a consequence, marine administrative departments under Article 5 of the MEPL are also authorised to file a lawsuit with the court and claim compensation for marine ecological damage as a result of offshore drilling based on their duties. More specifically, Article 4 of this Measure classifies the interested departments into three categories according to the Chinese administrative hierarchy. First, the State Oceanic

⁶⁵⁶ *Measures Concerning Compensation of Marine Ecological Damage for the State* (《海洋生态损害国家损失索赔办法》) was issued by the State Oceanic Administration (SOA) on October 24, 2014.

Administration⁶⁵⁷ (SOA) takes charge of supervising and protecting the marine environment at the national level. Second, the provincial marine administrative departments are responsible for protecting the marine environment within their jurisdiction at the provincial level. Last, branches of the SOA that are dispatched to some local regions⁶⁵⁸ have the right to claim compensation on behalf of the State under three circumstances: (a) when the marine ecological damage impacts more than one province; (b) when the marine ecological damage occurs beyond the jurisdiction limits of any provincial marine administrative department; (c) when one accident triggers situation (a) and situation (b) simultaneously. Consequently, branches of the SOA that are dispatched to certain regions can tackle marine pollution as long as such cases are beyond the jurisdiction of provincial marine administrative departments. The important role of the dispatched branch is reinstated in the *2016 Measure*⁶⁵⁹ in dealing with offshore oil damage.

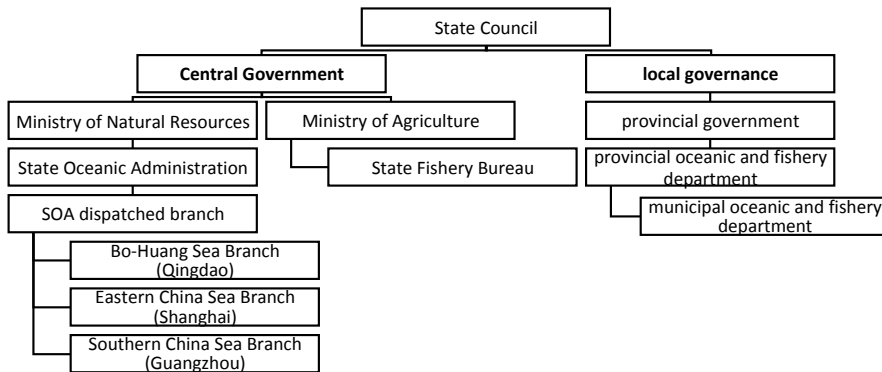
Figure 10 Administrative structure regarding marine and fishery issues in China⁶⁶⁰

⁶⁵⁷ Founded in 1964, State Oceanic Administration (国家海洋局) was an administrative agency subordinate to the Ministry of Land and Resources (国土资源部), responsible for the supervision and management of sea areas in China and coastal environmental protection, protecting national maritime rights and organizing scientific and technical research of its territorial waters. In March 2018, China initiated a new Institutional Reform of the State Council (information about the Institutional Reform of the State Council). The Thirteenth National People's Congress announced that the newly formed Ministry of Natural Resources (自然资源部) would succeed the functions of the Ministry of Land & Resources, State Oceanic Administration and the State Bureau of Surveying and Mapping. Meanwhile, the title of the State Oceanic Administration would remain. Moreover, the newly set up Ministry of Ecological Environment (生态环境部) also partially succeeds the functions of the State Oceanic Administration concerning protecting the marine environment and preventing marine pollution. For instance, to fix water pollution in the old days one needed to find the Ministry of Land and Resources manager who oversees underground water, and then contact the Ministry of Environmental Protection (环境保护部) if pollutants are in lakes and rivers. Also, if it is the farmland that is polluted, one had to talk to officials at the Ministry of Agriculture (农业部). If it is the ocean, the State Oceanic Administration is in charge of the case. Now, these offices are all under one roof at the newly set up Ministry of Ecological Environment. See Wang 2018a; Wang 2018b.

⁶⁵⁸ The following are three dispatched branches (in Chinese: 派出机构) that were subordinate to the SOA: (a) Bohai & Huang Sea Branch (北海分局) (its headquarter is in Qingdao), (b) East China Sea Branch (东海分局) (its headquarter is in Shanghai); (c) South China Sea Branch (南海分局) (its headquarter is in Guangzhou). After the Institutional Reform of the State Council in 2018, these three dispatched branches are subordinate to the newly formed Ministry of Natural Resources. See the official website of the Ministry of Natural Resources, available at http://www.mnr.gov.cn/jg/#scy_jgsz (accessed on April 15, 2022). Article 3 of the *2016 Measure* has similar provision.

⁶⁵⁹ Article 3 of the *2016 Measure* states that 'the State Oceanic Administration and its local offices are the competent departments for the implementation of these Measures. Local offices include branches and their subordinate maritime administrations (hereinafter referred to as 'competent departments of sea areas'). Marine monitoring stations shall conduct administration according to the authorisation of maritime administrations. The marine administrative organs of coastal provinces, autonomous regions, and municipalities directly under the Central Government are the local administrative organs that are authorised by the competent departments to implement these measures.

⁶⁶⁰ The figure was made by the author.



As shown in the figure above, the SOA and its dispatched branches, subordinate to the Ministry of Natural Resources, take charge of marine protection. The State Fishery Bureau (SFB), affiliated with the Ministry of Agriculture, is in charge of the fishery industry. Despite that oceanic and fishery issues are in the hands of two different ministries in the Central Government, while, locally, only one agency - the oceanic and fishery department at provincial or municipal level - is responsible for both issues. Moreover, three dispatched branches directly take orders from the SOA rather than being subject to the provincial government. Accordingly, in case of an oil accident, the SOA and SFB will be respectively assigned to deal with marine pollution and fishery loss. In contrast, the oceanic and fishery departments at local levels are occupied with both issues under this institutional setting.

In fact, provisions considering ecological damage to the marine environment have been involved in the MEPL since its first amendment in 1999. Although the MEPL was revised another three times (in 2013, 2016, and 2017), the right of interested departments to claim compensation for marine ecological damage remains the same. The claimant of marine ecological damage to the environment is limited to marine administrative departments, while it is unknown whether or not individuals or organisations are excluded from filing a marine ecological case under the MEPL.

1.3.2 Social organisations

When an accident resulting from offshore drilling occurs, ecological damage to the marine environment may result in serious losses to the State. Pursuant to the MEPL, a certain marine administrative department is allowed to represent the State to claim compensation. Additionally, marine pollution caused by offshore drilling may also

lead to severe damage to the public interest. The question arises as to who can file against the polluter on behalf of the public.

1.3.2.1 Article 55(1) of the CPL

Revised in 2012 and entered into force in 2013, the *Civil Procedure Law of the People's Republic of China*⁶⁶¹ (hereinafter *CPL*) confers the standing of social organisations in terms of environmental pollution. Article 55 (1) of the CPL states that '*administrative organs or relevant organisations*' may have the right to initiate an action against anyone who pollutes the environment and damages the public interest, which implies that the CPL conditionally authorises social organisations and administrative organs to claim compensation for environmental pollution in the public interest. It was the first time that the '**Environmental Public Interest Litigation**' (hereinafter *EPIL*) had been provided for in a law promulgated by the National People's Congress and it was regarded as a breakthrough in allowing administrative organs and social organisations to initiate a lawsuit, even without having a direct interest in the particular case.⁶⁶² It suggests an exception to the general rule according to which a plaintiff must have a direct interest in the action that he initiates, thus allowing social organisations to engage in more active litigation strategies in pursuit of the public interest.⁶⁶³ Social organisations, or non-governmental organisations (hereinafter *NGOs*), are identified as an important actor in promoting environmental protection via the *EPIL*.⁶⁶⁴ There was not, however, any subsequent legislation on the definition of '*legally mandated administrative organs and relevant organisations*.' Similarly, no authority or organisation was immediately authorised to initiate public interest litigation in matters related to environmental protection, and courts rejected all the *EPIL* cases filed in 2013.⁶⁶⁵

In academia, scholars generally agree that '*legally mandated administrative organs*' refer to '*departments responsible for supervising the marine environment*' as

⁶⁶¹ *Civil Procedure Law of the People's Republic of China* (《中华人民共和国民事诉讼法》) was adopted at the 4th Session of the Seventh National People's Congress on April 9, 1991; amended for the first time at the 30th Session of the Standing Committee of the Tenth National People's Congress on October 28, 2007; and amended for the second time at the 28th Session of the Standing Committee of the Eleventh National People's Congress on August 31, 2012. The CPL was amended for the third time in 2017.

⁶⁶² Qiao 2013.

⁶⁶³ Zhang & Mayer (2017), 206; Zhang (2015b), 354-352.

⁶⁶⁴ Qi (2018) 'Public Interest Litigation' in China: Panacea or Placebo for Environmental Protection? *China: An International Journal* Vol. 16(4), 47-75, 47.

⁶⁶⁵ Li (2014).

prescribed in Article 89 (2) of the MEPL.⁶⁶⁶ Opinions vary regarding the scope of ‘relevant organisations.’ Some may hold that ‘legally mandated’ only modifies ‘administrative organs,’ while what is meant by ‘relevant organisations’ remains to be interpreted by the authority.⁶⁶⁷ Others contend that ‘legally mandated’ modifies both terms and subsequent laws need to clarify what is meant by ‘relevant organisations.’⁶⁶⁸ The latter invalidates previous local administrative regulations conferring standing on social organisations, since ‘legally mandated’ means as prescribed by laws that are only promulgated by the National People’s Congress and its Standing Committee rather than by local governments.⁶⁶⁹ In either case, the court is unclear as to the standing of social organisations. Consequently, although the CPL, revised in 2012, includes the standing of EPIL, which was a breakthrough, it did not succeed in expanding standing for EPIL.⁶⁷⁰

Moreover, Article 55 (1) of the CPL only stipulates that the claimant is entitled to file a lawsuit against the one who pollutes the environment and causes losses to the public interest. Seemingly, it is unclear whether claimants can file a claim against polluters for ecological damage to the environment.

1.3.2.2 Article 58 of the EPL

It is against this background that the *EPL of 2015* was debated and promulgated. Article 58 of the revised EPL clarifies the threshold of standing in terms of social organisations as stipulated in Article 55 of the CPL of 2012. In addition, Article 58 of the EPL can be used not only against any ‘*act that pollutes the environment*’ as in the CPL but also against the act of pollution that ‘*damages the ecosystem.*’ This article states:

‘In case some acts of pollution that harm the public interest by polluting the environment and damaging the ecosystem, social organisations that satisfy the following conditions may bring lawsuits against the polluter in the People’s Court:

(1) legally registered with the civil affairs department of the people’s government at or above municipal levels;

(2) specifically engage in environmental protection in favour of the public interest for

⁶⁶⁶ Xu 2017; Xu 2016; Wang (2014), 46-47.

⁶⁶⁷ Gao 2012.

⁶⁶⁸ Xi (2012), 94; Huang (2014b), 102-103.

⁶⁶⁹ Zhai & Chang (2018), 375-376.

⁶⁷⁰ *Ibid.*

at least five years continuously with no record of illegal activity.

A social organisation that meets the above requirements is entitled to bring a lawsuit to a People's Court, and the People's Court shall accept the case.

A social organisation that brings a lawsuit shall not use it for economic benefit.'

It is apparent that the above provision in the *EPL of 2015* made the requirements for standing for social organisations more specific than as indicated in the CPL.

Despite substantial legislative progress, some hurdles as restrictive standing requirements and imperfect supporting mechanisms remain, which hampers the role the EPIL could have played in addressing China's environmental problem.⁶⁷¹ As a result, Article 58 of the EPL attracted much criticism for imposing excessively strict requirements on the standing of social organisations. Given China's fledgling civil society and its tight control over the registration and operation of social organisations, the prerequisite was expected to be more relaxed in order to promote the development of EPIL.⁶⁷² Imposing proper restrictions on the standing of social organisations⁶⁷³ is expected to prevent vexatious litigation and help screen for competent social organisations without reducing the opportunities of such social organisations to sue.⁶⁷⁴ Problems still remain in the application because of the ambiguities about the meaning of several terms.⁶⁷⁵ For example, what is the scope of 'civil department of the government at the level of city with district or above'? What constitutes '*environmental protection activities in favour of public interest*'? What is the scope of 'illegal activity'?

1.3.2.3 Rules in the judicial documents by the SPC

In order to address the ambiguities about certain terms in the revised EPL and to bring further clarification as regards the standing of the EPIL, the SPC issued several judicial items, including one SPC Interpretation,⁶⁷⁶ two SPC Opinions⁶⁷⁷ and a series

⁶⁷¹ Zhai & Chang (2018), 383.

⁶⁷² Qi (2018), 65.

⁶⁷³ The environmental NGOs, as an important part of civil society, are still in their early stages of development in China. The 'China Society for Environmental Sciences,' established in 1978, is the first e-NGO in China. It was only by the 1990s that the e-NGOs started to develop fast. Han (2014), 173-190; Yang & Taylor (2010), 342-351.

⁶⁷⁴ Xin (2014), 202-203.

⁶⁷⁵ Zhai & Chang (2018), 376.

⁶⁷⁶ *Interpretation of the SPC on Several Issues Concerning the Application of Law in Civil Environmental Public-Interest Litigation* (《最高法院关于审理环境民事公益诉讼案件适用法律若干问题的解释》) (hereinafter 2015 SPC EPIL Interpretation) was issued on January 6, 2015.

⁶⁷⁷ *Opinion of the SPC on Fully Strengthening Environmental Resources Trial Work to Provide Judicial Safeguards for Promoting Eco-Civilisation Construction* (《最高法院关于全面加强环境资源审判工作为推进生态

of model and guiding cases.⁶⁷⁸ These judicial tools confirm a supportive attitude of the SPC towards the EPIL and further clarify some key points.⁶⁷⁹

To be specific, the *2014 SPC Opinion* encourages courts to accept EPIL cases brought by legally mandated social organisations and administrative organs that meet the requirement of Article 58 of the EPL without delay. It also permits the court to help plaintiffs by obtaining evidence, allowing plaintiffs to postpone, reduce or be exempted from court fees. The *2015 SPC EPIL Interpretation* provides a more detailed explanation of social organisations' standing in the EPIL, as social organisations that meet the registration requirements can be divided into three groups: (a) social associations; (b) private non-enterprises units; and (c) foundations.⁶⁸⁰ The *2015 SPC EPIL Interpretation* does not make the scope restricted but rather leaves room for further supplements by administrative and local regulations.⁶⁸¹

The following paragraphs clarify the standing requirements of the EPL by the SPC based on Article 58 of the EPL. First, 'no record of illegal activity' means no

文明建设提供有力司法保障的意见》) (hereinafter *2014 SPC Opinion*) was issued on June 23, 2014; *Opinion of the SPC on Giving Full Play to the Functions of Trial Work in Order to Provide Judicial Service and Safeguard for the Construction of Ecological Civilisation and Green Development* (《最高人民法院关于充分发挥审判职能作用为推进生态文明建设与绿色发展提供司法服务和保障的意见》) (hereinafter *2016 SPC Opinion*) was issued on May 26, 2016).

⁶⁷⁸ Until June 2017, the SPC has released seven model cases and one guiding case on environmental public interest litigation brought by social organisations. See China Court (July 3, 2014). *The SPC Publishes Nine Model Environmental Cases* (最高法院公布九起环境资源审判典型案例), available at <https://www.chinacourt.org/article/detail/2014/07/id/1329697.shtml> (accessed on April 15, 2022). These cases include three cases brought by All-China Environmental Federation (ACEF) (中华环保联合会). See also, (a) Supreme People's Court of the PRC (December 29, 2015). *SPC's Ten Model Cases on Environmental Tort as of 2015* (最高人民法院发布 2015 年十大环境侵权典型案例), available at <https://www.court.gov.cn/zixun-xiangqing-16396.html> (accessed on April 15, 2022); (b) Supreme People's Court of the PRC (June 22, 2017). *SPC's Ten Model Cases on Environmental Criminal, Civil and Administrative Trial Work as of 2017* (最高法公布环境资源行政、刑事、民事十大典型案例), available at <https://www.court.gov.cn/zixun-xiangqing-48782.html> (accessed on April 15, 2022); (c) Supreme People's Court of the PRC (December 28, 2016). *China Biodiversity Conservation and Green Development Foundation v. Ningxia Ruitai Tech Ltd. Regarding Environmental Public Interest-Related Dispute*, No. 75 Guiding Case of the SPC (中国生物多样性保护与绿色发展基金会诉宁夏瑞泰科技股份有限公司环境污染公益诉讼案, 最高人民法院指导案例 75 号), available at <http://www.court.gov.cn/fabuxiangqing-34322.html> (accessed on April 15, 2022).

⁶⁷⁹ Zhai & Chang (2018), 371-372.

⁶⁸⁰ Article 2 of the *Regulation on the Administration of the Registration of Social Associations* (《社会团体登记管理条例》) (2016 Revision) (the State Council, 6 February 2016) defines 'social associations' as 'voluntary groups formed by Chinese citizens in order to realise a shared objective according to their rules and to undertake non-profit activities.' Article 2 of *Interim Regulations on Registration Administration of Private Non-enterprise Units* (《民办非企业单位登记管理暂行条例》) (the State Council, 25 October 1998) defines 'private non-enterprise' units as 'social organisations which are established by enterprises, institutions, associations or other civic entities as well as individual citizens using non-State assets and conduct non-profit social service activities.' Article 2 of *Regulation on Foundation Administration* (《基金会管理条例》) (the State Council, 8 March 2004) defines 'foundations' as 'the non-profit legal person established in accordance with this Regulation by using the property donated by natural persons, legal persons, or other organisations with the purpose of pursuing welfare undertakings.'

⁶⁸¹ Zheng *et al.* (2015), 22- 24. 'Civil affairs departments of the government at the level of a city with districts or above' also include those in the autonomous prefecture, league or region, a prefecture-level city not divided into the district, and a municipal district directly under the Central Government; See also Article 3 of the *2015 SPC Interpretation*.

administrative or criminal punishment has been imposed on the social organisation, which does not include any penalty upon its members or its legal representatives.⁶⁸² The *2015 SPC Interpretation* also distinguishes illegal activities conducted by social organisations before and during the lawsuit. If there are records of illegal activities before the lawsuit, the case will be directly rejected by the court. If they are conducted during the litigation, relevant illegal income will be confiscated, and a fine will be imposed. Nevertheless, the case will continue to be heard by the court.⁶⁸³

Second, ‘engage in environmental protection in favour of the public interest,’ according to the *2015 SPC Interpretation*, means the target and main business scope of certain social organisation will be specified in its bylaw that it aims to protect the environmental public interest and it has indeed engaged in such activities in practice. The public interest it aims to protect through the lawsuit should also have some connections with its target and main business scope.⁶⁸⁴

The CPL, the EPL as well as other relevant judicial documents issued by the SPC provide a legal basis for the standing of social organisations with several standing requirements. It is estimated that about 150 cases related to the EPIL have been brought by social organisations from the implementation of the new EPL in January 2015 to June 2017,⁶⁸⁵ which is a sharp increase in comparison to seventeen cases from 1995 to 2014.⁶⁸⁶ These new rules appear to be designed, in many ways, to make it easier for Chinese social organisations to sue polluters. However, challenges remain.

1.3.2.4 Problems associated with the requirements of standing

Before the introduction of the EPIL, China’s legal response to environmental challenges mainly relied on the law enforcement activities of administrative organs⁶⁸⁷ and on the traditional tort system.⁶⁸⁸ Traditionally, victims of environmental pollution usually seek remedies in tort law and property law, yet the conventional tort-based approach under the *Tort Law* refers to the tort liability part of the *Civil Code* since

⁶⁸² *Ibid.*

⁶⁸³ *Ibid.*

⁶⁸⁴ Article 4 of the *2015 SPC Interpretation*.

⁶⁸⁵ The cases are collected in several documents issued by the SPC. See SPC 2015, 2017a, 2017b.

⁶⁸⁶ Li (2015a), 257.

⁶⁸⁷ Administrative organs in China, generally called ‘government,’ refer to the central and local governments and their subordinate functional departments.

⁶⁸⁸ Zhai & Chang (2018), 369.

2021, which aims to remedy damaged private interests, and it cannot make up for the damage to the public interest caused by environmental pollution.⁶⁸⁹

China used to grant standing only to persons ‘*maintaining impairment of a right*’.⁶⁹⁰

This doctrine has been widely applicable in the court in terms of acts and omissions by private persons and the public administration. In contrast, the EPIL is designed to enhance environmental protection in the public interest, which strengthens the effectiveness of enforcement with respect to environmental law and provides remedies for environmental damage where private tort litigation is not applicable due to a lack of direct stakeholders. The EPIL allows anyone to sue even if their rights, legal interests or other legal titles are not affected by the acts or omissions in question.⁶⁹¹ Hence, this major exception to the traditional legal regime has attracted much attention. Meanwhile, other features of the EPL should not be neglected.

First, the legislative restriction of the standing requirement is, in essence, a double-approval registration system.⁶⁹² In order to meet the threshold of standing, social organisations must be legally registered with the civil affairs department of the government at or above municipal levels. Furthermore, according to regulations on the registration of social organisations, before registration with a civil affairs department, social organisations are mandated to obtain the approval of the relevant governing unit. The relevant governing unit (zhuguan danwei) refers to relevant departments within the State Council and the local governments at or above the county level or the organisations authorised by the State Council and local governments.⁶⁹³ However, there is no systematic and explicit instruction by the State Council or local governments on the governing units of certain social organisations.⁶⁹⁴

As a result, determining a corresponding governing unit becomes difficult especially for grassroots social organisations, which precludes them from taking an active part in

⁶⁸⁹ See *supra* section 3.6 of chapter 3.

⁶⁹⁰ Article 2 of the *Civil Procedure Law of the People's Republic of China* of 1989. Article 2 of the *Administrative Litigation Law of the People's Republic of China* of 1989. See also, Zhai & Chang (2018), 373.

⁶⁹¹ Article 55 of the CPL, Article 58 of the EPL.

⁶⁹² Zhai & Chang (2018), 383.

⁶⁹³ A ‘governing unit’ (in Chinese: 主管单位) is a very general term, as it can refer to any entity in charge. Although the 2015 SPC EPIL Interpretation divides social organisations that meet the registration requirements into three groups, which have to meet additional requirements of establishment. (a) For social associations (社会团体), the specific rules are provided in Articles 3(1) and 9(1) of the *Regulations on the Administration of the Registration of Social Associations*. (b) For private non-enterprise units (民办非企业单位), the rules are Articles 3 and 8(1) under the *Interim Regulations on Registration Administration of Private Non-Enterprise Unit*. (c) For foundations (基金会), the rules are Article 9 (5) of the *Regulation on Foundation Administration*. The rules require that social associations, private non-enterprise units, and foundations should obtain the approval of their ‘governing unit’ before its establishment. However, none of them provide any further guidance on the governing units.

⁶⁹⁴ *Ibid.*

the EPIL.⁶⁹⁵ It is also argued that an approval by the relevant governing unit is not a necessary and logical requirement for the establishment of social organisations.⁶⁹⁶ Second, given the difficulty of registering a social organisation at the national level in China, only a few organisations would have qualified. The amendments to the EPL went into effect that would allow an estimated 700 Chinese NGOs to bring lawsuits against polluters on behalf of the public interest.⁶⁹⁷ The condition that a social organisation should be duly registered with civil affairs authorities excludes possibly as many as 60 percent of social organisations specialised in environmental protection,⁶⁹⁸ including all foreign social organisations and social organisations registered at the county level. In China, a social organisation's geographical scope of operation is decided by the hierarchical level of its registration authority. A related question is: do social organisations registered at higher levels necessarily perform better than those registered at the county level? Some scholars argue that it is likely that local social organisations are more familiar with local circumstances, and thus the level of registration should not be considered an absolute criterion in determining the capacity of a social organisation in the case of EPIL, and therefore this should not be adopted as a threshold under Article 58 of the EPL.⁶⁹⁹

Third, some scholars argue that the requirement of '*five-years working experience*' constitutes an unjustifiable constraint on social organisations' standing. There does not need to be a connection between the years of working experience and the capacity of social organisations dealing with an EPIL case. If there is indeed a link, why is the requirement for five years instead of four or six years? There has been no convincing legal authority to justify this aspect of the standing requirement.

Fourth, some literature also questions the standard for evaluating the high-performance of a social organisation. In China, if an NGO has a record of any administrative or punitive penalties because of its activities over the past five consecutive years, it is not eligible to file an EPIL case. This requirement could be easily exploited to control social organisations that the public administration consider aggressive or unfriendly, rather than being used to weigh the severity and nature of their activities. For instance, it seems to be unnecessarily stringent for a social

⁶⁹⁵ Zhai & Chang (2018), 384.

⁶⁹⁶ *Ibid.*

⁶⁹⁷ Gao 2012.

⁶⁹⁸ Cao 2013.

⁶⁹⁹ Qi (2018), 66.

organisation to lose its standing over a minor violation of the administrative law.⁷⁰⁰

1.3.2.5 The inconsistency of rules in terms of standing

Although Article 58 of the EPL and Article 89(2) of the MEPL both concern the EPIL, the situations of using these two provisions are different. Based on Article 58 of the EPL, the prerequisite of claiming compensation for ecological damage to the environment is that such damage violates the ‘public interest,’ whereas Article 89 of the MEPL considers that the damage causes serious losses to ‘*the State*’ as a precondition for compensation. Due to this fact, the standing requirements in these two articles are also different. If ecological damage to the environment is considered violating the public interest, certain social organisations will be authorised to claim compensation for such damage under the EPL. In contrast, if such damage is considered against the State’s interest and causes serious losses to the State, only certain marine administrative departments are entitled to file a lawsuit under the MPEL. The difference between these two provisions may trigger a practical problem: in one case regarding marine ecological damage, the standing can be completely different if the court considers the damage violates the ‘public interest’ rather than the ‘State interest,’ or otherwise.

In this regard, some scholars argue that Article 89(2) of the MEPL is a provision concerning the EPIL that it is at odds with Article 58 of the EPL, as the latter only states that ‘departments responsible for supervising marine environment’ are qualified to bring a case of EPIL. For example, the *Dalian Environmental Protection Volunteers Association* filed a lawsuit against the *Petro China Fuel Oil Company* regarding offshore oil pollution in 2015, but the Dalian Maritime Court rejected the case due to a lack of standing.⁷⁰¹ Later that year, however, with the same cause of action, the *China Biodiversity Conservation and the Green Development Foundation* brought an action against the ConocoPhillips China (COPC) and the CNOOC and they were accepted by the Qingdao Maritime Court.⁷⁰² These two completely different outcomes indicated that a discrepancy existed, which negatively influenced the application of the law in China. As to the standing requirement of social

⁷⁰⁰ *Ibid.*

⁷⁰¹ See Dalian Environmental Protection Volunteers Association (June 25, 2015). *The Marine Oil Pollution Case of July 16 Comes to an End*, available at www.depv.org/index.php/qdhd/detail/item/1217.html (accessed on April 15, 2022)

⁷⁰² Zhou 2015.

organisations related to marine ecological damage, some literature states that the MEPL should be amended in order to ensure its consistency with Article 58 of the EPL through Article 55 of the CPL.⁷⁰³ Specifically, the legislative or judicial interpretations can broaden the scope of ‘*legally mandated administrative organs*’ in Article 55 of the CPL to ensure that administrative organs that have the right to file an EPIL case are not limited to ‘departments responsible for supervising the marine environment.’

Administrative departments in charge of marine environmental protection can only file a lawsuit against polluters ‘on behalf of’ the State that owns marine natural resources. For this reason, this provision is not in conflict with the traditional standing doctrine under the *Civil Code*.⁷⁰⁴

The table below assumes two situations of this so-called ‘conflict of law’ in the case of marine ecological damage. It illustrates two possibilities for the court to determine whether the claimant (plaintiff) has standing for a case related to EPIL, depending on which interest the court considers the marine ecological damage violates and which law the court adopts to rule the case. For example, after an oil spill, a social organisation X (a qualified social organisation under Article 58 of the EPL) may file a lawsuit against the polluter whose activity caused serious ecological damage to the marine environment within Chinese waters. The court may accept the case based on Article 58 of the EPL, as such damage violates the public interest (Situation A). The Court may also rule that the plaintiff ‘lacks standing’ to bring the suit and may dismiss the case by stating that such damage resulted in serious losses to the State rather than to the public interest based on Article 89(2) of the MEPL (Situation B). It seems that a discrepancy exists in the Chinese legal system.

Table 8 Standing requirements of EPIL under the EPL and MEPL

Social organisation X	Applicable law chosen by the court	
	Article 58 of the EPL (Social organisation)	Article 89(2) of the MEPL (Marine administrative department)
(Situation A) X has standing.	√	
(Situation B) X lacks standing.		√

Offshore oil drilling may both result in serious losses to the State and cause ecological

⁷⁰³ Zhai & Chang (2018), 388.

⁷⁰⁴ Qi (2018), 58. The paper discusses this issue based on the *Tort Law*, which corresponds to the tort liability part of the *Civil Code*.

damage in violation of the public interest. Article 89(2) of the MEPL is formulated to protect the State interest from being harmed, where legal remedies can be mediation or litigation. The one who damages the marine environment is required to eliminate the damage and compensate the losses. Article 58 of the EPL, in contrast, aims at protecting the public interest, and it can only be remedied through litigation. The claimant may require the polluter to bear the liability using a variety of remedies under the *Civil Code*,⁷⁰⁵ depending on the particular case. In this regard, whether the marine administrative department or specific social organisation is granted standing relies on the decision of the court, which may give courts too much room to determine the standing of EPIL at their discretion.

Although legislators and the majority of Chinese scholars in the field of environmental law label Article 89 of the MEPL as a provision of EPIL, a few scholars argue that it does not fit in the definition that the EPIL expands plaintiffs' standing to sue beyond individual rights.⁷⁰⁶ Article 89(2) of the MEPL and Article 58 of the EPL concern different aspects considering ecological damage to the environment, and Article 89 (2) cannot be treated as a special provision and prevail.⁷⁰⁷ In their opinion, Article 89 (2) of the MEPL is misunderstood as a provision of the EPIL, which is detrimental to the development of this form of litigation. In practice, the standing of administrative agencies based on Article 89 is already used as an excuse to deny the standing of social organisations in the EPIL. For instance, in the case *Chongqing Liangjiang Voluntary Service Center and Environmental Protection Foundation of Guangdong Province v. Guangdong Century Qingshan Nickle Industry Co. Ltd. et al.* (2017),⁷⁰⁸ the court considered the MEPL as a special law prior to the EPL as a general law in the field of environmental protection. Therefore the standing can only be granted to administrative departments in charge of marine environmental protection as the social organisations were not proper plaintiffs.⁷⁰⁹ Moreover, some scholars argue that the so-called conflict of law does not exist, since Article 89 should not be considered a special provision of EPIL.⁷¹⁰ Even if a conflict does exist, both administrative departments and social organisations should have standing, because they are in line with '*legally mandated authorities and relevant organisations*'

⁷⁰⁵ See *supra* section 2.5 of chapter 3.

⁷⁰⁶ Qi (2018), 57.

⁷⁰⁷ Article 92 of the *Legislation Law*.

⁷⁰⁸ Zhou 2017.

⁷⁰⁹ *Ibid.*

⁷¹⁰ Qi (2018), 58.

according to Article 55(1) of the CPL.

As a consequence, Article 55 of the CPL may provide an alternative for this matter. As shown in table 9, when someone pollutes the environment and damages the public interest, ‘an authority or relevant organisation as prescribed by law’ is entitled to claim compensation for losses under Article 55 of the CPL. Therefore, if a social organisation X can be considered a ‘relevant organisation,’ the problems that existed in Situation B can be solved (Situation C). In Situation A, even if the court holds that the organisation ‘lacks standing’ to bring the suit based on Article 89(2), its standing can still be authorised under Article 55 of the CPL.

Table 9 Standing requirements of EPIL under the EPL, MEPL, and CPL

Social organisation X	Applicable law chosen by the court		
	Article 58 of the EPL (Social organisation)	Article 89(2) of the MEPL (Marine administrative department)	Article 55 of the CPL (An authority or relevant organisation)
(Situation A) X has standing.	√		
(Situation B) X lacks standing.		√	
(Situation C) X has standing.			√

Even though the standing rules are now relaxed to allow social organisations to intervene via EPIL, obstacles, as identified above, may continue to hinder the process. The EPIL is more of an expedient than a cure to this pressing problem. It could have a positive, albeit limited, impact on environmental governance.⁷¹¹

1.3.3 People’s Procuratorate

Apart from certain environmental administrative organs and qualified social organisations, there is a third body that may have the right to claim compensation in case of ecological damage stemming from offshore drilling, which is the People’s Procuratorate.⁷¹² In 2017, the Standing Committee of the National People’s Congress

⁷¹¹ Qi (2018), 52.

⁷¹² The people’s procuratorates in China are State organs for legal supervision, whose organisation corresponds to that of the people’s courts. They exercise procuratorial authority over two types of cases: important criminal cases and cases that seriously endanger public security or infringe upon citizens’ personal and democratic rights. The people’s procuratorates, as well as the people’s courts, are independent of administrative organs, social organisations or individuals.

amended both the *Civil Procedure Law* (CPL) and the *Administrative Litigation Law of the People's Republic of China*⁷¹³ (hereinafter ALL). The People's Procuratorate is allowed to initiate a case of civil EPIL or administrative EPIL⁷¹⁴ if certain conditions are met.

1.3.3.1 Article 55 (2) of the CPL

Revised again in 2017, the latest CPL allows procuratorates to file an EPIL only when administrative organs or social organisations have not taken such an initiative. This idea is developed under the *Implementation Measures for Pilots of People's Procuratorates Initiating Public Interest Litigation* (hereinafter the *2018 SPP Implementation*).⁷¹⁵ Under the new provision, some literature suggests there may be a danger that the right of the social organisation to sue can be mere window dressing,⁷¹⁶ as a local procuratorate—generally more easily influenced than a social organisation—is therefore a more 'preferable' plaintiff to bring a case of EPIL. The whole process could end up as a formality, while social organisations are prevented from initiating a case due to claim preclusion.⁷¹⁷ To avoid the aforementioned potential risk, both the newly revised *CPL of 2017* as well as the *2018 SPP Implementation* stipulate the arrangement that procuratorates cannot bring an EPIL against private persons unless no such cases are filed by eligible social organisations or relevant administrative organs.

⁷¹³ *Administrative Litigation Law of the People's Republic of China* (《中华人民共和国行政诉讼法》) was first adopted at the 2nd Session of the Seventh National People's Congress on April 4, 1989. The latest version was amended at the 28th Session of the Standing Committee of the Twelfth National People's Congress on June 27, 2017.

⁷¹⁴ *Decision of the Standing Committee of the National People's Congress on Amending the Civil Procedure Law of the People's Republic of China and the Administrative Litigation Law of the People's Republic of China* was adopted at the 28th Session of the Standing Committee of the Twelfth National People's Congress of the People's Republic of China on June 27, 2017 and came into force on July 1, 2017.

⁷¹⁵ *Implementation Measures for Pilots of People's Procuratorates Initiating Public Interest Litigation* (《最高人民法院、最高人民检察院关于检察公益诉讼案件适用法律若干问题的解释》) was jointly issued by the Supreme People's Court and Supreme people's procuratorates on February 23, 2018 and entered into force on March 2, 2018.

⁷¹⁶ Qi (2018), 60.

⁷¹⁷ The matter cannot be raised again if a final judgment is passed and if there is no avenue for appeal. The claim preclusion rule does not apply in case the plaintiff withdrew, or the claim was repealed. However, apart from the mentioned circumstances, there is still plenty of room for manipulation such as using the debate process and provision of evidence. See, Article 28 of the *SPC Interpretation of EPIL, SPC Interpretation on Several Issues Regarding Public Environmental Interest Litigation* (《最高人民法院关于审理环境民事公益诉讼案件适用法律若干问题的解释》). It was issued by SPC on December 8, 2014 and came into force on January 7, 2015.

1.3.3.2 Article 25 of the ALL

Apart from the standing of EPIL against private persons under Article 55 (2) of the CPL, the procuratorate is allowed to initiate a case concerning environmental public interest against public authorities as well. Article 25(4) of the *Administrative Litigation Law* (ALL) stipulates that procuratorates are exclusively authorised to bring an EPIL case against the public administration in charge of environmental protection. By contrast, procuratorates are only entitled to bring an EPIL case against private persons if eligible administrative organs or social organisations have not filed such a case. The damage caused to the environmental governance regime is expected to be rectified by burdening the procuratorate.⁷¹⁸

The revised *EPL of 2015* remains silent on EPIL against private persons, and the amendment of the *ALL of 2014* also does not include any provision on the public interest litigation against administrative authorities. Nevertheless, the Supreme People's Procuratorate (SPP) has advocated authorising procuratorates to initiate such litigation since 2000.⁷¹⁹ The approach is considered to enhance their legal supervision function prescribed by the *Constitution*.⁷²⁰ Fierce criticism of the strict limitations on the standing requirements of social organisations was also a vital driving force behind this movement.⁷²¹ As an attempt to broaden the scope of eligible plaintiffs and to expand the power of procuratorates, the SPP has been authorised to initiate relevant pilot practices in thirteen provinces since mid-2015.⁷²² At the end of 2015, the *Implementation Measure for Pilots for People's Procuratorates Initiating PIL* was issued,⁷²³ triggering the revision of both the *CPL* and the *ALL of 2017*.⁷²⁴

It is shown that the legal framework of EPIL does not allow social organisations to initiate a lawsuit concerning EPIL against public authorities. According to Article 25 of the ALL, as amended in 2017, a plaintiff other than a procuratorate must show a

⁷¹⁸ Qi (2018), 60.

⁷¹⁹ Xin (2014), 201.

⁷²⁰ Article 134 of the *Constitution*.

⁷²¹ Xie 2015.

⁷²² Xinhua News (July 1, 2015). National People's Congress Standing Committee Authorised Supreme People's Procuratorate to Initiate Pilot Practice on Public Interest Litigation, available at http://www.npc.gov.cn/npc/xinwen/2015-07/01/content_1940395.htm (accessed on April 15, 2022).

⁷²³ *Implementation Measure for Pilots on People's Procuratorates Initiating Public Interest Litigation* (《人民检察院提起公益诉讼试点工作实施办法》) was adopted at the 45th meeting of the Twelfth Procuratorial Committee of the Supreme People's Procuratorate on December 16, 2015, which was issued and came into force on Beijing, Inner Mongolia, Jilin, Jiangsu, Anhui, Fujian, Shandong, Hubei, Guangdong, Guizhou, Yunnan, Shanxi, Gansu Provinces, Autonomous Regions and Municipalities Directly under the Central Government.

⁷²⁴ Qi, (2018), 59.

direct interest in the administrative action of the case. As a result, only procuratorates can initiate an administrative EPIL case, while social organisations can only file normal (non-EPIL) administrative lawsuits based on their direct interests.

1.3.4 No standing for individuals

With the growing significance of social organisations as environmental watchdogs, the relaxation of standing has gradually become a persuasive argument.⁷²⁵ However, there is no legal basis for standing for individuals in EPIL in China at present, and a consensus on this point has not been reached in academia.⁷²⁶

In practice, individuals attempting to bring a lawsuit for the sake of environmental public interest in China started as early as the 2000. The majority of cases, however, were rejected by the courts because of lack of standing.⁷²⁷ As a result, the first step for individuals to play a role in protecting the environmental public interest is to seek the opportunity to have standing before the court. So far, however, individuals have not been granted standing and the requirement of ‘having a direct interest in the case’ still strictly applies to them. In other words, it is difficult for individuals to bring an action or omission to court solely based on a violation of rights or interests.

Given that the seriousness of environmental problems in China and that EPIL is still in its infancy, some scholars argue that it is of considerable significance not to put barriers up against individuals.⁷²⁸ Instead, individual citizens should be encouraged to exercise their rights and thus contribute to protecting the environmental public interest. Except for lacking money and expertise, the main concern about expanding individuals’ standing in EPIL is that it may lead to excessive lawsuits, thus stretching the already limited judicial resources.⁷²⁹ Others argue that it is likely that such pessimism is significantly overestimated.⁷³⁰

Nonetheless, individuals are less inclined than social organisations to initiate a lawsuit, possibly because of their limited financial situation and poor capability of obtaining sufficient evidence.⁷³¹ In addition, rooted in the traditional dispute resolution culture

⁷²⁵ Qi, (2018), 56.

⁷²⁶ Zhai & Chang (2018), 389. There are examples supporting the standing of individual citizens, see Zhang (2011b), 269; Li (2010b), 21. For opposing opinions, see Yang (2012), 96; Wu (2012), 183; Gao & Gao (2011), 153-157.

⁷²⁷ Zhai & Chang (2018), 390.

⁷²⁸ Zhai & Chang (2018), 392.

⁷²⁹ Zhang (2013b), 59-61.

⁷³⁰ Zhai & Chang (2018), 391.

⁷³¹ Zhai & Chang (2018), 390.

in Chinese society, people generally hesitate to bring a lawsuit, as they are wary of litigation and usually have second thoughts when there are other alternatives to settle the dispute. This is especially the case when the litigation is not for the protection of the private interest but the public interest.⁷³²

Generally speaking, statutes and judicial interpretations have established a normative framework for the procedure of EPIL. It mainly includes the EPL (2015), the CPL (2017), the ALL (2017), the MEPL (2017), and several judicial documents issued by the SPC and SPP. As far as ecological damage to the marine environment resulting from offshore drilling is concerned, both marine administrative departments at certain levels under the MEPL and qualified social organisations under the EPL are entitled to claim compensation. The people’s procuratorate is only authorised to bring a case of EPIL against private persons when neither administrative organs nor social organisations have taken such an initiative under the CPL, whereas it is exclusively authorised to bring a case concerning the environmental public interest against administrative organs under the ALL. For EPIL, individuals are at present excluded from standing under the Chinese legal system.

Summarising, the traditional litigation and environmental public interest litigation (EPIL), as two important methods of dispute settlement via the court, are applicable in the case of dealing with marine ecological damage resulting from offshore drilling. Table 10 outlines standing when claiming compensation for marine ecological damage under the current legal system.

Table 10 Standing in cases on marine ecological damage arising from offshore drilling⁷³³

	Victim	Standing	Rules	Note
Marine ecological damage	The interest of the State	Marine administrative departments at certain levels	MEPL: Art. 89 (2)	-
	The public interest	Social organisations with strict requirements	EPL: Art. 58 CPL: Art. 55 (1)	Civil EPIL
		People’s Procuratorates	ALL: Art. 25 (4) CPL: Art. 55 (2)	Administrative EPIL
		Individuals	Not available	

⁷³² *Ibid.* Huang & Zhang (2018) state that to safeguard the private interests of specific victims is the ultimate goal and more attention should be paid to private suits. On the contrary, Tang (2018) argues that the growing concern about public litigation reflects the tendency to protect the environmental interests as a whole rather than just focussing on individuals.

⁷³³ The table was made by the author.

2. Claim settlement

Recall that the MEPL stipulates that polluters are accountable for compensating damage from offshore drilling in a strict liability setting. The approaches to obtaining compensation are elaborated under two legal instruments: the *Regulation of the People's Republic of China Concerning Environmental Protection in Offshore Oil Exploration and Exploitation*⁷³⁴ (*Offshore Exploitation Regulation*) and the *Measure for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation (2016 Measure)*.⁷³⁵ Accordingly, section 2.1 examines access to justice for individuals and entities that sustained personal injuries and economic loss from offshore oil damage, where four approaches to compensation are provided. The compensation to marine ecological damage is discussed separately in section 2.2.

2.1 Approaches to claiming compensation for injuries and economic loss

2.1.1 Administrative management

A. Three types of Statement regarding compensation liability

Right after an offshore oil accident in the sea associated with marine pollution, administrative agencies in charge of marine environment will be responsible for handling it.⁷³⁶ The *Offshore Exploitation Regulation* authorises the SOA and its branches to conduct an investigation, to estimate the contaminated areas, to calculate the amount of loss, and to identify the liable party and the affected victims.⁷³⁷ It further mentions that anyone who suffers from oil pollution is entitled to obtain compensation for his damage by requesting the competent authority to handle the case.⁷³⁸ Before initiating a claim, the victim is obliged to submit a special statement

⁷³⁴ *Regulation Concerning Environmental Protection in Offshore Oil Exploration and Exploitation* (《中华人民共和国海洋石油勘探开发环境保护管理条例》) was promulgated by the State Council of the People's Republic of China on December 29, 1983.

⁷³⁵ *Measure for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (《中华人民共和国海洋石油勘探开发环境保护管理条例实施办法》) was promulgated by the Ministry of Land & Resources of China on August 1, 2016.

⁷³⁶ See *infra* section 2 of chapter 7. The State Oceanic Administration (and its branches) take charge of marine environment and play a role in handling marine pollution.

⁷³⁷ See *infra* section 3 of chapter 7.

⁷³⁸ Article 25 of the *Offshore Exploitation Regulation*, Article 28 of the *2016 Measure*.

claiming his damage, named as *Environmental Damage Claim Statement* (hereinafter *Claim Statement*).⁷³⁹ It should provide (1) basic information concerning the affected areas and polluted items and (2) details about the heads of losses caused by the incident. It would be more convincing to submit (3) some specific reports issued by professional institutes or documents provided by notary offices concerning the claim.⁷⁴⁰

By comparison, the victim who spends money on clean-up actions needs to submit another statement claiming his clean-up costs, a so-called *Clean-up Cost Claim Statement* (hereinafter *Clean-up Statement*).⁷⁴¹ It should contain the following issues: (1) basic information concerning the clean-up action plan; (2) a detailed list of the staff, machines, and tools involved in the removal action; and (3) other reasonable expenses (i.e., administrative and transportation expenses). Furthermore, (4) the statement should demonstrate the outcome of the clean-up action so that the authority can evaluate whether the action is considered necessary.⁷⁴²

In addition, in cases where the accident is due to an act of war, an unavoidable natural disaster, or a third party's fault, the liable operator is allowed to submit a *Liability Exemption Statement* (hereinafter *Exemption Statement*) to the competent authority to prove his innocence. S/he may escape from the liability if the authority approves this *Exemption Statement*.⁷⁴³

B. Three procedural devices against administrative errors

During the claim settlement, administrative errors may create barriers for claimants and prevent them from getting compensation. Legislators allow the interested parties to challenge mistakes made by administrators by means of several procedural devices. Table 11 displays the administrative arrangement when claiming injury and loss as a

⁷³⁹ *Environmental Damage Claim Statement* (《污染损害索赔报告书》) is regulated in Article 22 of the *Offshore Exploitation Regulation*.

⁷⁴⁰ The statement shall consist of the following items: (1) the time, place, and area and objects affected by, the pollution damage caused by oil exploration and exploitation; (2) a list of losses attributable to the pollution damage, including articles, their quantities, unit prices, and the methods of calculation, as well as information concerning agricultural and natural conditions; (3) the appraisal document by relevant scientific institutions or certification by a notary body with regard to the damage; and (4) the original document and evidence of the pollution damage, relevant photographs, and other documentary evidence and materials relative to the claim for compensation, which shall be provided as far as possible.

⁷⁴¹ *Clean-up Cost Claim Statement* (《索取清除费用报告书》) is regulated in Article 23 of the *Offshore Exploitation Regulation*.

⁷⁴² Article 23 of the *Offshore Exploitation Regulation*.

⁷⁴³ *Liability Exemption Statement* (《责任免除申请书》) is regulated in Article 30 of the *2016 Measure*. The discussion of liability exemption, see *supra* section 2.3 of chapter 3.

result of offshore drilling. As stated below, the right column lists three legal tools that the interested party may resort to in case of such mistakes, which are (a) administrative litigation; (b) administrative reconsideration; and (c) administrative hearing.⁷⁴⁴ It is worth mentioning that both victims and polluters are allowed to use these methods against administrators, as long as their legitimate rights have been infringed. The following paragraphs look at these three tools, addressing if the victims may remove the barriers to obtaining compensation using these procedural devices against administrators.

Table 11 Administrative management in terms of compensating personal injury and economic loss⁷⁴⁵

Claimant	Claim	Required document	Competent authority	Procedural devices against administrative errors
Victim	Injury/loss of offshore oil damage	Environmental Damage Claim Statement	The SOA and its branches	(a) Administrative litigation; (b) Administrative reconsideration; (c) Administrative hearing.
Victim	Clean-up cost of offshore oil damage	Clean-up Cost Claim Statement		
Polluter	Exemption of pollution liability	Liability Exemption Statement		

First and foremost, if administrators perform poorly and infringe the rights of claimants, victims may bring the case against the specific administrative agency via *administrative litigation* (xingzheng susong) by themselves or with the assistance of lawyers, which is a type of proceeding that is brought to seek a review of agencies' decisions.⁷⁴⁶ Nevertheless, taking into account the considerable costs, time, and effort involved, administrative litigation may normally be considered a last resort.⁷⁴⁷ Some scholars criticise that administrative litigation in China- lawsuits filed by private parties against government organs and government-affiliated entities -has long been held as a method to restrict the government.⁷⁴⁸ Although some literature considers that it is a way of assessing the development of China's legal system, others doubt

⁷⁴⁴ Yang 2018b.

⁷⁴⁵ The table was made by the author.

⁷⁴⁶ Article 2 of the *Administrative Litigation Law* defines 'administrative litigation' as follows, 'a citizen, a legal person, or any other organisation which deems that an administrative action taken by an administrative agency or any employee thereof infringes upon the lawful rights and interests of the citizen, legal person, or other organisation shall have the right to file a complaint with a people's court in accordance with this Law.' The *Administrative Litigation Law of the People's Republic of China* (in Chinese: 《中华人民共和国行政诉讼法》) was first adopted on April 4, 1989, and the latest version was issued on June 27, 2017.

⁷⁴⁷ Yang (2018b), 107-136.

⁷⁴⁸ See Potter 1994; Pei 1997; Weller (1998); Ji (2013), 815.

whether such a tool could be portrayed as a useful institution in jurisdictions that are characterised either by authoritarianism or by deficient legal systems.⁷⁴⁹

An alternative for the victims is to use *administrative reconsideration* (xingzheng fuyi) against the specific administrative organ when they believe their ‘specific’ administrative act has infringed upon their lawful rights.⁷⁵⁰ An aggrieved party is not required to exhaust administrative reconsideration before seeking judicial review.⁷⁵¹ In general, the adjudicator in administrative reconsideration is a relevant administrative organ at the next higher level (coined as ‘reviewing agency’).⁷⁵² However, suppose a department that is subordinate to the State Council makes the suspected decision (such as the SOA), in that case, the claimants should apply to the same department, meaning that the original decision-maker will still be the reviewing agency.⁷⁵³ Such exceptional regulations oppose the basic tenet of justice and fairness that ‘no one should be a judge in his case.’⁷⁵⁴ Therefore, victims who challenge the SOA or its local branches may all request the SOA (not the State Council) as the reviewing agency in an administrative reconsideration setting, making this tool more symbolic than having the practical effect of ‘reviewing’ suspected mistakes.

According to the literature, the poor performance of administrative reconsideration seems to be often cited in the critical analysis of many complaints and disputes in recent years,⁷⁵⁵ indicating it is not a primary means for resolving administrative disputes and redressing citizen grievances in China.⁷⁵⁶ Moreover, individuals are only allowed to initiate a claim against ‘specific’ administrative acts but not concerning ‘abstract’ administrative acts in the context of administrative litigation or reconsideration.⁷⁵⁷ The former acts may be in the form of some administrative

⁷⁴⁹ Cui (2016) 941-998; O’Brien & Li (2004), 93–94.

⁷⁵⁰ Article 2 of the *Administrative Reconsideration Law* defines ‘administrative reconsideration’ as follows: ‘the law applies to a citizen, legal person or any other organisation who considers that his or its lawful rights and interests have been infringed upon by a specific administrative act and applies for administrative reconsideration to an administrative organ which accepts the application for administrative reconsideration and makes a decision of administrative reconsideration.’ The *Administrative Reconsideration Law of the People’s Republic of China* (《中华人民共和国行政复议法》) was first adopted on April 29, 1999; and the latest version was issued on September 1, 2017.

⁷⁵¹ Yang (2018b), 109-110.

⁷⁵² It can be very complicated to determine the ‘reviewing agency’ (in Chinese: 复议机关) in China because of the complexity of the administrative organisation. Normally, the reviewing agency should be the government at the next higher level. There are two reviewing agencies in many circumstances: the government at the same level and the competent department at the next higher level. The citizen can make a choice from two. For more information about administrative reconsideration, see Articles 12-15 of the *Administrative Reconsideration Law*.

⁷⁵³ Article 14 of the *Administrative Reconsideration Law*.

⁷⁵⁴ Yang (2018b), 109.

⁷⁵⁵ Yang (2018b), 112-113; Ying (2010), 1 - 49; Hu & Jiang 2003.

⁷⁵⁶ *Ibid.*

⁷⁵⁷ Normally speaking, an abstract administrative act (in Chinese: 抽象行政行为) usually refers to a government

behaviour aiming at claimants, while the latter refers to some general government decisions to the public. That is, individual claimants would only have the standing to sue if they intend to question the improper administrative behaviour that has infringed on their rights.⁷⁵⁸ Collecting solid evidence of the infringement would be another challenge.

When affected individuals and entities pursue compensation in a claim settlement, the third procedural device is an *administrative hearing* (xingzheng tingzheng),⁷⁵⁹ where government transparency associated with public participation could play a role. Unlike the aforementioned two methods where victims act as claimants, the interested party in this regard is usually the operator who faces punishment after polluting the marine environment under the *Law of the People's Republic of China on Administrative Penalty (Administrative Penalty Law)*.⁷⁶⁰ The competent authority will usually notify the operator that they have the right to request a hearing before making a penalty decision (i.e., suspending production, cancelling a business permit, or imposing a fine). If the operator requests a hearing, the administrative organ should arrange it.⁷⁶¹ Alternatively, it may also refer to the companies that request to restart their business after the suspension of production under the *Administrative License Law of the People's Republic of China (Administrative License Law)*.⁷⁶² The competent authority should hold a hearing and announce it to the public when it is of great importance to the public interest.⁷⁶³ For instance, after a series of oil spills, the SOA should notify the operator that causes marine pollution before it decides to suspend production. Under both circumstances, the hearing is open to the public.⁷⁶⁴

decision in China, because the act is generally binding and can be applied repeatedly. Therefore, the residents nearby cannot bring a suit against this decision. In comparison, a specific administrative act (in Chinese: 具体行政行为) aims at a specific person or activity, such as administrative sanctions, executive orders, licensing permits, administrative indemnities, etc. Citizens in China can only initiate administrative proceedings on account of specific administrative acts. In other words, they may employ administrative reconsideration or administrative litigation against administrators only when their personal rights and interests are infringed. See further, Jiang 2009, 2013.

⁷⁵⁸ Article 1 of the *Administrative Reconsideration Law*. Article 2 of the *Administrative Reconsideration Law*.

⁷⁵⁹ Kim & Lee (2019), 1026-1047.

⁷⁶⁰ According to Article 42 of the *Administrative Penalty Law*, when administrative organs decide a suspension of production, cancel a business license, or impose on a large amount of fine, they should notify the interested party that he has the right to request a hearing. If the party requests a hearing, the administrative organ shall arrange for the hearing. The *Law of The People's Republic of China on Administrative Penalty* (《中华人民共和国行政处罚法》) was first adopted on March 17, 1996, and the latest version was issued on September 1, 2017.

⁷⁶¹ Article 42 (1) of the *Administrative Penalty Law*.

⁷⁶² Based on Article 46 of the *Administrative License Law*, if the matter is of great importance to the public interest, administrative organs should consider it necessary to hold a hearing. They should also release relevant information to the public. The *Administrative License Law of the People's Republic of China* (《中华人民共和国行政许可法》) was first adopted on August 27, 2003, and the latest version was issued on April 23, 2019.

⁷⁶³ Article 46 of the *Administrative License Law*.

⁷⁶⁴ According to Article 47 of the *Administrative License Law*, if an administrative license is directly related to the

Ordinary people (such as victims who suffered from pollution) also have the right to access it on the condition that the information does not contain national secrets, business secrets, or private affairs.⁷⁶⁵ For marine issues, the *Measure for Oceanic Hearings* issued by the SOA particularly specifies the hearing procedures related to marine pollution.⁷⁶⁶

2.1.2 Judicial adjudication

In cases where the victims are unable to receive compensation or are unsatisfied with the decision given by marine administrators, they may also pursue legal actions.⁷⁶⁷ Generally, for environmental tort cases, the SPC requires the victim to prove a certain probability of causation between the act of pollution and the fact of damage.⁷⁶⁸ Accordingly, anyone who claims that they suffered from the accident should first file a complaint, proving that the injuries or losses to them and the accident caused by polluters are closely linked. The court may only accept the claim and initiate a lawsuit if the judges are convinced.⁷⁶⁹ Otherwise, the court will turn down the claimants' request and withdraw the case. The polluters sued by claimants will be notified by the court and join the proceedings. Given that the burden of proof is shifted in the context of environmental pollution, whether the polluter will be required to bear the liability and compensate the loss largely depends on the evidence he provided.⁷⁷⁰ If the polluter can prove that no causation exists between his act of pollution and the actual consequences of damage, he may overturn the presumption of causation and thus be exempted from tort liabilities. In contrast, if the evidence he gave is too weak to persuade the judges, the presumption of causation will be established. Thus, the polluter will be held liable for the indemnity demanded by the claimants.⁷⁷¹

The conflicting parties may either accept the judgment made by courts or lodge an appeal to the higher court within time limits if they find the result is unacceptable.⁷⁷²

The second-instance verdict should be final, regardless of the willingness of both

applicant or someone's interest, administrators should inform them of the right to request a hearing.

⁷⁶⁵ Article 42 (2) of the *Administrative Penalty Law*, Article 48 of the *Administrative License Law*.

⁷⁶⁶ The SOA first issued *Measure for Oceanic Hearings* (《海洋听证办法》) on August 01, 2008 and revised it on November 7, 2016. It aims at specifying the hearing procedure in terms of marine-related issues.

⁷⁶⁷ Article 28 of the *2016 Measure*.

⁷⁶⁸ See *supra* section 2.2 of chapter 3.

⁷⁶⁹ See *supra* section 2.1 of chapter 5.

⁷⁷⁰ See *supra* section 3 of chapter 5.

⁷⁷¹ *Ibid.*

⁷⁷² Articles 164-165 of the CPL.

parties.⁷⁷³ A third procedure for the interested parties is to initiate a retrial. A retrial is possible under two specific circumstances: there are substantive mistakes in adjudication, or some newly discovered evidence is strong enough to overturn the judgment.⁷⁷⁴

2.1.3 Judicial mediation

Although victims can take the initiative in claims, they may still take the risk of receiving an unsatisfactory outcome after time-consuming proceedings. In this vein, judicial mediation (tiaojie) is a more flexible alternative for the interested parties to choose.⁷⁷⁵ Generally, the courts that employ judicial mediation practice should settle the disputes based on the parties' voluntary participation.⁷⁷⁶ It is also of interest to note that Chinese court mediation sessions are conducted at no additional expense to the litigant. Considering the needs in particular disputes, the court may call witnesses⁷⁷⁷ and request assistance from other entities and individuals related to the dispute.⁷⁷⁸ The claimants may still have the right to go back to adjudication if mediation comes to a failure.

⁷⁷³ Article 175 of the CPL (*Civil Procedural Law*) states that '*the judgments and rulings of courts of the second instance shall be final.*' It means that if the parties refuse to accept the first-instance judgment, they can appeal to a higher court, and the higher court may uphold or overturn the original verdict.

⁷⁷⁴ Articles 198-201 of the CPL address the appeal and retrial procedures. The parties may accept the verdict of the first-instance court or appeal to the higher court. The decision of the second instance will be a final one. After the judgment enters into force, either party can still require a retrial of the case on the condition that there are substantive mistakes in the litigation procedure or newly discovered evidence. Anyone is entitled to apply for a retrial within six months after the judgment takes effect. A higher court should decide the request for retrial after an examination. Generally speaking, the higher court will accept an appeal as long as the interested party is unsatisfied with the outcome and makes a request. In contrast, courts should carefully check whether the conditions for a retrial are met: if there are substantive mistakes in the litigation procedure or newly discovered evidence. Before initiating a retrial procedure, the original judgment will remain in full force and effect. In practice, Chinese courts impose strict control over the retrial procedure. According to incomplete statistics, scholars point out that the courts only approve approximately 10% of retrial applications. See Zhang 2019.

⁷⁷⁵ According to the CPL (*Civil Procedural Law*), mediation (in Chinese: 调解) refers to a neutral third person who helps to resolve the dispute. Judicial mediation means the court becomes that neutral third party that helps to determine the dispute. Local courts provide mediation and settlement conferences for civil cases pending in many regions. These ADR (Alternative Dispute Resolution) services are offered at no charge, either on the day of trial or before the trial date (Pre-Trial), through the trial court. Unlike mediation, a settlement (in Chinese: 和解) is a civil agreement only between two conflicting parties, so it does not have legal binding force. Article 50 of the CPL states that both sides of a civil action may settle the case by themselves through settlement. The court will not be involved in this case.

⁷⁷⁶ See Article 93 of the CPL. Articles 94-97 provide detailed guidance on judicial mediation. It may be undertaken by a single judge or by a collegiate panel. Others may assist with knowledge of the matters raised in the dispute (Article 94). Both parties choose mediation voluntarily, the content of which should not be against the law (Article 96). If it works, the court should draw up a mediation agreement that contains the claims, the factual issues, and the mediation result. Judges will sign and seal this official document and deliver it to both parties (Article 97). If it does not succeed, they may go back to wait for the adjudication (Article 99).

⁷⁷⁷ Article 86 of the CPL.

⁷⁷⁸ The general category of civil cases subject to mediation 'includes disputes over property and status arising under the civil law system, as well as disputes arising under economic law and labour law.' See Clarke (1991), 256.

In China, mediation and other forms of alternative dispute resolution (ADR) have been culturally well-established for centuries.⁷⁷⁹ Mediation has been a feature of judicial proceedings in China and legislatively mandated.⁷⁸⁰ Arguably, judge-mediators intend to use mediation to avoid resolving legal difficulties or challenges. They would use the law as a bargaining chip in various ways to induce the parties to settle.⁷⁸¹ Normally, environmental statutes do not permit speedy or final adjudication of disputes because they involve too many steps and leave too many challenging issues unresolved.⁷⁸² Mediation, as an alternative, may resolve a broad array of environmental conflicts more quickly than litigation.⁷⁸³ Environmental mediation appeals to some corporations, foundations, and environmental groups because of their understandable frustration with the delays and expense of conventional environmental litigation.⁷⁸⁴ Victims may also favour negotiating with the polluters because they will be free to raise and tailor their requirements without complex procedures. Additionally, settlement obtained through mediation can be more valuable than adjudicated judgments, because they cannot be appealed and are voluntary. Since there is a greater likelihood that all parties involved will abide by the settlement,⁷⁸⁵ mediation may alleviate enforcement difficulties that may follow.⁷⁸⁶ In a judicial mediation setting, the outcome of compensation remains confidential, for confidentiality is a necessary precondition for facilitating full and frank negotiations that will ultimately lead to sustainable resolution.⁷⁸⁷ Considering group or collective interests are of great importance in environmental disputes,⁷⁸⁸ China enables the court to invite third parties, whose interests are affected by the matters in a dispute, to participate in mediation, but without the consent of both parties to the dispute.⁷⁸⁹ Nevertheless, the result of mediation is unavailable to the public, so other stakeholders engaged in offshore drilling or potential victims are unlikely to learn

⁷⁷⁹ Huang (2006), 275; Xu (2005), 515; Wolski (1997), 97.

⁷⁸⁰ Lubman (1967) addressed that mediation was regarded as the primary dispute resolution tool used by the judiciary from the 1950s to 1960s.

⁷⁸¹ Fei 2015.

⁷⁸² Schoenbrod (1983), 1453-1477.

⁷⁸³ Talbot 1983.

⁷⁸⁴ Schoenbrod (1983), 1453.

⁷⁸⁵ Clarke (1991), 257.

⁷⁸⁶ Waye & Xiong (2011), [ii]-[i].

⁷⁸⁷ Deason 2004.

⁷⁸⁸ See, for example, *Several Provisions on the Work of People's Mediation* (《人民调解工作若干规定》) (The Ministry of Justice issued this administrative measure on September 26). Article 29 provides that, in principle, people's mediation is conducted in public unless the mediation raises privacy concerns or involves the disclosure of national or business secrets.

⁷⁸⁹ Article 95 of the CPL.

lessons from it. The *ad hoc* determinations made in the disputes, and the avoidance of precedent as administrative,⁷⁹⁰ underscores the difference in judicial adjudication and mediation regarding claim handling.

2.1.4 Arbitration

In the case that involves foreign issues, such as the operator is a foreign-funded company, arbitration is another alternative for victims.⁷⁹¹ Both the *Civil Procedural Law* (CPL)⁷⁹² and the *Arbitration Law*⁷⁹³ stipulate that arbitration can settle a dispute related to foreign economic activities or international maritime matters, while the *Offshore Exploitation Regulation* reinstates this rule in the field of offshore drilling.⁷⁹⁴ Therefore, arbitration becomes the fourth method for victims to claim compensation against foreign operators. However, it is generally more a dispute resolution between business partners than a legal remedy for victims, which is hardly used in resolving tort disputes.⁷⁹⁵ Chapter 9 will address that some victims turned to arbitration as their last attempt, but it ended in failure.⁷⁹⁶

2.2 Approaches to claiming compensation for marine ecological damage

Section 1.3.1 of this chapter discussed that marine administrative organs (SOA), representing the State's interest, may be legitimate claimants and request compensation for marine ecological damage. The *2018 SPC Interpretation* allows the SOA to claim compensation for marine ecological damage using four approaches, namely administrative management, litigation, mediation, and arbitration (section 2.2.1).⁷⁹⁷ In addition, since social organisations and procuratorates can become legitimate claimants on behalf of the public interest and thus initiate an EPIL (environmental public interest litigation) case against polluters, sections 2.2.2 reviews the EPIL used by social organisations and procuratorates. Section 2.2.3 discusses what the 'ecological remediation' refers to and how to apply it in practice.

⁷⁹⁰ Mitchell (1980), 71-90.

⁷⁹¹ Article 25 of the *Offshore Exploitation Regulation*, Article 28 of the *2016 Measure*.

⁷⁹² Articles 271-275 of the CPL.

⁷⁹³ Article 65-73 of the *Arbitration Law*. *Arbitration Law of the People's Republic of China* (《中华人民共和国仲裁法》) was first adopted on August 31, 1994, and the latest version was amended on September 1, 2017.

⁷⁹⁴ See Article 25 of the *Offshore Exploitation Regulation*. If the case involves foreign issues, such as the operator is a foreign-funded company; arbitration is another option in addition to litigation.

⁷⁹⁵ See *supra* section 2.4.2 of chapter 2.

⁷⁹⁶ See *infra* section 3.1 of chapter 9.

⁷⁹⁷ Article 11 of the *2018 SPC Interpretation*.

2.2.1 Marine administrative agency

Recall that victims prefer administrative management as their first option when pursuing compensation for personal injury and economic loss, during which marine administrators are in charge. In terms of marine ecological damage, the situation becomes somewhat complicated. Although the SOA and its branches are still in charge of claim handling, they become the claimant representing the State's interest at the same time.

As described earlier, the existing marine administrative system in China is divided into three: the SOA, dispatched branches of the SOA, and oceanic (and fishery) administrative departments at the provincial level.⁷⁹⁸ Article 4 of the *2018 SPC Interpretation* demonstrates that the competent authorities at different levels are at the same time entitled to serve as claimants of marine ecological damage. As displayed in table 12, provincial marine administrative departments are authorised to take care of offshore oil damage within their sea areas. Cross-province damage within the local sea areas and damage outside the local sea areas are both governed by the dispatched branch of the SOA. For instance, if an offshore oil accident only causes ecological damage near the sea area of Qingdao (city), the Shandong Provincial Oceanic and Fishery Department will be responsible for initiating a claim against the polluters. When the range of pollution expands to the sea areas of both Shandong and Liaoning Provinces, or even to the territorial sea areas beyond the provincial authorities' jurisdiction, Bohai & Yellow Sea Dispatched Branch will become the claimant to demand ecological compensation.⁷⁹⁹

Table 12 Claimants of marine ecological damage in China⁸⁰⁰

Administrative agency (as the claimant)	Scope
State Oceanic Administration	Within the jurisdiction of Chinese territorial sea
Dispatched branch of the SOA	a. Cross-province damage within the sea areas governed by local authorities b. Damage outside the sea areas governed by local authorities
Provincial oceanic and fishery department	Damage within the sea areas governed by local authorities

The *2014 Measure*⁸⁰¹ addresses that marine administrators should give a preliminary

⁷⁹⁸ See *supra* figure 10, section 1.3.1.2 of this chapter.

⁷⁹⁹ Zhao 2014.

⁸⁰⁰ The table was made by the author based on Article 4 of the 2018 *SPC Interpretation*.

analysis of pollution and then invite independent professional institutes to calculate compensation amounts and fulfil the assessment. According to the assessment report, marine administrative agencies will complete a *Statement of Claim Regarding the State's Marine Ecological Damage* (hereinafter *State Statement*) and send it directly to the liable polluter.⁸⁰² The polluter will sign a compensation agreement with the administrative agency in charge and perform his duty of restoration if s/he has no objection to the *State Statement*.⁸⁰³ Alternatively, the polluter is also entitled to turn down this claim, in which case the *2018 SPC Interpretation* allows marine administrators to seek compensation through litigation, mediation, or arbitration.⁸⁰⁴ Notably, since the SOA and its branches act as the claimant (plaintiff) to pursue damage compensation against the liable polluter, the lawsuit in this regard is a civil instead of an administrative dispute.

Therefore, marine administrators have four ways to claim compensation for marine ecological damage. The first method is to make a compensation agreement with the liable operator based on the *State Statement*. Only if the liable polluter raises an objection can the administrators use other alternatives-litigation, mediation, or arbitration - to claim compensation.⁸⁰⁵

2.2.2 Social organisations and procuratorates via EPIL

Offshore oil pollution associated with marine ecological damage may threaten the public interest. Article 58 of the *Environmental Protection Law* (EPL) clarifies that social organisations may 'bring lawsuits against the polluter in the court' if the public interest has been harmed as a result of ecological pollution. Thus, some social organisations that satisfy the requirements may claim against the polluter in the name of the public interest.⁸⁰⁶ Moreover, the *Administrative Litigation Law* (ALL) also allows procuratorates to bring an EPIL case against polluters if eligible administrative

⁸⁰¹ Article 6 of the *2014 Measure*. See also *supra* section 4.2 of chapter 4.

⁸⁰² According to Article 9 of the *2014 Measure*, a *Statement of Claim Regarding State's Marine Ecological Damage* (in Chinese: 《海洋生态损害国家损失索赔函》) should consist of five elements: (i) the official title/name and address of the liable party; (ii) the factual issues of the accident, the reasons to claim compensation from the liable party, and all the relevant evidence; (iii) the compensation amounts as well as the criteria of the assessment/calculation (based on Articles 6-7); (iv) means of compensation and time for performance; (v) alternatives if the liable party has objections.

⁸⁰³ Article 10 of the *2018 SPC Interpretation*.

⁸⁰⁴ Article 11 of the *2018 SPC Interpretation*.

⁸⁰⁵ Articles 10-11 of the *2014 Measure*.

⁸⁰⁶ See *supra* section 2.3.2 of this chapter.

organs and social organisations take no action.⁸⁰⁷ Therefore, environmental public interest litigation (EPIL) against the liable polluter is seen as the only method for social organisations and procuratorates to claim compensation for marine ecological pollution.

Although EPIL is theoretically possible, claimants must consider several issues before initiating a lawsuit. First, both social organisations and procuratorates are obliged to collect substantial evidence to prove that marine ecological damage arising from offshore drilling has infringed upon the public interest. Second, social organisations are only allowed to initiate an EPIL case against private parties, but not against the public administration. In other words, if the public administration is the defendant in an EPIL, only procuratorates could claim.⁸⁰⁸ Third, procuratorates of the contaminated sea area can initiate a claim when both marine administrators and social organisations take no action to make a claim. Fourth, there have been not many successful EPIL precedents in the field of marine pollution.⁸⁰⁹ Since the SOA and its branches are responsible for marine protection, they will probably play a leading role in ecological restoration. Even with the compensation payment, social organisations and procuratorates can hardly rehabilitate the contaminated sea areas independently. The existing laws seem to be insufficient to enable the claimants who represent the public interest (social organisations and procuratorates) to get compensation for marine ecological damage through EPIL.

2.2.3 Claiming remediation: restoration or monetary compensation

On behalf of the State's interest, marine administrators can claim ecological restoration or monetary awards when pursuing compensation.⁸¹⁰ As the competent authority in charge of marine protection, they are in a better position to directly spend the compensation on marine environmental remediation.

When it comes to social organisations requiring ecological restoration through EPIL, the situation is different. Neither Article 55 of the *Civil Procedure Law* (CPL) nor Article 58 of the *Environmental Protection Law* (EPL) stipulates whether social

⁸⁰⁷ Article 25(4) of the ALL.

⁸⁰⁸ See *supra* section 1.3.3 of this chapter.

⁸⁰⁹ See *supra* section 1.3.2 of this chapter. Currently EPIL has a limited impact on environmental governance. Although more EPIL cases have been brought by social organisations since 2015 (with the implementation of the new Environmental Protection Law), challenges of applying EPIL in practice remain. EPIL is still in its infancy in China.

⁸¹⁰ Articles 4-6 of the *2014 Measure*.

organisations are entitled to claim monetary compensation.⁸¹¹

Using appropriate legal remedies is an essential step to achieve an EPIL's request, such as cleaning the contaminated areas restoring them to the original status, eliminating the damage, or compensating the loss.⁸¹² Pecuniary compensation is, by all means, a vital legal remedy to fulfil ecological restoration. If we assume that pecuniary compensation is available through EPIL, another question that automatically arises would be to whom the cash awards should be paid. If social organisations receive the money, they could probably violate the requirements under the EPL, which mentions that '*social organisations are not allowed to benefit from EPIL financially.*'⁸¹³

There are two options to settle the ambiguity considering whether social organisations are permitted to claim monetary compensation. First, some experts suggest that legislation should further prohibit social organisations from requiring cash awards,⁸¹⁴ only allowing them to request non-monetary compensation, such as 'eliminating the damage' or 'restoring the contaminated areas to the original status.' However, in such cases, more detailed guidance is needed to tackle the ecological restoration problem while circumventing the money issue, which can be more difficult for social organisations that are incapable of restoring the polluted waters on their own.

It seems that, in practice, local governments and courts are inclined to pursue the other option: NGOs are allowed to require monetary compensation through EPIL, but they are forbidden from receiving any money at all.⁸¹⁵ Normally, the payment from the polluter could cover various types of damage arising from environmental pollution, which include but are not limited to clean-up costs, costs of restoration, expenses of investigation and assessment, etc.⁸¹⁶ Under the trial court's supervision, the money will be sent to a separate bank account or a particular fund managed by certain administrative agencies in charge of local finance.⁸¹⁷

In 2015, the State Council published a normative document titled '*Pilot Programme*

⁸¹¹ Article 55 of the *Civil Procedure Law* and Article 58 of the *Environmental Protection Law* both address that any entity that satisfies the requirements of standing is allowed to initiate an EPIL. However, neither of them mentions if a qualified NGO is allowed to require monetary compensation through EPIL.

⁸¹² See *supra* section 2.5 of chapter 3.

⁸¹³ Article 58 (3) of the EPL.

⁸¹⁴ Chang 2014.

⁸¹⁵ See Zhang 2015a. The news report was based on an interview with Wang, Xuguang (王旭光), the vice dean of Environment and Resources Division of the SPC.

⁸¹⁶ Article 24 of the *SPC Interpretation on Several Issues concerning the Application of Law in the Conduct of Environmental Civil Public Interest Litigation (SPC Interpretation on Environmental Torts)*. See also *supra* sections 3.6 and 3.7 of chapter 3.

⁸¹⁷ See Zhang 2015a.

for Reforming the Legal System of Compensating Ecological Damage' (hereinafter *Ecological Compensation Pilot Program*),⁸¹⁸ reiterating the second option. It started a two-year pilot project in seven provinces. After this pilot programme, in 2017, another official document, '*Programme of Reforming the Legal System of Compensating Ecological Damage*' (hereinafter *Ecological Compensation Program*),⁸¹⁹ replaced the *Ecological Compensation Pilot Programme*, and brought this reform plan regarding ecological compensation to a new level. It specifies two methods of making use of the damages paid by the liable polluters.

First, if the polluted environment can be recovered, the *Ecological Compensation Programme* addresses that the liable polluter should be responsible for taking care of ecological restoration. If the victim or the claimant on behalf of the victim would like to conduct a preliminary survey such as an accident investigation and damage assessment, all the expenses should be borne by the polluter.⁸²⁰ Given that it is a highly specialised job, the polluters may be unable to restore the contaminated areas themselves. Thus, they may entrust this task to third-party institutes that are experts in ecological restoration, hiring them to restore the damaged ecosystem as closely as possible to pre-disturbance conditions and functions, while the polluter pays for the whole cost. Alternatively, when the affected sea areas are severely polluted and cannot be restored to the original condition, ecological replacement is seen as a restoration tool. As long as the administrative agencies or the judges in the case determine that the polluters should be held accountable, polluters should still pay the damages.⁸²¹ The payment is regarded as a source of non-tax revenue and will be turned over to the national treasury in the first place. The claimants of marine ecological damage, which include legally authorised administrators and social organisations, could claim for the repair or renewal of the damaged ecosystem based on an administrative decision or enforceable judgment.

The specific method to cope with the compensation payment through EPIL varies in

⁸¹⁸ On December 3, 2015, the State Council published a normative document regarding '*the Pilot Program of Reforming the Legal System of Compensating Ecological Damage*' (《生态环境损害赔偿制度改革试点方案》). This official document promoted seven provinces (including Jilin, Shandong, Jiangsu, Hunan, Chongqing, Yunnan, Guizhou) to initiate a two-year pilot project. It expected to formulate a new system aiming at ecological restoration and compensation, among which financial management was a crucial part. See Xinhua News, 'The Central Government Issued the 'the Pilot Program of Reforming the Legal System of Compensating Ecological Damage,' available at http://www.gov.cn/zhengce/2015-12/03/content_5019585.htm (accessed on April 15, 2021).

⁸¹⁹ The State Council published a normative document regarding '*the Program of Reforming the Legal System of Compensating Ecological Damage*' (《生态环境损害赔偿制度改革方案》) (December 17, 2017), available at http://www.gov.cn/zhengce/2017-12/17/content_5247952.htm (accessed on April 15, 2022).

⁸²⁰ Article 4 (8) of the *Ecological Compensation Program*.

⁸²¹ *Ibid.*

different regions. For example, in the Kunming City (of Yunnan Province), its environmental bureau created a bank account, particularly for EPIL-related indemnities. In the Wuxi City of Jiangsu Province, the local government set up a financial account for ecological restoration.⁸²² Although such an attempt may prevent social organisations from taking benefits, local administrative organs are again involved in the picture. Even with clear guidance nationwide, a bank account or fund in the name of 'ecological restoration' can easily spend more on transaction costs, posing a threat to rent-seeking and corruption.⁸²³

Despite that this reform plan regarding ecological damage in the local areas provides some guidance on how to make use of the damages, Article 3 of the *Ecological Compensation Programme* excludes 'marine' ecological damage on the ground that the *Marine Environmental Protection Law* should govern this particular kind of harm separately. As a result, a clear rule to confirm or deny whether claimants of marine ecological damage can require monetary compensation through EPIL is still lacking. In practice, currently social organisations are not forbidden from claiming damages through EPIL, but the payment is likely to be transferred to the local finance department and tackled by the government.

3. Shifting the burden of proof concerning causation

In light of the compensatory function of tort law, procedural laws and regulations subsequently require that a cause of such harm should be identified and attributed to the defendant's sphere.⁸²⁴ Article 1229 of the *Civil Code* specifically places the burden of proof on the defendant (usually the polluter, the one who allegedly caused the damage) to demonstrate that there is no causal link between its acts and the damage claimed by the plaintiff (usually the victim of the pollution).⁸²⁵ This burden allocation is underlined in the *Provision of the Supreme People's Court on Evidence in Civil Procedures*⁸²⁶ (hereinafter *SPC Provision on Evidence*). Article 4 specifies that anyone who pollutes the environment bears the burden of proof in terms of

⁸²² Ma *et al.* 2017.

⁸²³ *Ibid.*

⁸²⁴ Koch & Koziol (2002), 410.

⁸²⁵ McElwee (2011), 256.

⁸²⁶ *Provision of the Supreme People's Court on Evidence in Civil Procedures* (《最高人民法院关于民事诉讼证据的若干规定》). Article 4 (3) of this Provision states that 'in a compensation lawsuit for damages caused by environmental pollution, the infringing party shall be responsible for producing evidence to prove the existence of exemptions of liabilities as provided in laws or that there is no causal relationship between his act and the harmful consequences.'

environmental pollution. In other words, the polluter must prove that no legal defence or causal link exists between his act and the damage suffered by the claimant.

Notably, Article 4 of the *SPC Provision on Evidence* sheds light on the shift of the burden of proof. A doctrine in terms of presumption of causation is established to cope with the difficulties in practice when proving causation in the case of environmental pollution.⁸²⁷

An unavoidable question is how to apply the doctrine of presumptive causation in practice. Specific rules on how this burden allocation operates in practice are provided in the *SPC Interpretation of Environmental Torts*.

3.1 The victim: to prove a certain probability of causation

Before requiring the polluter to prove the causation, victims should provide materials to prove the following facts in the first place: (a) the polluter discharged the pollutants; (b) certain damage has been caused to the victim; (c) the pollutants discharged by the polluter or their secondary pollutants are ‘relevant’ to the damage.⁸²⁸

The SPC states that the victim should prove that there is a certain probability of causation between the act of pollution and the fact of damage,⁸²⁹ yet it fails to clarify what the implication of ‘a certain probability of causation’ is. It is in such a case that some literature employs the concept of ‘reasonable man’⁸³⁰ to determine whether the plaintiff proves ‘a certain probability of causation’ between the act of pollution and the damage. Generally, a reasonable man is capable of discerning the causation between the two facts only through observation according to his general knowledge and experience, and therefore the court (judges in the case) adopts this idea as the benchmark to determine the probability of causation between the act of environmental pollution and the damage. If the court considers the evidence given by the plaintiff is not sufficient to show that a certain probability exists, the last factor of causation cannot be directly presumed. If the plaintiff can provide evidence as required, the next step goes to the presumption of causation.⁸³¹ In other words, the court will then presume the causation exists based on the evidence given by the plaintiff.

⁸²⁷ Yang (2018a), 85.

⁸²⁸ Article 6 of the *SPC Interpretation of Environmental Torts*.

⁸²⁹ *Ibid.*

⁸³⁰ Yang (2018a), 85-86. However, the ‘reasonable man’ standard is criticised by some scholars. See Schäfer & Müller-Langer (2009), 25-27.

⁸³¹ Yang (2018a), 85.

With the adoption of the idea of a certain probability of causation, another three aspects also help to determine the causation. First, without any occurrence of an act of pollution, the alleged consequence would not happen.⁸³² The chronological order between the act of environmental pollution and the fact of damage also matters,⁸³³ that is, the act of pollution must come first as the cause, and the fact of injuries or losses of the victim must come later as a result. Second, there should be no other possible causes,⁸³⁴ including the intervention of the victim's act, a third party's fault, irresistible natural disasters, or other factors that may intervene and contribute to the damage. This helps to exclude other possibilities between the fact of damage and the act of environmental pollution. Last, the standard to determine a certain probability of causation is not based upon scientific and technical proof but common sense. For example, this refers to general social knowledge and experience that is widely acknowledged by a reasonable man. A certain probability of causation may be accepted by the court if there is no conflict between relevant scientific results and the standards outlined above and thus causation may be presumed based upon such evidence given by the plaintiff.

3.2 The polluter: to overturn the presumption of causation

Apart from the requirements imposed upon the victim (plaintiff), the polluter is obliged to prove that no causation exists between his act of pollution and the damage. Article 7 of the *Interpretation of Environmental Torts* provides guidance on how a polluter (as a defendant) can overturn the presumed causation. If the polluter argues that there is no causation between his act of pollution and the result of damage, he has the duty to provide such evidence in this respect. When the polluter is capable of proving at least one of the following facts, the court may consider overturning the presumption of causation and thus should determine that there is no causation between the polluter's act of pollution and the fact of damage: (1) the discharged pollutants could not possibly cause the damage; (2) the discharged pollutants may cause the claimed damage, yet they cannot reach the place where the damage has occurred; (3) the damage took place before the discharge of the claimed pollutants; or (4) other circumstances can prove that no causation exists between the act of pollution

⁸³² *Ibid.*

⁸³³ *Ibid.*

⁸³⁴ *Ibid.*

and the claimed damage.

For the polluter (defendant), the SPC requires that the rule of ‘obviously more forceful’ should be applicable to rebut the causation. According to Article 73 of the *SPC Provisions on Evidence*, ‘when litigants produce contradicting evidence to prove the same fact but none of them has enough evidence to rebut the evidence of the others, the court shall determine which evidence is obviously more forceful than the others, based on the circumstances of the cases.’ This article implies that the ‘obviously more forceful’ standard should be interpreted as a ‘high probability’ (gaodu gairan) standard in practice.⁸³⁵ Unlike ‘a certain probability of causation’ which is required for the victim, the standard of proof that the polluter must meet to rebut the presumption of causation is ‘high probability,’⁸³⁶ which means that the polluter must prove that no causation exists between the act of pollution and the damage, i.e., a large possibility.⁸³⁷ However the SPC does not specify how high the probability should be.⁸³⁸ Some Chinese scholars advocate that the probability should be over 85 percent,⁸³⁹ or at least 70 percent.⁸⁴⁰ Since a unified explanation on the ‘high probability’ is absent, judges exercise their discretion when determining which evidence meets the ‘high probability.’ Recent case studies indicate that many judges in practice adopt the ‘preponderance of the evidence’ rather than the ‘high probability’ standard.⁸⁴¹ However, the burden of proof for the former is generally lower than the latter.

In this sense, whether the polluter is required to bear the liability and compensate the loss largely depends on the evidence he provided. If the polluter can prove that no causation exists between his act of pollution and the fact of damage, the presumption of causation may be overturned, and he may be exempted from the tort liability. In contrast, if the evidence he gave is too weak to prove the fact and persuade the judge, the presumption of causation is established, and the factor of causation is satisfied. In this vein, the polluter should be held liable for environmental pollution.

⁸³⁵ Li (2002), 462.

⁸³⁶ Yang (2018a), 85-86.

⁸³⁷ *Ibid.*

⁸³⁸ McElwee (2011), 256.

⁸³⁹ Huo (2016), 259.

⁸⁴⁰ Wu (2013a), 83.

⁸⁴¹ Yang (2018a), 85-86. McElwee (2011), 255-257. Huo (2016), 276-277. Wu (2013a), 83-86.

4. Summary

As indicated, the concept of ‘victim’ in this study includes individuals, entities, and the State, as damage arising from offshore drilling may result in traditional damage like personal injury, property damage, economic loss, and marine ecological damage. Table 13 displays the legitimate claimants and the approaches to pursuing compensation of different heads of losses. Under the *Offshore Exploitation Regulation* and the *2016 Measure*, individuals, companies, and entities that sustained injuries or economic loss from offshore oil accidents are allowed to claim compensation from the liable operator through four ways: administrative management, litigation, judicial mediation, and arbitration. Although claimants may choose any method with no limits, the majority of them prefer an administrative procedure over others. When claimants are unsatisfied with administrative decisions in claim handling, they may still pursue compensation through courts (litigation and mediation) or arbitration bodies. In practice, however, judicial mediation and arbitration are theoretically available for the victims but they are seldom employed. Additionally, if the competent authority is accused of mistakes in claim settlement, claimants may resort to several procedural devices to defend their compensation rights. Whether these legal tools, including administrative litigation, administrative reconsideration, or administrative hearings, are useful or not depends on specific circumstances.

Table 13 Approaches to obtaining damage compensation caused by offshore drilling in China⁸⁴²

Approach to compensation			Administrative management	Litigation	Judicial mediation	Arbitration
Authority in charge			Marine administrator	Court	Court	Arbitration body
Types of loss & claimant	Personal injury	Affected individual, company & entity	√	√	√	√
	Economic loss		Claimants may choose any approaches without limitations.			
	Marine ecological damage	Administrator	√	√	√	√
		Claimants should primarily seek administrative management before resorting to other methods.				
		Social organisation		√		

⁸⁴² The table was made by the author.

		Procuratorate		√		
		Claimants may only resort to courts in the name of EPIL against polluters.				
Additional procedural device		Administrative litigation; Administrative reconsideration; Administrative hearing.	Appeal; Retrial	Back to adjudication	N.A.	

Furthermore, there is also more than one approach provided to the claimants to pursue compensation for marine ecological damage. On behalf of the State's interest, marine administrators are entitled to primarily seek ecological restoration and monetary compensation through administrative arrangements before resorting to other methods (litigation, mediation, or arbitration). In comparison, social organisations and procuratorates representing the public interest may require ecological restoration via EPIL, but it is not clear if they are prohibited from pursuing monetary compensation since little legal guidance is available. As a result, challenges of applying EPIL remain in practice.

Based on the strict liability without financial caps, in cases where anyone pollutes the marine environment as a result of performing specific marine activities, such as offshore oil operations, the polluter will be liable for eliminating the danger and compensating the loss. If the damage is entirely due to the intent or negligence of a third party, the third party should be held liable. For the polluter, whether or not he is required to bear the liability and compensate the victim largely depends on the evidence he provided, which means he has to overturn the presumption of causation if he intends to be free from the liability; nevertheless, the victim is required to prove a certain probability of causation in advance.

Chapter 8 will further analyse the strengths and weaknesses associated with each approach, while chapter 9 will use the Bohai case as the testing environment to examine how the victims adopted these approaches in practice.

Chapter 6 The impact of insurance on compensation for damage resulting from offshore drilling in China

1. Risks arising from offshore drilling activities

1.1 Insurance risks in offshore drilling

The offshore oil industry is generally divided into three major sectors: upstream (also known as exploration and production sector), midstream, and downstream.⁸⁴³ The upstream sector includes searching for potential underwater crude oil fields, drilling exploratory wells, and operating the wells that recover and bring the crude oil to the surface; the midstream industry processes, stores, markets and transports commodities such as crude oil; while the downstream industry includes oil refineries, petrochemical plants, petroleum products distributors and retail outlets.⁸⁴⁴ As the largest petroleum company specialised in offshore oil in China, the CNOOC has branches in charge of the upstream, midstream, and downstream.⁸⁴⁵ The core point in this study nevertheless concentrates on the upstream: offshore exploitation and production sector, or the offshore drilling sector.

On the whole, offshore drilling is a process of extracting petroleum from reserves located beneath the oceans, which is technically categorised into four phases: (i) exploration; (ii) drilling/ exploitation; (iii) construction; and (iv) production.⁸⁴⁶ Given that risks can be triggered in any phase and presented in the form of various types of damages, anyone (i.e., operators, service providers, subcontractors) that participates in offshore drilling bears different risks, which creates a demand for the insurance that may provide comprehensive coverage for complex risks generated in the course of offshore exploration, production, and other phases in the offshore drilling industry.

⁸⁴³ See PSAC working energy, an introduction of the petroleum industry, available at <http://www.psc.ca/business/industry-overview/> (accessed on April 15, 2022).

⁸⁴⁴ *Ibid.* Also see Zhang (2016b), 157.

⁸⁴⁵ Zhang (2016b), 161.

⁸⁴⁶ During the (i) exploration phase, risks can be generated from the exploration facilities and personal injury of workers while working on or around the offshore platforms. (ii) Risks in the exploitation phase consist of damage to drilling facilities and drilling barges, costs of well control and re-drilling, clean-up costs, and even political events. (iii) In the phase of offshore construction, risks are damage to the installation of structures and facilities in the *marine* environment, the construction project of which is usually for the production and transmission of electricity, *oil*, gas and other resources. (iv) In the production phase, offshore oil companies not only bear significant operational risks but also the threat to various property. See Zhang (1997), 89-92; Li (2016), 241-242.

Offshore oil rigs are among the most challenging and complicated risks to insure, subject to a unique set of environmental conditions because of their location at sea and their constant exposure to catastrophes. Despite the risks they face from atrocious weather such as hurricanes or tsunamis, loss events for oil rigs and platforms may also occur due to human operations. In fact, such damage is relatively infrequent but has the potential to generate substantial losses when they do occur.⁸⁴⁷ In particular, the risk concerning environmental damage is often considered ‘hard to insure’ by insurers, which leads operators to increasingly seek different financial alternatives.⁸⁴⁸

The previous chapters examine compensation from the liability perspective, and it is known that the strict liability system alone may not provide full compensation for all types of damages resulting from offshore drilling. In general, offshore operators have carried risks via insurance, self-insurance, funds, etc., on the understanding that such risks are counterbalanced by the considerable rewards of exploitation and development (E&P) success, in which way the risk-reward relationship has structured the liability relationship and related insurance.⁸⁴⁹

Moreover, international oil companies usually set up subsidiaries in the host country when they have offshore projects abroad. Subsidiaries take charge of offshore drilling operations and are also fully liable for damage arising from their activities based on their assets, which is separated from that of their parent companies.⁸⁵⁰ In the case of an offshore accident, it is likely for subsidiaries to have the problem of insolvency because of their limited assets, and their parent companies can be free from the liability in that case. Due to this fact, insurance seems to be an option for the offshore operators to deal with risks and tackle insolvency problems.

Before going further, it is essential to give an overview of two methods that are used to distinguish risks generated from offshore drilling in China. Based on a recommended national standard *Dangerous and Toxic Factors and Codes of Industrial Production*⁸⁵¹ in China, some experts suggest classifying risk factors during the offshore oil industry into six categories, namely physical, chemical,

⁸⁴⁷ See the website of Insurance Information Institute (III), the Background Information of Insuring Offshore Energy Facilities (April 28, 2010), available at <https://www.iii.org/article/insuring-offshore-energy-facilities> (accessed on April 15, 2022).

⁸⁴⁸ Faure (2009a), 148-158. A discussion about the shortcomings of liability insurance in the case of environmental damage is presented in this chapter.

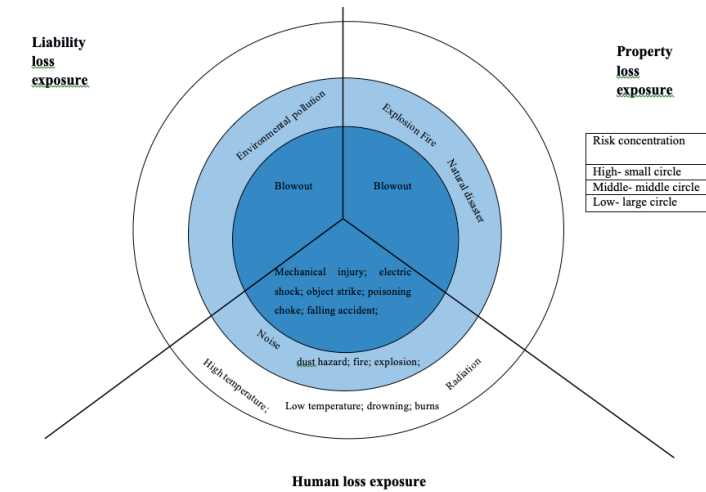
⁸⁴⁹ Cameron (2012), 207.

⁸⁵⁰ Li (2016), 254-255.

⁸⁵¹ See the recommended national standard, *Dangerous and Toxic Factors and Codes During Industrial Production* (《生产过程危险和有害因素分类与代码》) (GB/T 13861-2009).

biological, psychological, behavioural, and others. This classification provides guidance on distinguishing a variety of dangerous and toxic elements generated from offshore drilling operations. Alternatively, the risks induced by offshore drilling can also be identified on the basis of the *Classification Standard of Injured and Dead Enterprise Employees*.⁸⁵² The former standard directly categorises different risks arising from industrial operations, whereas the latter classification is based upon personal injury. Recall that offshore drilling is a risky industry that faces personal injury, property damage, and environmental pollution; insurance companies generally divide risks into several categories. According to the two national standards above, a ‘risk-radar model’ is designed below to illustrate the insured risks related to offshore drilling. This model is originally based on the up-, mid- and down-streams, where the risk of exploiting, transporting commodities, refining, and selling oil products are all involved. For the upstream sector alone, a detailed risk-radar model is further provided to display what types of damages are generated from offshore drilling and how serious the damage can be. Figure 11 demonstrates a risk-radar model in the course of offshore drilling: risk exposure decreases further away from the centre. For each loss exposure, the dark and light zones represent the most and least intensely dangerous risks, while the grey zone in the middle is the halfway point between these two.

Figure 11 Risks generated from offshore drilling in the upstream sector⁸⁵³



⁸⁵² See the mandatory national standard *Classification Standard of Injured and Dead Enterprise Employees* 《企业职工伤亡事故分类标准》(GB/ 6441-1986).

⁸⁵³ See Zhang (2016b), 170-174.

1.2 Insurance coverage

This chapter concentrates on applicable insurance policies as they provide financial alternatives in case of the risks originating from offshore drilling. Insurance coverage is provided by several specific insurance projects, since offshore drilling operations face a broad range of exposure. Six types of insurance will be dealt with in this chapter. (a) *All-risk offshore insurance* comprehensively covers all risks associated with physical loss or damage to offshore facilities in the area of the offshore drilling industry.⁸⁵⁴ It is a package of insurance policies that reduce the loss of offshore operators after an accident. (b) *Well control insurance* covers some or all costs associated with regaining control of a well, cleaning up pollution caused by a blowout, and re-drilling an affected well or restoring it to operation. This form of insurance is of great importance for operators, as all-risk insurance generally excludes such risks (i.e., blowout) in its policy. (c) *Occupational Injury Insurance* and (d) *employers' liability insurance* protect employers against the cost of compensation claims because of their employees' illness or injury, sustained as a result of their occupation. The former insurance belongs to the Chinese social security system and is compulsorily demanded by law in China, while the latter insurance is provided by the insurance market on a voluntary basis. Apart from property damage and personal injury, damage to the marine environment can occur in offshore drilling, where (e) *environmental pollution liability insurance* is designed to handle such losses. The coverage of this liability insurance includes the costs of restoration and clean-up cost used for the designated sites. It also provides coverage for bodily injury and deaths caused by pollution. (f) *Fishery and aquaculture insurance* is also discussed in this chapter, as offshore oil activities frequently threaten the fishing and aquaculture industry in practice.

Recall that chapter 3 (section 3) addressed types of damages originating from offshore drilling that involve personal injury, property damage, damage to the fishing or tourism sector, and marine ecological damage, and all these damages are recoverable

⁸⁵⁴ Faure *et al.* (2015), 386.

under the Chinese legal system. As indicated above, it seems that the insurance coverage mentioned above is basically consistent with the types of losses caused by offshore drilling.

1.3 First- and third-party insurance

As indicated above, both first- and third-party insurance are part of the general insurance system of risk financing to protect the purchaser (the insured) from the risks of damages imposed by lawsuits and similar claims.

On the one hand, first-party insurance is a system whereby the compensation is awarded directly by the insurer to the victim.⁸⁵⁵ As seen in the case of a blowout accident, the victims of the accident are the offshore oil operators, as they are the first to be significantly affected. Considering the injured party himself is also the liable party that causes damages, offshore oil operators may have a strong tendency to purchase well control insurance in order to mitigate such losses.

On the other hand, third-party insurance, also known as liability insurance, provides coverage to the insured in cases where they become liable parties. In other words, liability insurance is designed to offer specific protection against third-party claims, where payment is not typically made to the insured but ultimately to someone who suffers damage. The victim in this circumstance is not a party to the insurance contract.

For the majority of insurance policies in relation to offshore drilling, including all-risk insurance and well control insurance, to determine whether a policy has a first- or third-party nature depends on specific situations. It is more likely that they are a mixture of first- and third-party insurance, as an accident caused by offshore drilling not only can result in negative consequences to themselves but also threaten the interests of other innocent parties (such as fishermen or shipowners nearby). However, it will be a different story if the insurance contract decides to exclude the liability to the third party.⁸⁵⁶

Accordingly, this chapter is structured as follows: after the introduction of risks created by offshore drilling (section 1), section 2 gives an overview of rules of insurance aiming at offshore drilling under the current legal system. Section 3

⁸⁵⁵ Faure (2009a), 158.

⁸⁵⁶ See *infra* sections 3.3.3 & 4.2.1.C of this chapter.

addresses a comprehensive insurance project that is typically designed for all risks associated with physical damage: all-risk offshore insurance. Although blowout is excluded from all-risk insurance due to its destructive nature, well control insurance is specially formulated to cover such exposure (section 4). Section 5 gives a description of the impact of occupational injury insurance and employers' liability insurance aiming at the victims who used to work on or around offshore platforms. Section 6 examines environmental pollution liability insurance, followed by a new insurance promotion related to safety regulations in the field of environmentally sensitive sectors: safety liability insurance (section 7). Moreover, since a significant concern in the case of offshore oil damage is losses in the fishing industry, section 8 examines this specific property loss exposure: fishery and aquaculture insurance. Section 9 examines several other risk management techniques - reinsurance (section 9.1), self-insurance (section 9.2), and compensation funds (section 9.3) - that serve as additional tools to deal with offshore-related risks. In each section, specific insurance policies and relevant statutory rules are examined; more importantly, the impact of insurance on damage compensation is discussed as well. A summary is given in section 10 to conclude this chapter.

2. Are offshore operators required to purchase insurance?

Article 11 (2) of the *Insurance Law of People's Republic of China* stipulates that '*an insurance contract shall be concluded voluntarily unless the insurance is mandated by a law or administrative regulation,*' which can be regarded a legal basis when considering the application of insurance in the offshore drilling industry. In other words, anyone that participates in the offshore oil activities is free to purchase insurance if no mandatory requirement is regulated by law or regulation. The next question automatically goes to: is there a statutory or regulatory rule requiring offshore oil operators to purchase insurance?

The answer to this question is mixed, as it depends on the specific type of offshore facilities. On the one hand, there is no demand for purchasing insurance for fixed platforms by law. On the other hand, the matter becomes complicated as far as mobile offshore units (better known as MOUs) are concerned as the *Maritime Law of the*

*People's Republic of China*⁸⁵⁷ (hereinafter *Maritime Law*) addresses that operators engaged in maritime activities should purchase insurance.⁸⁵⁸ In the second scenario, operators would follow the mandatory requirement of buying insurance if MOUs are qualified as ships under the *Maritime Law*.

The *Maritime Law* was not introduced in the previous chapters, because it mainly concerns maritime issues relating to vessels, and it aims to promote the development of maritime transport and trade,⁸⁵⁹ which is loosely relevant to the offshore drilling industry. However, recall that facilities served in the offshore drilling can be categorised into fixed platforms and MOUs,⁸⁶⁰ while the latter may fall within the scope of 'ship'⁸⁶¹ under Article 3 of the *Maritime Law*. This provision sets out that 'ships refer to seagoing ships and other mobile units, excluding ships that are used for military or public service, or small ships with the size of no more than twenty tonnes gross tonnage.'⁸⁶²

Seemingly, the meaning of ship given in Article 3 is more of a general description than a precise definition, which casts doubt on whether 'mobile units', such as MOUs, can be treated as ships under the *Maritime Law* and then apply its provisions. It makes a difference whether or not provisions under chapters 6 (*Limitation of Liability for Maritime Claims*) and 7 (*Contract of Maritime Insurance*) of the *Maritime Law* are applicable to the damage stemming from MOUs. Technically, the crucial point of this doubt is whether 'automatic navigation' is the fundamental feature of a ship, which is debatable in academia. Some scholars claim that an MOU should be considered as a ship as long as it can be towed by other vessels, whether it is capable of automatically navigating itself is irrelevant.⁸⁶³ Others, however, argue that a clear distinction should be made between different types of MOUs, such as semi-submersible

⁸⁵⁷ The *Maritime Law of the People's Republic of China* (《中华人民共和国海商法》) was first adopted on November 7, 1992 and came into effect on July 1, 1993.

⁸⁵⁸ Article 3 of the *Maritime Law*.

⁸⁵⁹ Article 1 of the *Maritime Law*.

⁸⁶⁰ See *supra* section 2.1.1 of chapter 2.

⁸⁶¹ A ship is a large ocean-going vessel, or a sailing vessel that uses wind power or steam power or other human-made energy sources, rigged in such a manner that will allow it to sail and be controlled. By contrast, a vessel is anything that can float and can be steered/moved, either by own means or by other means. In this chapter the term 'ship' and 'vessel' share similar meanings. The definitions of ship and vessel are available at <https://shippingandfreightresource.com/difference-between-a-ship-and-a-vessel/> (accessed on April 15, 2022).

⁸⁶² It should be noted that the meaning of 'ship' under the *Maritime Law* is not the same, despite the fact that this term is defined by Article 3. By way of illustration, the ship mentioned in chapter 2 (ships), 3 (crews) and 8 (collision of ships) is the same as in Article 3. However, the ship in chapters 4-5 respectively refers to 'ship for carriage of goods at sea' and 'ship for carriage of passengers by sea,' which *de facto* excludes mobile units.

⁸⁶³ Si 2018.

drilling platforms⁸⁶⁴ and jack-up drilling platforms,⁸⁶⁵ before considering this question. In practice, some sailing semi-submersible drilling platforms can automatically navigate on the sea, so they belong to ships and thus are subject to the *Maritime Law*. By contrast, other semi-submersible drilling platforms for exploitation (which cannot navigate on the sea) and all jack-up drilling platforms should in no case be treated as ships.⁸⁶⁶

As regards insurance, it is argued that an insurance contract related to an MOU may be considered a maritime insurance contract and thus applies the *Maritime Law* for two reasons. The first reason rests in the similarities between ships and MOUs. Article 218 of the *Maritime Law* stipulates that,

'The following items may fall into the scope of marine insurance:

(1) ships;

...

moreover, (7) other property which may sustain a loss from a maritime incident, as well as the liability and expenses arising from maritime transportation activities.'

Combined with the definition of the ship in Article 3, maritime insurance under Article 218 covers an incident that occurs at sea, which includes but is not limited to the incidents due to maritime transportation. Recall that an outstanding feature of MOUs is being movable and adaptable,⁸⁶⁷ which is seen as '*a mixture of a fixed platform and a ship*' according to some literature.⁸⁶⁸ Based on the provisions in the *Maritime Law*, the idea of insurance on ships seems to be akin to that on MOUs.

The second reason is developed from some intrinsic features of insurance. Generally

⁸⁶⁴ A semi-submersible platform (半潜式钻井平台) is a specialised facility used in a number of specific offshore roles including as offshore drilling rigs, oil production platforms, and heavy lift cranes. They are designed with good stability and seakeeping characteristics. It should be noted that the drill-ship is another type of drilling rig that can drill in ultra-deepwater: drill-ships are capable of holding more equipment while semi-submersibles are sometimes chosen for their comparative stability. More information on semi-submersible platforms, see 'How Do Semi-submersible platforms Work,' available at https://www.rigzone.com/training/insight.asp?insight_id=338&c_id=24 (accessed on April 15, 2022).

⁸⁶⁵ A jack-up drilling platform (自升式钻井平台), or jack-up rig, jack-up, refers to a type of mobile platform that consists of a buoyant hull fitted with a number of movable legs, capable of raising its hull over the surface of the sea. The buoyant hull enables transportation of the unit and all attached machinery to the desired location. The hull will be raised to the required elevation above the sea surface supported by the seabed. The legs of such units are designed to penetrate the seabed, which may be fitted with enlarged sections or footings, or attached to a bottom mat. Generally, jack-up rigs are not self-propelled but rely on tugs or heavy lift ships for transportation. Jack-up platforms are used as exploratory drilling platforms and offshore service platforms, and they are the most popular MOUs with a variety of types at present. More information on jack-up platforms, see '*What are Jack-up Drilling Rigs*' (November 2, 2017), Marine Insight, available at <https://www.marineinsight.com/types-of-ships/what-are-jack-up-drilling-rigs/> (accessed on April 15, 2022); also see '*How do Jack-ups Work*,' Rig Zone, available at https://www.rigzone.com/training/insight.asp?insight_id=339&c_id= (accessed on April 15, 2022).

⁸⁶⁶ Wei (1996), 37.

⁸⁶⁷ See *supra* section 2.1.1 of chapter 2.

⁸⁶⁸ Pan & Gao (2003), 1-5.

speaking, one insurance policy is distinct from others because of their typical coverage, so the insured determines to purchase one particular type of insurance because it aims at some specific risks. For instance, in order to insure an offshore facility, the insured prefers to have ‘property insurance’ if the facility is stored in a warehouse; in contrast, the same facility would be insured with ‘cargo insurance’ if it is in the process of transferring it from one place to another. Based on this argument, mobile offshore units and sailing vessels at sea, in essence, share similar risks, such as collision, fire, explosion, erosion, as well as natural disasters.⁸⁶⁹ Such risks are unique at sea in comparison to activities onshore. In addition, ships play an important role in offshore oil activities, which constitutes another reason for adopting the *Maritime Law* for incidents related to offshore drilling. Accordingly, insurance regarding MOUs can be categorised as maritime insurance and hence apply provisions under the *Maritime Law* to disputes related to offshore drilling.⁸⁷⁰

The first argument, however, is problematic. As indicated, Article 1 of the *Maritime Law* illustrates that the Law is developed to cope with issues in relation to vessels that are used for maritime transportation. An MOU, serving as a facility to explore and exploit oil, is not installed for transportation on the sea. Even though vessels for frequent transport are needed in the course of offshore drilling, it is not convincing to mix up these vessels with MOUs, the latter of which are mainly used for exploitation rather than transportation. The second argument is even weaker. Although both vessel-induced and offshore-related incidents have a few unique features in comparison with onshore activities, they are in essence, completely different types of maritime activities and hence have different risks.

Based on the above analysis, the *Maritime Law* does not aim at offshore drilling facilities: fixed offshore platforms are excluded from the scope of the *Maritime Law*, while whether it is applicable to MOUs is not clear. That is, the *Maritime Law* can hardly be seen as a law that requires offshore oil operators to purchase insurance; relevant rules considering liability limits and insurance under the *Maritime Law* also do not apply to offshore drilling activities. Together with the *Insurance Law*, offshore operators in China are free to purchase insurance, and they may agree upon the insurance by a contract on a voluntary basis.

Therefore, the current insurance mechanism of offshore drilling in China is generally

⁸⁶⁹ Chen (1999), 93-94.

⁸⁷⁰ *Ibid.*

developed by insurance companies. The following five sections (section 3-7) address specific insurance policies that aim at offshore drilling, covering different kinds of damage.

3. All-risk offshore insurance

3.1 All-risk insurance for platforms and MOUs

In China, all-risk insurance for offshore drilling was first developed by the *People's Insurance Company of China*⁸⁷¹ (hereinafter PICC), the standard form of which originated from the *London Standard Drilling Barge Form* (hereinafter *L.S.D.B.F.*),⁸⁷² which is further divided into two categories: *All-risk Insurance of Fixed Offshore Platforms* and *All-risk Insurance of Drilling Barge*,⁸⁷³ respectively insuring fixed offshore platforms and mobile offshore units (MOUs). Although the latter insurance adopts the term 'drilling barge,' which originates from the *L.S.D.B.F.*, the application of this insurance policy is much broader than drilling barges.⁸⁷⁴ As a matter of fact, apart from fixed offshore platforms, MOUs, including jack-ups, semi-submersibles, drill-ships, and barge drilling units, are all insured under this policy.⁸⁷⁵ Therefore, this study employs the terms '*Platform Insurance Policy*' and '*MOU Insurance Policy*' to represent these two standard policies that widely apply in China. The following part examines the fundamental clauses of these two policies, where the similarities and differences between them are also presented.

⁸⁷¹ People's Insurance Company of China Holdings Company (PICC) (中国人保控股公司) is a State-owned company in China, among which PICC Property and Casualty Company Limited (PICC P&C) (中国人民财产保险股份有限公司) is its subsidiary. PICC P&C is China's largest insurance provider of casualty insurance. It is authorised to provide all major forms of insurance except life insurance. PICC P&C was established in 2002 from the former property and casualty insurance division of the PICC, and it was the designated agent within China for most international insurance companies. The PICC was the first company that introduced insurance aiming at offshore drilling. Currently, several major insurance companies, i.e., Pingan Insurance (中国平安) and Huatai Insurance (华泰财产保险), also provide all-risk insurance for fixed offshore platforms and MOUs. More information on these insurance programs offered by these companies, see <http://www.iachina.cn/col/col1920/index.html> (Pingan Insurance) (accessed on April 15, 2022), also see <http://www.iachina.cn/col/col1929/index.html> (Huatai Insurance) (accessed on April 15, 2022). The latest *L.S.D.B.F.* policy was revised by the London Rig Committee in April 2009, and it is now widely adopted by a considerable number of insurance companies in the world. More information, see Sharp (2008), 72-77; Li (2016), 243-244. The full text of the *L.S.D.B.F.* is available at <http://www.iachina.cn/upload/product/20091207081800687.html> (accessed on April 15, 2022).

⁸⁷³ *All-risk Insurance of Fixed Offshore Platforms* (in Chinese: 平台一切险条款) and *All-risk Insurance of Drilling Barge* (in Chinese: 钻井船一切险条款) are two insurance policies provided by several insurance companies in China (including the PICC and Pingan Insurance) to deal with the insurance issue of the offshore drilling industry. The full text of *Platform Insurance Policy* is available at <http://www.iachina.cn/col/col4018/index.html> (accessed on April 18, 2022). The full text of *MOU Insurance Policy* is available at <http://www.iachina.cn/col/col4020/index.html> (last accessed on April 18, 2022).

⁸⁷⁴ See Liu & Shen (2015), Chapter 10, section 3; Xu & Zheng (2015).

⁸⁷⁵ A discussion on different forms of mobile offshore units is given in section 2 of this chapter.

On the whole, most clauses in these two policies are almost the same, both of which include the assured, period of insurance, property insured, coverage, deductible, exclusions, blowout preventer warranty, liability limits, co-insurance, constructive total loss, sue and labour expenses, cancellation, release agreements and waivers of subrogation, discovery of records, loss payable, and free of capture and seizure.

Given that fixed platforms and MOUs function differently under various circumstances, the range of the two policies is also different as far as some specific losses are concerned. The *MOU Insurance Policy* adopts the term ‘navigation limits’⁸⁷⁶ to illustrate the loss of an MOU is limited to the areas of its navigation; in contrast, the *Platform Insurance Policy* adopts the term ‘activity limits’ to define its range of application.⁸⁷⁷ This is because an offshore platform is fixed at a particular site once it has been placed, while a movable MOU can be readily relocated. Therefore, only the *MOU Insurance Policy* mentions collision liability.⁸⁷⁸ As far as the *Platform Insurance Policy* is concerned, it is not applied for the simple reason that a fixed platform is unmovable and thus cannot collide with other facilities.

3.2 Compensation liability of the insurer

This part examines specific clauses under these two insurance policies. The coverage and exclusions of two types of all-risk insurance policies are presented respectively in sections 3.2.2 and 3.2.3, followed by a description of liability limits in section 3.3.4. Sections 3.3.5 and 3.3.6 separately address the deductible as well as sue and labour expenses. A discussion of collision liability, which only regulated in the *MOU Insurance Policy*, is given in section 3.3.7.

3.2.1 Insured property

Both *Platform and MOU Insurance Policies* demonstrate the rate, value, and amount of the property to be insured (see Tables 14 and 15).⁸⁷⁹ The coverage, which is described in the next sub-section, extends to all the components and parts permanently installed on the insured fixed platforms or MOUs. Apart from the factors

⁸⁷⁶ Clause 4 of the *MOU Insurance Policy*. Navigation limits are presented as the scope of navigation (in Chinese: 航行范围).

⁸⁷⁷ Clause 4 of the *Platform Insurance Policy*. Activity limits are presented as the scope of activity (in Chinese: 区域范围).

⁸⁷⁸ Clause 6 of the *MOU Insurance Policy*.

⁸⁷⁹ Clause 3 of *Platform and MOU Insurance Policies*.

in the tables, both policies set out two requirements of the insured property. First, in cases where operators purchase insurance for more than one platform or MOU, each platform or MOU should be insured separately. Second, the ‘insured value’ in the tables refers to the liability limit of one incident, meaning any loss paid for the incident should account for the amount of insurance written in the contract.⁸⁸⁰

Table 14 Schedule of insured property (of MOUs)⁸⁸¹

Schedule of property insured			
Description of drilling barge	Rate	Insured value	Amount

Table 15 Schedule of insured property (of offshore platforms)⁸⁸²

Schedule of property insured			
Description of offshore platform	Rate	Insured value	Amount

3.2.2 Coverage

As a comprehensive policy, all-risk insurance aims to identify and mitigate substantial risks that operators face in offshore petroleum activities. In addition to limiting the risk to a level that is financially acceptable to the operators, this insurance policy enables operators to avoid tackling multiple and overlapping layers of insurance.⁸⁸³ The coverage in the *Platform and MOU Insurance Policies* is presented in a generalised way, so that it addresses that the policies only insure against the risks generated from direct loss of the insured property.⁸⁸⁴

As a consequence, risks should ‘directly’ cause the loss of the property insured, which implies the principle of ‘*legal causation*’ is applied in the insurance business. As an idea fundamentally rooted in the maritime insurance contract, the insured (offshore operator) bears the duty to prove that their property is covered by insurance and hence should be compensated by the insurer; otherwise, the insurer can refuse to compensate the uncovered loss, even though the loss was directly caused in the course of offshore

⁸⁸⁰ Clause 3 of *Platform and MOU Insurance Policies*. Also see Li (2016), 246.

⁸⁸¹ Source: The *MOU Insurance Policy* offered by the PICC

⁸⁸² Source: The *Platform Insurance Policy* offered by the PICC.

⁸⁸³ Cameron (2012), 207-208.

⁸⁸⁴ Clause 5 of *Platform and MOU Insurance Policies*.

drilling.⁸⁸⁵ For instance, a huge wave destroys a vital segment of an MOU, which suspends oil exploitation activities and caused economic losses. In such a case, the insurer can refuse to pay out for the loss of production due to the suspension but only compensate the damaged MOU if the insured is able to provide the required evidence before claiming compensation. The evidence should be solid enough to prove the following three facts: (i) the risk is insured under the contract; (ii) the incident has a causal link to the damage; and (iii) the scope and degree of the damage are covered in the policy.

3.3.3 Exclusions

Clause 8 of the *MOU Insurance Policy* and Clause 7 of the *Platform Insurance Policy* elaborately describe the exclusions of offshore insurance. The following paragraphs present six exclusions.

First, loss or damage as a result of an earthquake or volcano is excluded from the coverage. Although the *L.S.D.B.F.* covers such risks, the PICC does not follow this clause but chooses to exclude them. The reason for this is clear: the consequences of natural disasters like earthquakes, tsunami and volcano eruptions are extremely severe; moreover, these incidents can not be accurately predicted even based on the most advanced technology. If these risks are included in the exclusion clause, the insured (offshore operator) has to bear huge risks. Due to this concern, the insured is more willing to transfer the risks to the insurer by removing it from the exclusion. The insurers, however, are reluctant to cover the risk on their own. Therefore, no coverage of such natural disasters is included under the all-risk policy and the insured bear the risks of natural disasters themselves.

As far as severe weather is concerned, the other special exclusion in the *Platform Insurance Policy* is the named storm or hurricane,⁸⁸⁶ which is not mentioned in the *MOU Insurance Policy*. By way of illustration, in September 2000, 'No. 3 Platform' of the *Shanghai Offshore Petroleum of the Sinopec* (hereinafter *Sinopec Shanghai*) was impacted intensively by Typhoon *Saomai* and Typhoon *Bopha*,⁸⁸⁷ which

⁸⁸⁵ Wang (2006b), 113-114.

⁸⁸⁶ According to Clause 7 of the *Platform Insurance Policy*, 'loss, damage or expense caused by or attributable to a named storm or hurricane is excluded from the insurance.'

⁸⁸⁷ Tropical storms are named to provide ease of communication between forecasters and the general public regarding forecasts, watches, and warnings. Since the storms can often last a week or longer and more than one can be occurring in the same basin at the same time, names can reduce the confusion about which storm is being described. A tropical cyclone with winds of tropical storm intensity or higher goes unnamed when, operationally, it

displaced the platform over 140 metres from its original site and damaged its essential parts. Given that No. 3 Platform was insured under MOU insurance, its insurer *Pingan Insurance* compensated CNY 2,557,000 for the damages of No. 3 Platform.⁸⁸⁸

Hypothetically, if *Sinopec Shanghai* purchased a *Platform Insurance Policy* for No.3 Platform, it would receive zero compensation, as a named storm or hurricane is excluded from its coverage.⁸⁸⁹

Second, although a relief well⁸⁹⁰ serves to reduce the pressure during the exploitation, the loss induced by drilling a relief well that aims at controlling or attempting to control fire blowout is excluded from the coverage. However, this exclusion can be relaxed if the insured ‘sends immediate notice to the insurer and pays an additional premium as required,’ where the insured may be compensated from the insurer for such damages. Furthermore, any expenses spent in controlling or attempting to control blowouts are also excluded from the coverage.⁸⁹¹ In practice, blowouts, as well as blowout-related damage, are covered by another particular insurance: well control insurance, which is addressed in section 4 of this chapter.

Third, Clauses 5 of the *Platform and MOU Insurance Policies* address that the loss is not covered by all-risk insurance unless it is ‘directly’ caused by incidents.⁸⁹² In other words, any indirect loss is excluded from the coverage. Clause 7 (e) of the *Platform Insurance Policy* and Clause 8 (e) of the *MOU Insurance Policy* echo this idea by providing an exclusion: the loss, damage or expense resulting from delay, detention or loss of use are excluded from the coverage. For example, the insurer will not compensate for the downtime production loss due to the damaged platform or facility.

Fourth, both policies refuse to cover the latent defect of offshore facilities. Clause 7(f) of the *Platform Insurance Policy* and Clause 8 (f) of the *MOU Insurance Policy* stipulate that the insurance does not cover any ‘wear and tear, gradual deterioration, metal fatigue, machinery breakdown, expansion or contraction due to change in temperature, corrosion, rusting, electrolytic action, error in design; nor does it cover

is not considered to have met the criteria for naming. See, NOAA’s Atlantic oceanographic and Meteorological Laboratory, US Department of Commerce (June 1, 2021). *Hurricanes Frequently Asked Questions*, available at <https://www.aoml.noaa.gov/hrd/tcfaq/B1.html> (accessed on April 15, 2022).

⁸⁸⁸ CNY 2,557,000 = approx. EUR 357,980. The current exchange rate for the EUR/CNY was 0.14 in 2000, when the accident occurred.

⁸⁸⁹ Yu (2001), 43.

⁸⁹⁰ In the petroleum industry, a relief well is drilled to intersect an oil well that has experienced a blowout. Specialised liquid, such as heavy (dense) drilling mud followed by cement, can then be pumped down the relief well in order to stop the flow from the reservoir in the damaged well. See Dove 2010; Fountain 2010.

⁸⁹¹ Clause 8 (d) of the *MOU Insurance Policy*; Clause 7(d) of the *Platform Insurance Policy*.

⁸⁹² Clauses 5 of the *Platform and MOU Insurance Policies*.

the cost of repairing or replacing any part which may be lost, damaged, or condemned due to any latent defect of these facilities.' For instance, if an iron-made shelf of an offshore facility gets rusty because of the corrosion of sea waters, or if this iron shelf is accidentally cut off by some wreckage in the ocean, insurers usually will not compensate the expenses of repairing or replacing it due to this exclusion clause.

Fifth, liability to the third party is also precluded from the coverage under both all-risk insurance policies.⁸⁹³ The only difference is that the *MOU Insurance Policy* makes an exception for collision liability, which is further explained below.⁸⁹⁴

Sixth, both insurance policies fail to insure the clean-up cost. According to Clause 7 (i) of the *Platform Insurance Policy* and Clause 8 (i) of the *MOU Insurance Policy*, '*claims in connection with the removal of property, materials, debris or obstruction, whether such removal is required by law or regulation*' are excluded from the coverage. It is probably because even a small amount of pollution can cost a considerable sum to clean-up; moreover, once pollutants contact surface waters such as rivers and oceans, the cost of clean-up can be vast, multiple times the value of the property where pollution occurred.⁸⁹⁵

As seen in international practice, however, insurers may agree to compensate for the clean-up cost, yet the compensation amount is capped at 25 percent of the total value of the affected property to be cleaned.⁸⁹⁶ Occasionally, in order to comfort the close relatives of the deceased after a disastrous incident, the insurer may agree to pay the cost of salvaging a cabin from the ocean that may have corpses in it. A precondition of compensating such costs is that the insured makes an agreement with the insurer and then provides an additional premium if they intend to add such additional risks.⁸⁹⁷

3.3.4 Liability limit

The liability limit of the *Platform Insurance Policy* is the same as that of the *MOU Insurance Policy*, as both set out three requirements to restrict the liability for compensation. The first is that '*the insurer's liability to pay arising from any accident should in no event exceed the insurance amount written in the contract,*'⁸⁹⁸ but (i) sue

⁸⁹³ Clause 8 (h) of the *MOU Insurance Policy* and Clause 7 (h) of the *Platform Insurance Policy*.

⁸⁹⁴ See *infra* section 3.3.7 of this chapter.

⁸⁹⁵ Abraham (2011), 1788.

⁸⁹⁶ Liu & Shen (2008), Chapter 10, section 3; Xu & Zheng (2015).

⁸⁹⁷ A similar case actually happened in the *Piper Alpha* accident on July 6, 1988.

⁸⁹⁸ Clause 9 of the *Platform Insurance Policy*; Clause 10 of the *MOU Insurance Policy*. The insurance amount is regulated in Clause 3 of both policies.

and labour expenses and (ii) expenses resulting from collision liability are excluded and separately calculated. Even if the total amount of the costs, including (i) and (ii) costs, is beyond the insurance amount, the latter two costs should be respectively handled with their requirements.

The second limit concentrates on the insured property. An insurer merely pays the amount that is necessary to recover, repair, or replace the damaged property to restore it to its original status. If the insured only partially contributes to the damage, the expense he paid should be in proportion to his liability.⁸⁹⁹ An exception is made in the case of the *MOU Insurance Policy*, where insurers may compensate all the costs of repair and replacement that are generated from the hull of the drilling barge, and such costs are '*based on new for old with no deduction for depreciation*.'⁹⁰⁰

The liability limits of insurance may come up against the problem of insolvency in practice, especially for middle and small-sized companies or subsidiaries with limited assets. As seen in the 2011 Bohai case, the liable operator (ConocoPhillips China) was the subsidiary of ConocoPhillips, with an insurance amount of USD 50 million.⁹⁰¹ However, the amount of USD 50 million was far from the real damage to the marine environment and marine natural resources,⁹⁰² while its parent company was not held liable to compensate the damages.⁹⁰³ A significant number of companies in the field of offshore drilling in China are middle and small companies, or subsidiaries of large international oil companies, which leads to more risks of insolvency in terms of damage compensation after an offshore accident.⁹⁰⁴

⁸⁹⁹ Clause 9 of the *Platform Insurance Policy*; Clause 10 of the *MOU Insurance Policy*. The insurer should be not liable for '*over their proportion of the costs of repairing or replacing the property damaged or lost with the material of like kind and quality to a condition equal to but not superior to or more extensive than its condition prior to the loss.*'

⁹⁰⁰ Clause 10 of the *MOU Insurance Policy*.

⁹⁰¹ The amount USD 50 million was around CNY 315 million (The currency exchange rate of CNY/USD was 0.158 in 2011).

⁹⁰² This insurance amount was much lower in comparison to the compensation fund offered by the COPC and the CNOOC. See Li (2016), 254-255.

⁹⁰³ This liability exemption was challenged by some individual fishermen in the Bohai case. Twenty-nine disappointed and angry fishermen from Shandong Province claimed compensation from ConocoPhillips, which was the mother company of COPC, and sought legal support in the US court. However, the court left it unsettled after two hearings for three reasons. First, under the US legal system, a case related to economic losses should be determined by the court at the place where the case happened. Second, the US court could not obtain evidence in China, as it did not have the right of jurisdiction. Third, ConocoPhillips argued that its subsidiary COPC made an agreement with the Chinese government and paid CNY 1.09 billion in total. Affected fishermen in another two provinces (Liaoning and Hebei) received compensation from the COPC. The claimants could claim compensation from the government, as long as they could prove they were affected by the accident. See Feng & Tu (2014), 271-272; Zheng 2018; Ye 2012.

⁹⁰⁴ Li (2016), 254-255.

3.3.5 Deductible

In an insurance policy, the deductible is the amount paid out of pocket by the insured before an insurance provider will pay any expense.⁹⁰⁵ Under these two all-risk insurance policies, the clause regarding the deductible is used as a threshold for policy payments. After an incident caused by offshore drilling, the loss below the deductible amount will not be covered by the insurance. In a first-party setting, the insured has to bear the loss below the deductible amount by himself. By contrast, if the insured has damage for which he is liable for the victims in a third-party setting, he has to pay the third party for the amount below the deductible. The insurer will pay out the rest of the compensation up to the policy limits and conditions. The specific amount in all-risk insurance policies can be negotiated between the insurer and the insured. Generally, the specific amount is determined by two significant factors: the risk to be covered and the insurance premium.

Based on the standard policies,⁹⁰⁶ each claim should be reported and handled separately, and the deductible amount of each claim should also be deducted in the first place. Thus, each occurrence should be treated separately. However, it is also widely acknowledged that *'a sequence of losses or damages arising from the same incident should be treated as one occurrence,'*⁹⁰⁷ and in this case, the insured should only pay one deductible for one incident. From the insurance perspective, a related question is how to define 'a sequence of losses or damages' that is caused in one incident. A time requirement called '72-hour clause' is adopted in the context of property insurance.⁹⁰⁸ Specifically, all insured losses arising from a natural event (i.e., earthquake, volcano, hurricane) during 72 consecutive hours should be regarded as 'a sequence of losses' of one occurrence, and thus should apply one deductible, which gives it another name, 'single loss clause.'⁹⁰⁹ Note that this time requirement applies to the losses arising from natural disasters, whereas human-made accidents (i.e., oil spills) are excluded. Moreover, the 72-hour clause is not addressed in the *Platform or MOU Insurance Policies*, making it difficult to determine the single loss occurrence

⁹⁰⁵ Arthur & Sheffrin (2003), 524.

⁹⁰⁶ Clause 7 of the *MOU Insurance Policy* and Clause 6 of the *Platform Insurance Policy*.

⁹⁰⁷ *Ibid.*

⁹⁰⁸ The 72-hour requirement is widely acknowledged in the area of property insurance. Normally, its policy covers the loss of or damage to the property and or interests insured directly caused by the perils (i.e., earthquake, volcanic eruption, fire, and explosion following an earthquake or volcanic eruption, tsunami). All insured losses which occur during 72 consecutive hours should be deemed as one single loss occurrence.

⁹⁰⁹ Data Polis (July 25, 2018), *Single loss clause*, available at <https://datapolis.id/database/single-loss-clause-72-hours-clause/> (accessed on April 15, 2022).

in the situation of offshore oil pollution.⁹¹⁰ Theoretically, the commencement of any 72-hour clause depends on the discretion of the insured and insurers as agreed upon for this issue.

Chinese literature holds the view that this deductible policy in offshore insurance is due to two considerations: to prevent risks and to benefit insurance business. Above all, when the sum of damages is higher than the deductible amount, the insured is required to undertake part of the losses (as deductible) under most circumstances. This policy may encourage the insured to pay more attention to prevent such incidents from happening and hence improve level of care. By contrast, when the amount of loss is lower than the deductible amount, the insured is able to compensate the damages with his assets, without bothering insurers in a third-party setting. The role of a deductible seems to be different in a first-party setting: the insured undertakes the losses on their own so that insurance companies spend zero compensation for such a loss, which reduces additional payments and maintains the assets of insurance companies. Accordingly, all-risk insurance is a mixture of first- and third-party insurance, as the interests of both operators and other third parties can be affected.

3.3.6 Sue and labour expenses

After an incident, the insured is required to take following steps as a prerequisite to get compensation from the insurer. The insured should (a) notify the insurance company immediately and, meanwhile, they are obliged to (b) take appropriate measures to avoid or at least reduce the pollution. The cost paid in the latter case is regarded as sue and labour expenses and thus should be compensated by the insurer. Specifically, the following *'lawful and necessary costs for the insured'* should be borne by the insurer: (i) litigation costs; (ii) labour costs; (iii) travel expenses while on business; as well as (iv) other expenses used to guarantee and recover the insured property or any parts of it. In particular, it is declared in both all-risk insurance policies that *'no acts of the insurer or insured in recovering, saving or preserving the property insured should be considered as a waiver or acceptance of abandonment,'* but just actively pursues their legitimate rights and interests.

In practice, however, in most cases it is challenging to distinguish sue and labour

⁹¹⁰ The 72-hour clause is explicitly involved the *Contractors' All-risk Insurance Policy* (2009 version), and it originated from the *Munich Re's Standard Erection All Risks Insurance Wording*. For more information of 72-hour clause, see Wu (2015), 233.

expenses aiming at offshore facilities from other types of costs, as the former may cover a broad range of expenses, while the generalised wording of ‘sue and labour expenses’ in this clause makes it even more elusive. The exact meaning of this clause can be questioned because it may overwhelmingly increase the sum of such expenses, putting extensive pressure on insurance companies. Given this concern, this policy additionally restricts the use of sue and labour expenses, where the liability of insurers for sue and labour expenses is ‘capped at 25 percent of the insured value of the item in the defence, safeguard or recovery of which such expense has been incurred.’ This 25 percent was first drafted by the PICC based on the *L.S.D.B.F.*, and it is widely used in the insurance market.⁹¹¹

3.3.7 Collision liability

Collision liability regarding offshore insurance typically aims at mobile offshore units (MOUs),⁹¹² where fixed offshore platforms are irrelevant in this matter. A collision between an MOU and a tanker, vessel, or a tug-pushing barge may occur when the MOU is moving, placing, or has been placed at the site, where the matter of collision liability arises.

Clause 6 of the *MOU Insurance Policy* starts with the expression ‘it is further agreed,’ implying that collision liability is separated from that of other insurance liabilities. In other words, apart from compensating general damages under the insurance contract, the insurer should pay out extra money to the insured in terms of collision liability that is excluded from the liability limits.⁹¹³

In the first place, if an MOU₁ collides with one vessel (or another MOU₂), the insured in consequence of MOU₁ being at fault ‘should be liable for paying and should pay damages in respect of such collision.’ The insurance company of MOU₁ is obliged to pay the insured what it should have paid to compensate the other vessel or MOU₂, while the liability of the insurer regarding such a collision should not exceed the proportionate part of the agreed value in the contract. Note that the insurer bears no liability to compensate the damage to the MOU₁.⁹¹⁴

⁹¹¹ Clause 4 of the *MOU Insurance Policy*. See Li (2016), 244.

⁹¹² Recall that the term ‘vessel’ or ‘ship’ refers to general vessels as well as mobile units under the definition of Article 3 of the *Maritime Law*. However, it is also known that collision liability under the *MOU Insurance Policy* may occur when an incident occurs between a normal vessel and an MOU. Therefore, in order to avoid such misunderstandings, ships or vessels are separated from MOUs in this chapter.

⁹¹³ See *supra* section 3.3.4 of this chapter.

⁹¹⁴ Li (2016), 244-245.

The second situation concerns the case where both MOU₁ and the vessel (or another MOU₂) are to blame, yet neither of them has liability limits. The ‘cross liability’ principle applies.⁹¹⁵ That is, the owner of one side (MOU₁ or vessel) is compelled to pay to the owner of the other side one half or another appropriate proportion of the damages.⁹¹⁶ This principle provides an alternative to handle insurance claims, but it does not touch upon the distribution of liability.

In the second situation, what happens if both MOU₁ and the vessel (or another MOU₂) are the property, in part or whole, of the same company? It is apparent that the cause of action in law would not exist.⁹¹⁷ In that case, the *L.S.D.B.F.* hypothetically assumes MOU₁ and the vessel (or another MOU₂) respectively belong to different companies. Accordingly, the case of collision will be handled by following the rules mentioned above.⁹¹⁸

Table 16 Collision liability under all-risk MOU insurance⁹¹⁹

Liable party		Compensation	
		Damage of the vessel (or MOU ₂)	Damage of the MOU ₁
1	MOU ₁	Paid by the MOU ₁ 's insurer	Not paid
2	Both the MOU ₁ and the vessel (or another MOU ₂)	Two parties belong to different companies	Cross liability
			Paid by the MOU ₁ 's insurer
3		Two parties are part of the same company	It will be assumed that the MOU ₁ and the vessel (or MOU ₂) belong to different companies.

Additionally, in no event does the collision liability of the MOUs extend to any sum related to the following five expenses: (a) clean-up costs, such as the costs of removal or disposal of wrecks, obstructions or their cargoes by law; (b) loss to immovable property or other personal property; (c) the discharge, spillage, emission, or leakage of oil products; (d) cargo or other property on the vessel or MOU; and (e) loss of life, personal injury, or illness.

4. Well control insurance

Well stability is of utmost importance considering that the blowout of wells is a

⁹¹⁵ Clause 6 (b) of the *MOU Insurance Policy*. See also, Li (2016), 244-245.

⁹¹⁶ O' May & Hill (1993), 235-250.

⁹¹⁷ Li (2016), 244-245.

⁹¹⁸ *Ibid.*

⁹¹⁹ The table was made by the author.

common cause of significant oilfield accidents. A blowout occurs when the underground pressure becomes higher than the downward pressure exerted by the column of drilling mud inserted while the hole is being drilled, which may lead to tremendous damage.⁹²⁰ For instance, a blowout of the Bohai-7 platform lasted twenty-eight hours, leaking several hundred tons of crude oil into Bohai Bay.⁹²¹

The risk of well control, being excluded from all-risk coverage, is either independently subject to another an insurance policy or serves as an ancillary coverage to the property damage policy covering expenses related to controlling a blowout.⁹²² An insurance policy for well control is offered by several major insurance companies in China, such as the People's Insurance Company of China (PICC), China Pacific Insurance Company (CPIC), China United Insurance Joint-stock Company, and Huatai Insurance Company.⁹²³ Furthermore, additional insurance coverage is also available on the market. An example is the *Gas Development Project Energy Package Insurance Policy Clauses* offered by the CPIC.⁹²⁴

Generally, the costs of controlling the well and any subsequent pollution are borne by the oil companies, irrespective of the cause. Well control insurance covers some or all of the costs associated with regaining control of a well, cleaning up pollution caused by a blowout, re-drilling the well or restoring it to operation. It is an insurance policy especially designed for typical risks that are excluded from all-risk coverage, such as blowouts. This section first introduces the risks of a blowout and the necessity of well control, then it examines the coverage and liability limits of well control insurance.

4.1 Blowout and well control

Blowouts are the most dangerous risks associated with oil drilling operations due to human error or equipment failure. They can lead to massive, debilitating production shutdowns and can hinder or prevent future production from the lost well, causing severe human casualties and ecological damage.⁹²⁵ For example, an engineer may

⁹²⁰ Handl (2019), 363-365.

⁹²¹ The accident happened on 2 July 1988. See Xu & Song (1991), 65-68.

⁹²² Li (2016), 242-243.

⁹²³ These major insurance companies are People's Insurance Company of China (中国人保), China Pacific Insurance Company (太平洋保险), China United Insurance Joint-stock Company (in Chinese: 中华联合财产保险股份有限公司), and Huatai Insurance Company (华泰保险).

⁹²⁴ *Gas Development Project Energy Package Insurance Policy Clauses* (Shanghai District), offered by China Pacific Insurance Company, 35, available at <https://www.cpic.com.cn/cx/upload/Attach/infordisclosure/53326274.pdf> (accessed on April 15, 2022).

⁹²⁵ Liberto, D. (February 22, 2022). *Control of Well Insurance*, Investopedia, available at

make adjustments that result in a loss of fluid or formation of pressure around and inside the wellbore, where intense pressure can cause steel pipes to burst. Blowout prevention is a broad term that refers to precautionary methods used on rigs to prevent the unexpected and undesired flow of formation fluids into a well from developing.⁹²⁶ Preventative measures in dealing with such risks are called well control.

Well control insurance protects offshore oil companies, which operate in complex environments, searching for resources far under the ocean or even deepwater, and often under challenging conditions. Extracting oil is a complicated process. Once an explosion or an accident occurs during the oil operation, it can be extremely difficult to stop the flow of oil or natural gas immediately so that the affected well is likely to become inoperable. A large amount of oil or gas may leak before the flow can be capped, and these toxic materials have to be cleaned up and prevented from spreading. Generally, regaining control of a well is expensive, especially considering that wells are often drilled far under the ocean or are in remote areas. When a well is regained, usually offshore companies will be willing to bring the well back into operation. In practice, it requires restoring the existing well or re-drilling the well to the same depth at which it operated previously, meaning a large amount of money is required.

The consequences of a blowout in most cases are disastrous. Once it happens, the offshore oil company that is responsible for the accident will suffer substantial economic loss, and operators are apparently unwilling to take the risk on their own. Due to this concern, offshore oil companies prefer to purchase well control insurance from the market so that they can entirely or partially transfer the potential risks to insurance companies.⁹²⁷

4.2 Policies of well control insurance

Well control insurance on the global insurance market is developed on the basis of *Energy Exploration and Development Insurance* (better known as *EED 8/86*).⁹²⁸

<https://www.investopedia.com/terms/c/control-well-insurance.asp> (accessed on April 15, 2022).

⁹²⁶ For instance, sophisticated devices named blowout preventers are designed to close off a well in a blowout accident. A blowout preventer (BOP) is a large, specialised valve or similar mechanical device, used to seal, control, and monitor oil and gas wells to prevent blowouts, the uncontrolled release of crude oil or natural gas from a well. They are usually installed in stacks of other valves.

⁹²⁷ Li (2016), 247-248.

⁹²⁸ Well control insurance, in its earliest forms in the 1940s, used to be an ancillary coverage to the property damage policy covering expenditures to control blowout, crater, or fire resulting from the blowout. In the 1960s, the cost to re-drill a well that had blown out was included in control-of-well policies. During this time, the cost of seepage and pollution was treated separately as part of general liability insurance. The development that followed with the Dos Quadros oilfield in the Santa Barbara Channel and the Torrey Canyon accidents led North American

The PICC began to provide well control insurance since 1980; the policy was initially designed based on the *EED 8/86*. A handful of oil companies have purchased this insurance product to deal with their well control problems in the process of offshore activities.⁹²⁹ Many offshore operators deem that this blowout coverage is an essential part of risk management so that they can use this financial tool to compensate for the loss when a well control event happens. Sections 4.2.1 and 4.2.2 respectively address the coverage and liability limits of this insurance.

4.2.1 Insurance coverage of well control

The *EED 8/86* consists of three basic sections: section A is control of the well; section B is re-drilling or extra expenses; and section C is seepage and pollution, clean-up, and contamination.⁹³⁰ Accordingly, the coverage of well control insurance formulated by the PICC is comprised of three parts as well.

A. Control of a well

The first is the cost of regaining control of a well that is out of control and oilfield fire fighting. To be specific, it provides coverage for expenses incurred by the insured (offshore operator) in regaining or attempting to regain control of any wells insured under the policy, as well as costs incurred in extinguishing or attempting to extinguish a fire. The wells mentioned here include any well that gets out of control as a direct

insurers to exclude pollution from general liability policies. The Operators Extra Expense (which is the London Composite 'All risks' of 'Physical Damage and/or Operators' Extra Expense form, or the OEE Policy for short) was then developed by the London insurance market to provide cover for pollution liability, clean-up, and containment costs as an additional section within the control-of-well package. In the 1980s, the OEE policy was reviewed to clarify the circumstances in which a well would be deemed out of control and then remove ambiguities in the policy definitions, which led to the establishment of the *EED 8/86*. In 1985, the London Rig Committee produced the Energy Exploration and Development (*EED 8/86*) wording. Nowadays, the *EED 8/86* policy is the dominant format and the basis for the majority of well control insurance underwritten by the global energy insurance market. Although the *EED 8/86* wording is a composite policy form designed to 'stand alone' (it is not designed for inclusion in an oil company's package placement), the policy is generally included in oil companies' package insurance contracts at present. The development of well control insurance is discussed by Sharp (2008), 123-124 & Handl & Svendsen (2019), 364-365.

⁹²⁹ For example, it includes the CNOOC, Italian company Eni, American companies Esso, Texaco, Philips, British company BP, French company Total S.A.

⁹³⁰ Handl (2019), 365. In addition to these clauses regarding coverage, most oil companies will buy a suite of additional coverage options, which includes the coverage of 'making wells safe' and of 'extended re-drilling.' The former covers expenditures to prevent wells from becoming out of control when the surface infrastructure is damaged by specific named perils, such as hurricanes, while the latter one covers costs to re-drill or restore wells that have been lost as a consequence of damage to production infrastructure caused by named perils. See *Gas Development Project Energy Package Insurance Policy Clauses* (Shanghai District), offered by China Pacific Insurance Group Company (CPIC, 中国太平洋保险公司). Section 3 of this policy provides rules on 'Energy exploration and development insurance making wells safe endorsement,' 35, available at <https://www.cpic.com.cn/cx/upload/Attach/infordisclosure/53326274.pdf> (accessed on April 15, 2022).

result of another insured well that is out of control.⁹³¹ Hence, the trigger of coverage is a well ‘becoming out of control’ as defined by the policy.

The insurers, moreover, will pay the costs of equipment and workforce used to bring the well under control, inclusive of expenses to buy relevant materials that are needed to restore the well, as well as the costs of hiring professionals to control the well and prevent the disaster from getting worse. To be precise, drilling a relief well is an emergency measure to drill a further well or wells at a nearby location to relieve pressure.⁹³² Given that well control equipment is an important part of a drilling project, once a well is ‘out of control,’ it will be technically challenging, dangerous, and expensive to rectify. A blowout associated with fire is even a nightmare for any operator. Since operators have difficulties in finishing such professional tasks on their own, hiring experts to cope with blowouts will be necessary, which will also be costly.

Additionally, the policy excludes any damage to drilling or production equipment, wells, or holes. Furthermore, well control does not usually cover any aftermath resulting from the damage.⁹³³ Consequently, any expenses arising out of delay (such as delayed or deferred production), losses of damage to downtime production, and losses of any reservoir or reservoir pressure, are excluded from blowout coverage.⁹³⁴

B. Re-drilling

Note that the triggering event of re-drilling coverage is an occurrence covered under section A (control of well) as described above. After a well is brought under control, there are also costs incurred in re-drilling a well to the depth at which control was lost,⁹³⁵ but the liability of insurers is capped at a proportionate part of the agreed amount in the contract. Nevertheless, one practice admitted in the insurance market is

⁹³¹ See the Well control insurance policy offered by the China United Insurance Joint-stock Company (中华联合财产保险股份有限公司), Clause 13 (relief well), the full text (in Chinese) is offered by the official website of the China Insurance Association, available at <http://www.iachina.cn/col/col7210/> (accessed on April 15, 2022). The same policy is also offered by the China Pacific Insurance Company, clause 13, available at <http://www.iachina.cn/upload/product/20091207081636640.html> (accessed on April 15, 2022).

⁹³² Sharp (2008), 123.

⁹³³ See (a) the Well control insurance policy offered by the China United Insurance Joint-stock Company, available at <http://www.iachina.cn/col/col7210/> (accessed on April 15, 2022); (b) the insurance policy offered by the China Pacific Insurance Company, Clause 12 (Exclusion), available at <http://www.iachina.cn/upload/product/20091207081636640.html> (accessed on April 15, 2022); (c) *Gas Development Project Energy Package Insurance Policy Clauses* (Shanghai District) offered by China Pacific Insurance Group Company, Perils Excluded, 1-2, available at <https://www.cpic.com.cn/cx/upload/Attach/infordisclosure/53326274.pdf> (accessed on April 15, 2022).

⁹³⁴ Handl (2019), 365.

⁹³⁵ Zheng & Yu 2012.

to allow the insured to pay an additional premium without considering the above limit.⁹³⁶ Recoveries under this re-drilling policy are based on the insured using the most prudent and economical method to re-drill the well with a time limit for re-drilling and restoration.⁹³⁷ Likewise, the re-drilling coverage refuses to consider claims for the damage to drilling equipment or the loss due to the delayed or downtime production.

C. Seepage and pollution

The expenses of seepage and pollution cover (i) the costs incurred by the insured to clean up, or attempt to clean up, contaminating substances (i.e., costs of controlling or preventing pollutants from approaching the coast), and (ii) the costs of legal actions. One benefit of (i) is that clean-up expenditure is indemnified irrespective of the liability allocation, because the triggering factor is the pollution itself. Considering that a blowout is a sudden accident, the policy even allows a relief well to be automatically insured once the insurer receives the notification from the insured (operator).⁹³⁸

Therefore, the cost of seepage and pollution mentioned above has to meet three requirements before it is payable by insurers. First of all, the seepage or pollution should take place within the validity period of the insurance contract; second, the pollution should be notified to the insurance company as required in the contract; and third, only if such a blowout event is entitled to be compensated based on the '*the cost of regaining a well out of control and oilfield fire fighting*' (mentioned in section A), can the expenses of seepage and pollution caused by such a blowout be recoverable under this policy.

Under the coverage of seepage and pollution, bodily injury and property loss of the third party, as well as clean-up costs in dealing with environmental pollution, are excluded from this well control policy, regardless of whether they are generated from the incident or not.⁹³⁹ Likewise, liability towards third parties is also precluded under the all-risk insurance policy, which was addressed in section 3.3.3 of this chapter.

⁹³⁶ Handl (2019), 365.

⁹³⁷ Sharp (2008), 132.

⁹³⁸ For instance, in the Clause 13 of the Well Control Insurance Policy offered by the China United Insurance Joint-stock Company, it allows a relief well to be automatically insured once the insurer receives the notification from the assured. The text is available at <http://www.iachina.cn/col/col7210/> (accessed on April 15, 2022).

⁹³⁹ Clause 12 of the *Well Control Insurance Policy* offered by the China United Insurance Joint-stock Company, available at <http://www.iachina.cn/col/col7210/> (accessed on April 15, 2022).

4.2.2 Liability limits

The three types of coverage are within the umbrella of a combined single limit, rather than a split limit, applying to each incident.⁹⁴⁰ The premium rate of well control insurance differs from that of other insurance policies. Unlike all-risk insurance, in which the premium rate is based on a percentage (or permillage) of what the insured pays to the insurer, well control insurance is charged based on the depth of the well. It is technically classified into three levels: under 10,000 feet, 10,000 to 17,500 feet, and over 17,500 feet.⁹⁴¹ The deeper that the well is drilled and located, the higher premium charged by insurance companies. Other influencing factors include the type, location, pressure of a well, the deductible amount, the exploitation capacity, and safety record of companies. Basically, a higher amount of a deductible means a lower premium, while a bad history of severe accidents usually leads to a higher premium.⁹⁴²

5. Occupational injury insurance and employers' liability insurance

Work-related injuries, or more specifically, the risks and losses involved in an industrial activity, refers to an incident happening at the workplace that causes personal injury to one or more employees.⁹⁴³ Recall that chapter 3 outlines the liability regime in coping with personal injury caused by offshore oil accidents; this section focuses on compensating the work-related injuries of employees from the insurance perspective. The current insurance mechanism of work-related injury in China - occupational injury insurance and employer's liability insurance and their relationships - are addressed respectively in sections 5.1, 5.2 and 5.3. A discussion on the alignment between insurance and the compensation liability is followed in section 5.4.

⁹⁴⁰ A property policy may have a split limit or a combined single limit. The combined single limit simply states a single dollar limit that applies to any combination of bodily injury and property damage liability claims. In contrast, a split limit means there will be an amount that applies to each accident: per person limit, per occurrence limit for all injured persons, and per occurrence limit for all property damage resulting from the accident. See Zhang (2016b), 204.

⁹⁴¹ 1 foot equals 0.3048 meter.

⁹⁴² See Zheng & Yu, 2015; Xu & Zheng, 2015; Liu & Shen 2015.

⁹⁴³ Philipsen (2018), 539.

5.1 Occupational injury insurance

Occupational injury insurance, also known as work-related injury insurance,⁹⁴⁴ is a publicly sponsored system that pays monetary benefits to workers who become injured or disabled in the course of their employment. Detailed rules regarding occupational injury insurance vary among different industrial sectors, but the idea of protecting the interests of employees is legally adopted in China. Strictly speaking, occupational injury insurance is not a typical form of commercial insurance, as it belongs to the social security system. Each offshore drilling employer is required to provide this social guarantee for its employees by law, which offers fundamental remedies to protect offshore employees in case of any work-related injuries.

Guided by the *Labour Law of the People's Republic of China* (hereinafter *Labour Law*),⁹⁴⁵ China's social security system is based upon applicable regulations and guidelines issued by the Central Government, which is better known as 'five insurance policies plus one fund scheme'.⁹⁴⁶ Three pieces of legislation - the *Social Insurance Law of the People's Republic of China* (hereinafter *Social Insurance Law*),⁹⁴⁷ the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases* (hereinafter *Occupational Diseases Law*),⁹⁴⁸ and the *Work Safety Law of the People's Republic of China* (hereinafter *Work Safety Law*)⁹⁴⁹ all state that occupational injury insurance is part of the system and solely financed by employers.⁹⁵⁰ Consequently, each company in the offshore drilling industry bears the duty to purchase this insurance for their employees, as this is the fundamental right of

⁹⁴⁴ All these terms refer to the same meaning in the context of China (in Chinese: 工伤保险). The following text I will adopt the term 'occupational injury insurance' to avoid confusion.

⁹⁴⁵ *Labour Law of the People's Republic of China* (《中华人民共和国劳动法》) was first issued in 1994, and the latest version was revised in 2018. Article 73 of the *Labour Law* states that 'labourers shall be entitled to social insurance treatment in any one of the following cases: (1) retire; (2) suffer diseases or injuries; (3) become disabled during work or suffer occupational diseases; (4) become laid off; (5) give birth.'

⁹⁴⁶ 'Five insurance policies plus one fund scheme' (in Chinese: 五险一金) consists of five parts: (a) endowment insurance (pension, 养老保险), (b) medical insurance (医疗保险), (c) unemployment insurance (失业保险), (d) maternity insurance (生育保险), and (e) occupational injury insurance (工伤保险); an additional fund is called (f) housing provision fund (住房公积金). The first three insurance projects are jointly financed by employees and their employers, whereas the last two projects, including occupational injury insurance, are funded solely by employers.

⁹⁴⁷ The *Social Insurance Law of the People's Republic of China* (*Social Insurance Law*) (《中华人民共和国社会保险法》) was adopted on October 28, 2010, and the latest version was issued on December 29, 2018.

⁹⁴⁸ The *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases* (hereinafter *Occupational Diseases Law*) (《中华人民共和国职业病防治法》) was adopted on October 27, 2001, and amended on November 4, 2017.

⁹⁴⁹ The *Work Safety Law of the People's Republic of China* (hereinafter *Work Safety Law*) (《中华人民共和国安全生产法》) was adopted on June 29, 2002 and amended on August 31, 2014.

⁹⁵⁰ Article 33 of the *Social Insurance Law*; Article 7 of the *Occupational Disease Law*; Article 48 of the *Work Safety Law*.

every person at work under the social security system. The right of employees to enjoy occupational injury insurance is also regulated in four other laws, which offer more detailed rules.⁹⁵¹

As indicated, occupational injury insurance is part of the social security system in China, where social security carriers, therefore, have to make the payment on behalf of the insured, even though some third parties might be accountable for the harm. However, the system does not intend to relieve the liable party of his responsibility, because social security carriers have the right of recourse against any third party who is liable for the damages. That is, the third party that causes the damages will ultimately bear the losses paid by occupational injury insurance.⁹⁵²

The coverage of occupational injury insurance is presented in the *Regulation of the People's Republic of China on Occupational Injury Insurance*⁹⁵³ (hereinafter *Occupational Insurance Regulation*), where four types of damages are covered. The first is the cost of medical treatment, which includes medicine expenses, food allowance in hospital, and expenses for buying mobility aids and equipment.⁹⁵⁴ Each type of expense must satisfy specific requirements before the insurer compensates for it.⁹⁵⁵ The second is the income and welfare of the injured employee during the suspension of his work, the amount of which remains unchanged and should be paid every month by his employer company. Generally, the duration of suspension of work is capped at one year.⁹⁵⁶ The third and fourth are respectively the compensation for the disabled and the deceased. A disabled employee is compensated according to his

⁹⁵¹ The specific provisions regarding this occupational injury insurance are scattered in four laws: (i) Articles 2, 33-43 of the *Social Insurance Law*; (ii) Articles 7, 57 of the *Occupational Diseases Law*; (iii) Articles 48-49 of the *Work Safety Law*; and (iv) in addition, the detailed rules regarding occupational injury insurance are provided the *Regulation of the People's Republic of China on Occupational Injury Insurance*.

⁹⁵² Koch & Koziol (2002), 408.

⁹⁵³ The *Regulation of the People's Republic of China on Occupational Injury Insurance* (hereinafter *Occupational Insurance Regulation*) (《中华人民共和国工伤保险条例》) was issued in 2003 and the revised in 2010.

⁹⁵⁴ Articles 30-33 of the *Occupational Insurance Regulation*.

⁹⁵⁵ *Ibid.* For example, an injured employee with occupational injury insurance should first see a doctor in a medical treatment institution that has entered into a service agreement with employer companies. Moreover, if the expenses to treat the employee conform to the *Medical Treatment Catalogue for O- insurance* (《工伤保险诊疗项目目录》), *Medicine Catalogue for O- insurance* (《工伤保险诊疗药品目录》) as well as the *Hospitalization Service Catalogue for O- insurance* (《工伤保险住院服务标准》), such expenses can be paid from the occupational injury insurance fund. Otherwise, the employee may have to pay these costs on their own. Nowadays, the medical treatment system is prevalent in China. When the employee makes an appointment with the doctor, an adult with employment is usually covered by medical insurance. He can use his social security card so that the system will automatically identify the details of this patient. If the injured employee does not have medical insurance, he can also see a doctor using his identity card. After the medical treatment, the injured employee has to pay the medical bill by himself at first, and then he is entitled to claim compensation from occupational injury insurance. Whether the employee has medical insurance or not is irrelevant for him to apply for reimbursement.

⁹⁵⁶ Article 33 of the *Occupational Insurance Regulation*.

grade of disability,⁹⁵⁷ while close relatives of the deceased are entitled to claim compensation for funeral expenses, living expenses of the dependent, and the compensation for death in a lump sum.⁹⁵⁸

5.2 Employers' liability insurance

Employers' liability insurance, also known as employment practices liability insurance, protects employers from the financial loss in cases where their employees have a job-related injury or illness that is not covered by occupational injury insurance. It can be packaged with occupational injury insurance to further protect offshore employers against the costs associated with workplace injuries, illnesses, and deaths that are excluded from the social insurance system.

In general, the coverage period corresponds to the contract duration,⁹⁵⁹ which is one year for most products of employers' liability insurance in China. The time requirement can be flexible, as the coverage period may also equal the duration of the whole offshore drilling project, as long as it is agreed upon in the contract. The determining factor of the payment offered by employers' liability insurance is the income of the employee, which is generally written in the contract of employment. The insurance policy classifies the deceased and the injured into two groups and treats them differently: the limit of compensating a deceased employee is a fixed number that is written in the contract. By contrast, an injured employee is further classified into a (i) permanently and totally disabled employee (PTD employee) and (ii) permanently and partially disabled (PPD employee).⁹⁶⁰ A PTD employee is compensated within a maximum amount, while the PPD employee is paid in proportion to the amount according to the grade of disability.⁹⁶¹

During the insurance period, no matter how often the insurance company compensates damages, the accumulated amount paid to each employee should be capped at one limit written in the contract. Generally, a higher coverage limit means a higher premium. The following example indicates how the premium of employer's liability

⁹⁵⁷ Articles 34-38 of the *Occupational Insurance Regulation*.

⁹⁵⁸ Article 39 of the *Occupational Insurance Regulation*.

⁹⁵⁹ Coverage period, or policy period, means the period within which insurance protection is granted.

⁹⁶⁰ Zhang (2016b), 212.

⁹⁶¹ Currently, there are three standards that constitute a classification system of disability in China: *Classification Standard of Severity of Disability Caused by Physical Injuries* (2017), the *Standard for Identification Work Ability-Gradation of Disability Caused by Work-related Injuries And Occupational Diseases* (2015), and the *Standard on the Assessment Criteria and Codes for Injuries and Disability in Personal Insurance* (2014). These national standards are also applicable in the area of insurance. See section 1.1.G of chapter 4.

insurance is calculated: the total wages equal the product of the number of employees in one employment position and their monthly wages, multiplied by twelve months.⁹⁶² For instance, there are only three positions of an oil rig in one offshore project, namely (A) driller, (B) derrickhand, and (C) motorman. All these workers are hired by one offshore oil company. The total premium for employer's liability insurance of this company is the sum of premium A, B, and C, among which:

Premium of job A = total wages A × cost rate A;

(Total wages A = the number of employees in A × monthly wages × 12);

Premium of job B = total wages B × cost rate B;

(Total wages B = the number of employees in B × monthly wages × 12);

Premium of job C = total wages C × cost rate C;

(Total wages C = the number of employees in C × monthly wages × 12);

Premium paid by the company = premium A + premium B + premium C.

In a nutshell, occupational injury insurance is presented in the form of the social security system and compulsorily applies to all employers. By contrast, employers' liability insurance, as a form of private insurance, provides additional compensation for offshore employees in case of work-related injuries. Employers are obliged to purchase occupational injury insurance by law, whereas they buy the employer's liability insurance out of their free will. Both insurance policies offer employees monetary compensation for personal injury sustained during their employment.

5.3 The interplay between occupational injury insurance and employers' liability insurance

Although occupational injury and employers' liability insurance are both used to handle the exposure to work-related injury, both policies are presented differently and are intertwined with each other in practice. An example may help to illustrate the interdependence of these two insurance policies.

Companies A and B both participated in an offshore drilling project. Unfortunately, a blowout accident happened and employee Han Meimei of company A and employee Li Lei of company B were both injured: Han lost a leg and Li broke his arm in the workplace (on an offshore platform). Company A only purchased occupational injury insurance; by comparison, company B provided employers' liability insurance for their workers in addition to occupational injury insurance. Since the amount of

⁹⁶² Zhang (2016b), 213.

occupational injury insurance was limited and could not fully compensate Han's injury, company A had to be liable for the rest of the costs arising from the accident on their own, including lost wages due to the missing work time. By contrast, since Li was insured with occupational injury insurance as well as employers' liability insurance, company B was entitled to ask the insurance company to pay for the rest of the expenses so that company B could require the insurance company to pay out the loss instead of spending their personal assets.

In this case, although company B spent extra money on employers' liability insurance in advance, it nevertheless saved more when an actual offshore accident occurred. On the contrary, company A lost a great deal of money to compensate its injured employee, the amount of which could be much higher than the insurance premium for employer's liability insurance. In the long term, company B might even attract more advanced employees to join the company, because it provided better employment conditions. However, if the above assumption does not become reality, and not a single incident happens, company A will have saved more money than company B.

To summarise, there are at least three differences between occupational injury insurance (hereinafter O-insurance) and employers' liability insurance (hereinafter E-insurance). First and foremost, offshore employers are obliged to purchase O-insurance to guarantee that employees get basic indemnity when they sustain damages from the accident. In contrast, offshore employers can voluntarily buy E-insurance.

Second, as mandatory insurance regulated by the *Occupational Insurance Regulation*, the premium rate of O-insurance varies in different provinces,⁹⁶³ but the amount of compensation is based upon the average income (income *per capita*) of local citizens. By contrast, the compensation limit of E-insurance is negotiated between the insurance company (the insurer) and the employer company (the insured), where the latter pays the specific premium in the light of their contract.

Third, as explained above, O-insurance only covers several types of damages, such as medical treatment expenses, funeral expenses, compensation for disability and death

⁹⁶³ Article 34 of the *Social Insurance Law* states that the State shall determine differential premium rates for different industries, in light of their respective degrees of employment injury risks, and set forth grades of premium rates within each industry in light of the use of the employment injury insurance funds, the occurrence rate of employment injuries, etc. The differential premium rates for different industries and the grades of premium rates within each industry shall be decided by the social insurance administrative department under the State Council and be subject to the approval of the State Council before promulgation and implementation.

with strict requirements;⁹⁶⁴ other types of damages like litigation costs are excluded. Normally, employer companies have to pay for these uncovered costs by themselves unless they purchase E-insurance, as such costs are offered on the private market. Simply put, O-insurance merely touches upon types of damages that were directly caused by their jobs, whereas it refuses to accept some other losses that were also generated from their occupational injury. Employer companies may either undertake this potential liability on their own or resort to private insurance to transfer the risks by purchasing E-insurance.

5.4 Concurrence between the insurance and compensation liability

If an offshore worker, unfortunately, gets injured in an accident, he may make a court claim for compensation, resort to occupational injury insurance, or ask an insurance company to pay the rest of the costs if his employer has purchased employers' liability insurance in advance. Notwithstanding, a significant question is how to deal with the concurrent liability between civil liability and insurance?

5.4.1 Concurrent liability under the *Occupational Injury Law* and *Work Safety Law*

According to the *Work Safety Law*⁹⁶⁵ and *Occupational Disease Law*,⁹⁶⁶ an employee who gets injured during his employment, is entitled to require compensation from the liable party as long as relevant provisions of civil law protect such a right. The problem is, however, which 'relevant provisions' it refers to under these two pieces of legislation is unknown. Moreover, legislation barely considers how to cope with the relationship between tort liability and occupational injury insurance in practice. Does either one of them take priority over the other when the injured employee is in need of compensation? Moreover, can the injured employee enjoy double compensation in cases where tort liability and occupational injury insurance overlap?

Article 59 of the *Occupational Disease Law* addresses how to handle compensation if the employer company fails to purchase occupational injury insurance: the company

⁹⁶⁴ Articles 33-39 of the *Occupational Insurance Regulation*.

⁹⁶⁵ Article 53 of the *Work Safety Law*.

⁹⁶⁶ Article 58 of the *Occupational Disease Law*.

itself has to pay the medical expenses and relative living costs of the injured employee. Note that an employee under this provision refers to ‘*someone that is diagnosed with an occupational disease.*’ It is for sure that a chronic ailment due to his occupational activity would make this provision apply; however, is it applicable to the case when an employee that is accidentally injured during his employment (i.e., a blowout)? The provision fails to offer a definite answer.

5.4.2 Employers’ injury insurance fund under the *Social Insurance Law*

Although the *Social Insurance Law* provides detailed guidance on occupational injury insurance, it does not illustrate the concurrence between insurance and civil liability.⁹⁶⁷ According to the *Occupational Insurance Regulation*, if the employer company fails to purchase occupational injury insurance and refuses to compensate damages, injured employees can still get compensation from the ‘employment injury insurance fund.’⁹⁶⁸ Afterwards, the social insurance agency (that is in charge of the fund) has the right to reimbursement so that the liable employer company has to pay for the compensation ultimately. In this situation, such compensation is regarded as an employment insurance benefit prepaid from the employment injury insurance fund, and the employer company is obliged to repay the money. Otherwise, the social insurance agency may resort to relevant administrative departments or the court to claim money from the liable employer.⁹⁶⁹

This mechanism works differently if the employee is injured due to a third party’s fault instead of his own employer company. In this case, if the third party refuses to pay medical expenses, or the third party remains uncertain, the expenses of injuries will also be prepaid from the employment injury insurance fund. The agency for the fund is authorised to reimburse such money from the third party after payment, as long as the third party is ensured afterwards.⁹⁷⁰

5.4.3 Concurrent liability under two SPC interpretations

Apart from the above three laws, two SPC interpretations also provide guidance on

⁹⁶⁷ Ning (2014), 114.

⁹⁶⁸ Article 7 of the *Occupational Insurance Regulation* states that ‘*occupational injury insurance fund shall be composed of the work-related injury insurance premiums paid by the employers, the interest on the occupational injury insurance fund and other funds legally included in the occupational injury insurance fund.*’

⁹⁶⁹ Article 63 of the *Social Insurance Law*.

⁹⁷⁰ Article 42 of the *Social Insurance Law*.

concurrent liability in respect of occupational injury: (a) *Interpretation of the Supreme People's Court of Some Issues concerning the Application of Law for the Trial of Cases on Compensation for Personal Injury* (hereinafter *SPC Interpretation on PI*) and (b) *Provisions of the Supreme People's Court on Several Issues concerning the Trial of Administrative Cases on Work-Related Injury Insurance*⁹⁷¹ (hereinafter *SPC Interpretation on WI*). Both SPC interpretations not only concern the injury of employees that is caused by their employer company, but it also sets forth rules on the injury that is due to a third party's fault.

Article 3 of the *SPC Interpretation on PI* has different attitudes towards handling two cases.⁹⁷² In the former case, since the injured employee has been insured under occupational injury insurance, he is forbidden from claiming civil compensation for his personal injury. If an employer company fails to buy such insurance for its employees, the injured employee may claim his employment injury insurance benefits so that the compensation can still be prepaid by the employment injury insurance fund instead. In contrast, in the latter case, when an employee gets injured due to a third party rather than his employer company, the injured employee is allowed to claim civil compensation from the third party through the courts; however, it is unknown whether the employee still enjoys this right when his damages have already been well compensated by occupational injury insurance.

The *SPC Interpretation on WI* issued in 2014 was formulated to help the court to deal with cases in respect of occupational injury insurance in practice. Article 8 addresses how to tackle an occupational injury case that is caused by a third party, where it allows the injured employee and his close relatives to claim civil compensation from the third party, regardless of whether they have enjoyed occupational injury insurance or not. Interestingly, this provision further adds that medical treatment expenses are excluded from the claim. In other words, in order to receive compensation for damages, with the exception of medical expenses, an injured employee who suffers damages by the third party may simultaneously resort to two remedial methods.

In a nutshell, rules regarding concurrent liability between tort liability and insurance in terms of an injured employee is divided into two situations.⁹⁷³ If the employer

⁹⁷¹ *Provisions of the Supreme People's Court on Several Issues concerning the Trial of Administrative Cases on Work-Related Injury Insurance* (《最高人民法院关于审理工伤保险行政案件若干问题的规定》) was issued in 2014 to implement administrative cases on work-related injury insurance correctly.

⁹⁷² Chen (2004), 3-8.

⁹⁷³ Lei & Xue (2016), 171-172; Zhang, Xinbao, (2007), 52-66.

company causes the injury, the employee can merely get compensated through occupational injury insurance, unless specific laws or regulations have determined otherwise. This insurance provides wage replacement and medical benefits to injured employees in exchange for the mandatory renunciation of the employee's right to sue their employer for the tort of negligence. In contrast, if the injury is due to a third party's fault, the employee may either require occupational injury insurance or claim civil compensation through the courts; he may even receive double compensation in the latter case. It is also interesting to see that rules regarding this matter only refer to an alignment between tort law and occupational injury insurance compulsorily required by law, whereas employer's liability insurance on a voluntary basis is not considered in this respect (see table 17).

Table 17 Compensation schemes of work-related risks caused by offshore drilling⁹⁷⁴

Means	Nature	Application	Liable party		Rules addressing concurrent liability
			Employer alone	A third party	
O-insurance	Social insurance	Mandatory; unconditionally applied; aiming at all employees	√	√	Article 53 of the <i>Work Safety Law</i> ; Article 58 of the <i>Occupational Disease Law</i> ; Article 41 of the <i>Social Insurance Law</i>
Tort claim	Civil law	Conditionally applied;	×	√	Article 12 of the <i>SPC Interpretation on PI</i> ; Article 8 of the <i>SPC Interpretation on WI</i>
E-insurance	Private insurance	Voluntary	-	-	-

According to the SPC interpretations, in principle, compensation for two injured employees with similar damages can be substantially different, only because the injuries are caused by the employer company or a third party respectively.⁹⁷⁵ The huge gap between the amounts of compensation in these two circumstances is criticised by the literature. When the damage is due to a third party's fault in the second scenario, even though the injured victim is willing to be compensated twice, it might reduce his incentives for prevention and increase the risk of moral hazard, which leads to an insufficient outcome associated with a reduction of social

⁹⁷⁴ The table was made by the author.

⁹⁷⁵ Liu (2016), 95.

welfare.⁹⁷⁶

Although such double compensation is victim-friendly and thus supported by some scholars,⁹⁷⁷ others suggest that a new requirement should be added to avoid excessive compensation so that the interest of injured employees can be protected, on the one hand, while social resources are adequately allocated, on the other.⁹⁷⁸ After all, using limited resources to offer an extra benefit that makes a good situation even better is indeed wasteful. These scholars further hold the view that tort law may serve as a complementary mechanism in cases where the coverage of occupational injury insurance is insufficient to compensate the injured employee.⁹⁷⁹ In other words, when occupational injury insurance fails to provide full compensation for the loss, compensation for work-related harm beyond the basic levels provided by social insurance can be obtained via the private insurance mechanism (employer's liability insurance), or via the 'lottery' of tort law, by holding the employer liable.⁹⁸⁰

6. Environmental pollution liability insurance

Environmental pollution liability insurance (hereinafter pollution insurance) is a form of insurance that covers the third-party costs related to pollution, which may include the costs of restoration and clean-up actions, as well as compensation for injuries and deaths caused by pollution.⁹⁸¹ It differs from life insurance and general property insurance, where no third-party liabilities are involved.⁹⁸²

Prior to the emergence of pollution insurance, costs of compensation associated with pollution were covered by comprehensive general liability insurance.⁹⁸³ However, when the number of accidents and compensation costs increased drastically and exceeded the risk coverage of comprehensive general liability insurance, pollution liability was generally excluded from general insurance and started to be covered by a new type of insurance: pollution insurance.⁹⁸⁴

⁹⁷⁶ Some Chinese scholars also argue that double compensation in this case is unfair and goes against the theory of social efficiency, but it seems that they neglect the key factor of this policy. A further discussion is given in chapter 8. See Wang (1998), 304.

⁹⁷⁷ Cao (2011), 98-99.

⁹⁷⁸ Xie (2011), 159-162.

⁹⁷⁹ Zhai (2011), 412; Lv (2003), 54-61.

⁹⁸⁰ Philipsen (2018), 551.

⁹⁸¹ Stone (2001).

⁹⁸² Feng *et al.* (2013), 688.

⁹⁸³ Hollaender & Kaminsky (2000), 205-211.

⁹⁸⁴ *Ibid.*

6.1 Rules addressing pollution insurance in China

6.1.1 Pollution insurance under three laws

Pollution insurance was officially introduced into China since 2006.⁹⁸⁵ It was expected to be a new market-based approach for managing environmental risks⁹⁸⁶ and served as an important financial tool to deal with environmentally sensitive sectors with high risks. In China, the emergence of pollution insurance should be understood against two backgrounds: increasingly frequent environmental pollution incidents and experimentation with the new approach to handle environmental hazards.⁹⁸⁷

Above all, for every company that participates in the industrial sectors that face environmental risks, it is significant to figure out the nature of pollution insurance: is it compulsory or voluntary to purchase this insurance for offshore oil operators? The revised *EPL of 2015* first introduced ‘environmental pollution liability insurance’ into the Chinese legal system, which sets out rules that *‘the State shall encourage the purchase of environmental pollution liability insurance’*.⁹⁸⁸ Based on this provision, the State should encourage offshore oil companies to buy liability insurance and thus prevent environmental pollution from happening.⁹⁸⁹ However, whether this liability insurance is a statutory duty for offshore companies remains uncertain, as it fails to explain the term ‘encourage’ (in Chinese: 鼓励) in the text. This word ‘encourage’ refers to *‘make someone more likely to do something or to make something more likely to happen’* according to the latest *Xinhua Dictionary*⁹⁹⁰ in Chinese and the *Cambridge Dictionary*⁹⁹¹ in English. Literally speaking, offshore operators can choose to purchase pollution insurance voluntarily; and thus, operators are free from any legal punishment if they refuse to have such coverage. As a result, such a

⁹⁸⁵ In 2006, the *State Council issued Opinions on the Reform and Development of the Insurance Company* (《国务院关于保险业改革发展的若干意见》), announcing the decision to promote environmental pollution liability insurance, and it marked that pollution insurance was officially introduced into China.

⁹⁸⁶ Feng *et al.* (2013), 687-702.

⁹⁸⁷ He *et al.* (2012), 5-38.

⁹⁸⁸ Article 52 of the EPL.

⁹⁸⁹ The EPL was first promulgated in 1979. Later it was replaced by the EPL in 1989. Both laws did not have provisions relating to pollution insurance.

⁹⁹⁰ The *Xinhua Dictionary* is a Chinese language dictionary published by the Commercial Press. In 2016, the Guinness World Records officially confirmed that the dictionary is the ‘Most popular dictionary’ and the ‘Best-selling book.’ It is widely adopted in the Chinese textbooks and official publications. For the Chinese meaning of this term, see <http://xh.5156edu.com/html5/z82m41j237494.html> (accessed on April 15, 2022).

⁹⁹¹ For the English meaning of this term online, see <https://dictionary.cambridge.org/dictionary/english/encourage> (accessed on April 15, 2022).

non-legal language makes it more confusing for courts to use this provision in real cases.

Rules addressing mandatory insurance under the *Insurance Law* may help to understand the confusion in this case. Article 11(2) stipulates that '*an insurance contract shall be concluded voluntarily unless a law or administrative regulation mandates the insurance.*'⁹⁹² Furthermore, special laws or administrative regulations in respect of compulsory insurance take priority over general provisions.⁹⁹³

Taking the rules of the *Insurance Law* and the EPL together, it is concluded that China has not implemented compulsory pollution insurance at present.⁹⁹⁴ Put differently, unless being addressed by a law or an administrative regulation, companies that may pollute the environment can voluntarily choose to purchase pollution insurance or not. There will be no legal consequence for them to develop industrial activities without purchasing such insurance. Nevertheless, in specific sectors, the freedom to acquire pollution insurance may be excluded when specific laws or administrative regulations require companies to conclude an insurance contract in advance. The next question in this regard is: are there particular laws or regulations with respect to pollution insurance in the offshore oil industry? The answer is given in the next sub-section.⁹⁹⁵

In addition, since offshore oil activities are usually jointly developed by the CNOOC and foreign oil enterprises, some international (foreign) companies may wonder what kinds of rules they should follow in China. Article 7 of the *Insurance Law* answers this question: '*legal persons and other organisations within the territory of China are obliged to purchase insurance from insurance companies that are located in China if they intend to buy domestic insurance.*' By way of illustration, a British oil company X is going to exploit oil with the CNOOC. After signing the petroleum contract, if X intends to insure an offshore drilling platform that is located within Chinese waters, company X is allowed to choose an insurance company Y that is also located within the territory of China. In contrast, it is forbidden to purchase insurance from a British insurance company Z, even if the insurance policy offered by Z is more favourable.

⁹⁹² Article 11(2) of the *Insurance Law*.

⁹⁹³ Article 184 (2) of the *Insurance Law*.

⁹⁹⁴ Gao (2013b), 169-170.

⁹⁹⁵ See *infra* section 6.1.2 of this chapter.

6.1.2 Pollution insurance rules under two regulations

Recall that ‘laws’ in China are enacted and promulgated by the National People’s Congress or the Standing Committee of National People’s Congress, while ‘administrative regulations’ are enacted and passed by the State Council in accordance with laws.⁹⁹⁶ Currently (2022), although no laws specify pollution insurance in the offshore oil industry, two administrative regulations have provisions aiming at this issue.

The first is the *Regulation Concerning Environmental Protection in Offshore Oil Exploration and Exploitation (Offshore Exploitation Regulation)*, which was promulgated by the State Council in 1983. It requires each operator to purchase insurance or other financial guarantees in respect of civil liabilities for pollution damage.⁹⁹⁷ Based on this provision, all the operators that participate in offshore oil activities are obliged to purchase liability insurance or other financial guarantees to deal with potential environmental pollution. Seemingly, compulsory pollution insurance for the offshore oil industry is required by this *Regulation*. However, this provision is too vague to be applicable in practice, as it neither explains the meaning of ‘other financial guarantees’ nor addresses the legal consequences of failing to purchase insurance or financial guarantees.

The other legal instrument that involves rules concerning pollution insurance is the *Regulation on the Prevention and Treatment of the Pollution and Damage to the Marine Environment by Marine Engineering (Marine Engineering Regulation)*. Article 27 sets forth a rule on pollution insurance, stating that ‘an entity exploring and exploiting marine oil and gas mineral resources shall purchase relevant pollution liability insurance.’

Similar to Article 9 of the *Offshore Exploitation Regulation*, Article 27 of the *Marine Engineering Regulation* requires every participator (i.e., enterprise, institution or operator) in the offshore drilling industry to buy pollution insurance as long as they intend to explore, exploit, or develop oil resources from the ocean. Nevertheless, there are some slight differences in these two provisions. Article 9 restricts pollution insurance in the ‘offshore oil industry,’ whereas Article 27 extends the sphere to ‘activities with regard to exploiting and exploring all forms of oil and gas mineral

⁹⁹⁶ See *supra* section 1.1 of chapter 2.

⁹⁹⁷ Article 9 of the *Offshore Exploitation Regulation*.

resources in the ocean.' A possible reason for this difference is that these two regulations are formulated to serve particular purposes.⁹⁹⁸ The other difference is that Article 27 requires operators to purchase '*insurance*'; in comparison, operators under Article 9 are obliged to undertake '*insurance and other financial guarantees.*' Hence, Article 9 seems to welcome more forms of financial alternatives and thus relax the requirement of operators.

However, a glaring hole that exists in these two provisions is that both of them fail to provide guidance on how to cope with the situation if operators refuse to purchase insurance or financial guarantees as required, and how to compensate the damages caused by these liable operators when they are not covered by liability insurance. In other words, these two regulations remain silent on what kind of liabilities the operators should undertake if they engage in offshore oil activities without having pollution insurance. Even though the obligations of mandatory pollution insurance are given, these rules may not be well enforced in practice, because no sanctions are provided.

6.2 Will compulsory pollution insurance be introduced in China?

As indicated, it seems that the attitude towards mandatory pollution insurance is not clear under the laws and regulations as mentioned earlier. Does it imply that China has a wavering or even moderately negative opinion on the application of this insurance? This part attempts to answer the question by examining normative documents of this topic and presenting the development of pollution insurance in China over these years. Bearing in mind that although normative documents have no legal binding force,⁹⁹⁹ they are frequently adopted by the public administration to handle environmental pollution cases nationwide.

6.2.1 A pilot programme of pollution insurance

In dealing with the growing environmental litigation for compensation, the Chinese government officially introduced pollution insurance as a new economic instrument in

⁹⁹⁸ The *Offshore Exploitation Regulation* aims to '*prevent pollution damage to the marine environment by offshore oil exploration and exploitation*' (Article 1). In contrast, the *Marine Engineering Regulation* aims to '*prevent, treat and reduce the pollution and damage to the marine environment by marine engineering construction projects, keep marine ecological balance, and preserve marine resources.*' (Article 1).

⁹⁹⁹ See *supra* section 1.1 of chapter 2.

governance to control environmental risks in 2006,¹⁰⁰⁰ with the promulgation of *Opinions of the State Council on the Reform and Development of the Insurance Industry*¹⁰⁰¹ (hereinafter *2006 Opinion*). One year later (2007), the *Guideline on Environmental Pollution Liability Insurance*¹⁰⁰² (hereinafter *2007 Guideline*) initiated a pilot programme of pollution insurance in local areas, where it addressed basic principles and implementation schemes to develop pollution insurance in regional areas. By the end of 2008, a handful of provinces and cities started this pilot programme.¹⁰⁰³ Since that year, the promotion of pollution insurance has been deemed a crucial goal of socialist economic reform.¹⁰⁰⁴ After one year (2009), the announcement of the *Tort Law* echoed this pilot programme by offering a legal basis for environmental litigation with regard to this experiment in local areas, as Articles 65-68 formulated a strict liability regime to handle environmental pollution. The provisions have been incorporated into Articles 1229-1233 of the *Civil Code*. Guided by the policies issued by national authorities, eight pioneering provinces (and cities) continued to carry out new strategies, among which environmentally sensitive sectors such as petrochemicals and hazardous-waste management were chosen as main targets of the pilot programme.¹⁰⁰⁵ It was evident that the industrial sectors that aimed at exploring, exploiting, producing, and developing offshore oil were within the range. In the meantime, major insurance companies¹⁰⁰⁶ in China responded to the national policies by introducing pollution insurance products into the market without much delay.

Subsequently, the *Opinions of the State Council on Strengthening Major Environmental Protection Work*¹⁰⁰⁷ (hereinafter *2011 Opinion*) states that the whole

¹⁰⁰⁰ Feng et al. (2013), 687.

¹⁰⁰¹ *Opinions of the State Council on the Reform and Development of the Insurance Industry* (《国务院关于保险业改革发展的若干意见》) was issued by the State Council in June 2006. The full text is available at http://www.gov.cn/jwqk/2006-06/26/content_320050.htm (accessed on April 15, 2022).

¹⁰⁰² *Guideline on Environmental Pollution Liability Insurance* (《关于环境污染责任保险工作的指导意见》) was jointly issued by the Ministry of Environmental Protection (MEP) and the Insurance Regulation Committee (IRC) in December 2007. The full text is available at http://www.gov.cn/jwqk/2008-02/25/content_899905.htm (accessed on April 15, 2022).

¹⁰⁰³ The pilot programme was adopted in several provinces (Jiangsu, Hubei, Hunan, Henan) and cities (Chongqing, Shenyang, Shenzhen, Ningbo, Suzhou). Most places were located in the southern and eastern parts of China, See Ding 2017.

¹⁰⁰⁴ This idea was from the *Opinions on Deepening the Reforms of Economic Structure in 2008* (《关于2008年深化经济体制改革工作的意见》), which was the No.48 Policy Paper of the General Office of the State Council. Based on this document, the State set up the trial application of pollution insurance as a part of the reform.

¹⁰⁰⁵ See the *2007 Guideline*.

¹⁰⁰⁶ PICC, Pingan Insurance (Group) Company of China, Taipingyang and other insurance companies.

¹⁰⁰⁷ *Opinions of the State Council on Strengthening Major Environmental Protection Work* (《国务院关于加强环境保护重点工作的意见》) was issued by the State Council in October 2011.

country should promote the pilot programme of compulsory liability insurance. Furthermore, a normative document called *Recommended Calculation Methods for Damages of Environmental Pollution*¹⁰⁰⁸ (hereinafter *2011 Pollution Calculation Method*) was also announced in the same year. Guided by the technical methods on estimation and calculation in this document, relative parties are guided to assess the extent of environmental pollution and the amount of damage, which also contributes to determining the insurance amount. By the end of 2012, this pilot programme expanded from eight to fourteen provinces; moreover, over ten insurance companies entered the market with their own products.¹⁰⁰⁹ The *Guidelines on the Pilot Programme of Environmental Pollution Liability Insurance*¹⁰¹⁰ (hereinafter *2013 Guideline*) was developed from the *2007 Guideline*; this new *2013 Guideline* provides more detailed rules on the application of the pilot programme in local areas. To be specific, it not only encourages environmentally sensitive enterprises such as oil industries to purchase pollution insurance, it also regulates what kinds of specific insurance products and what corresponding premium rates should be followed when offshore oil operators sign contracts with insurance companies.

Guided by the *2011 Pollution Calculation Method* and *2013 Guideline* issued by the Central Government, China experimented with both compulsory and voluntary patterns at the local level before the promulgation of the revised EPL.¹⁰¹¹ It was a little surprising that the *EPL of 2015* merely ‘encourages’ the purchase of pollution insurance, implying that there is not yet a clear rule mandating the purchase of pollution insurance in China.

The absence of national laws may discourage those pioneering provinces and cities from promoting pollution insurance, as local laws or policies may be precluded from

¹⁰⁰⁸ *Recommended Calculation Methods for Damages of Environmental Pollution* (《环境污染损害数额计算推荐方法》) was promoted by the Ministry of Ecology and Environment (生态环境部) in January 2011. The full text is available at <http://www.mee.gov.cn/gkml/hbb/bwj/201105/W020110530352486511962.pdf> (accessed on April 16, 2022).

¹⁰⁰⁹ Feng *et al.* (2013), 687. PICC, Pingan and the Huatai Insurance Group Company are the leading companies in the Chinese pollution insurance market, having captured significant shares of the market.

¹⁰¹⁰ *Guidelines on the Pilot Program of Environmental Pollution Liability Insurance* (《关于开展环境污染强制责任保险试点工作的指导意见》) was jointly issued by the Ministry of Environmental Protection (which has been replaced by the Ministry of Ecology and Environment) and Insurance Regulatory Committee jointly issued this document in February 2013.

¹⁰¹¹ A voluntary pollution insurance system was practised in Shanghai, Hebei, and Chongqing, where governmental policies ‘encourage’ polluters to buy pollution insurance. There was a compulsory pollution insurance system in Hunan and Jiangsu, among other provinces, where companies in specific sectors and of typical scales had to buy pollution insurance so that they would not be confronted with punitive measures. See Feng *et al.* (2013), 687-702.

going against higher laws in the hierarchy,¹⁰¹² which creates more uncertainty among local authorities if they intend to promote compulsory pollution insurance.¹⁰¹³ These provinces and cities expect that a specific national law on pollution insurance will be issued to support their pilot programmes; otherwise, the compulsory requirement to purchase pollution insurance will be at the brink of violating the *Insurance Law* and the EPL. For example, if a local policy declares that companies engaged in environmentally sensitive sectors are obliged to buy pollution insurance, this policy can be legally problematic, as such rules are not in line with the voluntary purchase rule under the *Insurance Law*¹⁰¹⁴ and the encouragement rule under the EPL.¹⁰¹⁵

6.2.2 Compulsory pollution insurance for marine pollution (excluding the offshore oil industry)

Regulations and policies regarding pollution insurance in specific industries related to marine environment issued from 2010 to early 2012 reflected a tendency to promote pollution insurance in China, among which three legal instruments below demonstrate that compulsory pollution insurance was developed to cope with vessel-induced pollution. The *Regulation on the Prevention and Control of Vessel-induced Pollution to the Marine Environment*¹⁰¹⁶ and the *Measures of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-induced Oil Pollution Damage*¹⁰¹⁷ require (a) all vessels that carry oil and (b) vessels larger than 100 tonnes that carry non-oil substances are obliged to purchase pollution insurance or provide other financial guarantees. The obligation to buy insurance in dealing with vessel-induced pollution is reinstated in the *Administrative Measures of the People's Republic of China on the Prevention and Control of Marine Environmental Pollution by Vessels and Their Operations*,¹⁰¹⁸ which

¹⁰¹² See *supra* section 1.1 of chapter 2.

¹⁰¹³ Feng *et al.* (2013), 687-702.

¹⁰¹⁴ Article 11(2) of the *Insurance Law* states that 'an insurance contract shall be concluded voluntarily unless the insurance is mandated by a law or administrative regulation.' See section 2.1 of this chapter.

¹⁰¹⁵ Article 52 of the EPL states that 'the State shall encourage the purchase of environmental pollution liability insurance.'

¹⁰¹⁶ *Regulation on the Prevention and Control of Vessel-induced Pollution to the Marine Environment* (《防治船舶污染海洋环境管理条例》) was promulgated in 2009 and revised in 2018. Articles 51-52 of the Regulation stipulates compulsory pollution insurance to handle vessel-induced pollution.

¹⁰¹⁷ *Measures of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-induced Oil Pollution Damage* (《中华人民共和国船舶油污损害民事责任保险实施办法》) was issued in 2010.

¹⁰¹⁸ *Administrative Measures of the People's Republic of China on the Prevention and Control of Marine Environmental Pollution by Vessels and Their Operations* (《中华人民共和国船舶及其有关作业活动污染海洋

stipulates that shipowners should submit the certificate of obtaining pollution insurance to marine administrative departments if they intend to participate in maritime activities, such as transporting oil on the sea.

However, these three legal instruments are applicable to prevent environmental pollution only caused by vessels and vessel-related operations. Put differently, provisions regarding compulsory pollution insurance in these regulations cannot apply to the offshore oil industry. Since both vessel-induced and offshore-related pollution can both result in damage to the marine environment, why is the former covered via compulsory insurance by law while the latter is not? Perhaps current rules cannot give a convincing answer to this question, but they may inspire legislators to reconsider the necessity and feasibility of introducing mandatory insurance into the offshore industry. This study will later take a closer look at the compensation scheme designed for vessel-induced pollution in order to figure out whether it may promote insights into damage compensation caused by offshore drilling in China.¹⁰¹⁹

6.2.3 After the *EPL of 2015*: the 2017 Draft

As discussed above, the *EPL of 2015* does not introduce ‘mandatory pollution insurance’ as it only ‘encourages’ operators to purchase it, which may disappoint some scholars.¹⁰²⁰ They argue that current rules under the EPL cannot put much external pressure on liable operators to compensate the damages induced by offshore oil activities, which may lead to a low willingness of industrial companies in China to pay additional money for pollution insurance voluntarily.¹⁰²¹

In fact, there were two normative documents issued after the promulgation of the *EPL of 2015*: *Integrated Reform Plan for Promoting Ecological Progress* (2015)¹⁰²² and *Guiding Opinions on Building a Green Financial System* (2016).¹⁰²³ Both documents explicitly address that establishing a ‘compulsory insurance’ scheme in

《环境防治管理规定》 was first issued in 2010 and was amended in 2011.

¹⁰¹⁹ See *infra* section 3.3 of chapter 10.

¹⁰²⁰ The outcome of the revised EPL in 2015 was not like what some scholars expected, as they believed the compulsory pollution insurance would be involved in the new EPL.

¹⁰²¹ Feng *et al.* (2013), 687-702.

¹⁰²² *Integrated Reform Plan for Promoting Ecological Progress* (《生态文明体制改革总体方案》) was issued in 2015. Based on this document, a compulsory liability insurance system for environmental pollution will be established in sectors involving high environmental risks.

¹⁰²³ *Guiding Opinions on Building a Green Financial System* (《关于构建绿色金融体系的指导意见》) was jointly published by the *People's Bank of China* (in Chinese: 中国人民银行), the *Ministry of Finance* (in Chinese: 财政部), the *National Development and Reform Commission* (in Chinese: 国家发展改革委) in 2016, which intends to establish a system of compulsory liability insurance for environmental pollution to deal with high environmental risks.

dealing with environmental risks is expected in specific sectors like environmentally sensitive industries. However, such *Guidelines* do not have any legal binding force, as they are just normative documents rather than laws or administrative regulations. In other words, they only express a positive attitude of the government to further promote compulsory pollution insurance in dealing with the risks arising from environmentally sensitive sectors, which may or may not imply going in the direction of mandatory insurance in the future.

As a matter of fact, a large number of companies that participate in environmentally sensitive industries are State-owned enterprises (SOEs), including the CNOOC that dominates offshore oil exploration and exploitation in China. Most SOEs, with large assets, tend to count on the government and hence have few incentives to prevent risks from purchasing insurance. By comparison, medium or small-sized companies may consider insurance as an economic burden and complain that the promotion of (compulsory) pollution insurance reduces the competitiveness of companies in the market. Therefore, they also have a moderately negative attitude towards pollution insurance and thus are reluctant to buy relative products.

Against this background, a piece of legislation addressing compulsory pollution insurance was drafted in 2017 called *Measures of Compulsory Liability Insurance of Environmental Pollution* (hereinafter *2017 Draft*),¹⁰²⁴ where environmentally sensitive industries, involving the offshore oil sector, are obliged to purchase pollution insurance before entering into the business. Some literature accordingly predicts that a compulsory model in environmentally sensitive sectors may become a likely outcome in the future.¹⁰²⁵ It may nevertheless be too early to draw such a conclusion based on the previous experiences. After all, scholars once predicted that the revised *EPL of 2015* ought to introduce compulsory pollution insurance after the pilot programmes proved to be successful in some local areas. Billed as ‘green insurance,’ pollution insurance was expected to be required in all industries with pollution risks nationwide by 2015, and it would be rolled out in stages prior to that date. However, the revised EPL only ‘encourages’ industrial operators to purchase pollution insurance. Will the same story repeat again? Or will this new draft initiate a

¹⁰²⁴ *Measures of Compulsory Liability Insurance of Environmental Pollution (draft document)* (《环境污染强制责任保险管理办法(征求意见稿)》) was jointly drafted by the Ministry of Environment (MEP) and China Insurance Regulatory Commission (which was replaced by the China Banking Insurance Regulatory Commission, CBIRC, in 2018) in 2017.

¹⁰²⁵ Feng *et al.* (2013), 687-702.

new start of pollution compulsory insurance? These questions are left unanswered at present.

The greater the protection of victims included in the goal of a statutory initiative to introduce specific liability rules, the more likely such rules are coupled with duties on the potential polluters to take out insurance or some other financial cover, as it intends to provide full compensation for the victim.¹⁰²⁶ Based on some literature, ideally, most strict liability statutes including compulsory insurance clauses should at least provide a link to such a rule.¹⁰²⁷ The undeniable fact is the introduction of compulsory pollution insurance in China is yet to come, so it would be too early to conclude whether this *2017 Draft* provides a guiding line on compulsory pollution insurance in the near future.

6.3 Pollution insurance products

At present, many insurance products of environmental pollution in China are the result of examples from the foreign pollution insurance business, with fewer variations.¹⁰²⁸ Even though different companies offer a variety of insurance contracts, the primary products available in China are quite similar to each other, which basically covers direct losses caused by environmental pollution incidents.¹⁰²⁹ The rate of pollution insurance on the market ranges from 2.2 percent to 8 percent in China, which is much higher than that of general insurance (usually 1 percent).¹⁰³⁰

Such insurance products cover personal injury and direct property loss of the third party due to the pollution, necessary clean-up, or pollution control costs, and reasonable ‘legal fees’ for litigation or arbitration to solve the dispute; nevertheless, most of them refuse to insure damages originating from accumulated environmental pollution or pure ecological damage associated with the incident. Arguably, the limited coverage of risks can barely satisfy the needs of industrial companies, which may decrease the demand for obtaining pollution insurance cover.¹⁰³¹ When only a limited number of companies buy pollution insurance, which is the case in quite a few provinces and cities in China under the voluntary rules, the risk pool provided by

¹⁰²⁶ Koch & Koziol (2002), 435.

¹⁰²⁷ Feng *et al.* (2013), 687-702.

¹⁰²⁸ *Ibid.*

¹⁰²⁹ After comparing pollution insurance products offered by large insurance companies like PICC, Pingan, and Ancheng, it is clear that the content of their policies is basically the same.

¹⁰³⁰ Li (2016), 255-256.

¹⁰³¹ Liu & Chik (2012), 201-204.

insurers will not be large enough to share the risks with others. Not surprisingly, insurers in this case are likely to increase the insurance premium to offset the payment, which makes their offers less attractive. This vicious cycle hinders the development of the pollution insurance market. Some scholars believe that only the intervention of regulatory rules on mandatory pollution insurance, together with subsidies of the government, can require polluters to purchase this product and improve the situation.¹⁰³²

The insurance premium and insurance amount of damage compensation are different, depending on specific industrial sectors. Generally speaking, the amount of insurance (A) in one particular sector equals the product of the basic premium (P), industrial index (I), and price adjustment coefficient (C); the formula is provided below. The higher risks one industrial sector faces, the higher index it will have, which leads to a larger sum of money for offshore operators to pay for insurance companies.¹⁰³³

*Insurance Amount (A) = Basic Premium (P) × Industrial Index (I) × Price Adjustment Coefficient (C)*¹⁰³⁴

7. Safety liability insurance

7.1 Safety liability insurance under the *Safety Insurance Measure and the 2020 Specification*

Early in 2010, the State Administration of Work Safety (SAWS)¹⁰³⁵ encouraged the use of another insurance named ‘safety liability insurance’ with regard to preventing marine oil pollution.¹⁰³⁶ The blueprint for this promotion is a mixed one: to develop a private insurance market yet supported by the government. The policy would concentrate on risk control and management, where accident prevention is the focal point. The competent departments in charge of safety operations, insurance companies that offer safety liability insurance, and operator companies, all take part in this incentive mechanism. To be specific, under the guidance of the government, insurance companies offer this insurance product, while operator companies should

¹⁰³² Feng *et al.* (2013), 700.

¹⁰³³ Gao 2013b.

¹⁰³⁴ *Ibid.*

¹⁰³⁵ More information about the State Administration of Work Safety (SAWS, 国家安全生产监督管理总局), see *infra* section 2 of chapter 7.

¹⁰³⁶ The SAWS (February 21, 2011). *The Notification on Strengthening Safety Production in the Area of Marine Oil Production*, available at http://www.gov.cn/gzdt/2011-02/21/content_1807307.htm (accessed on April 15, 2022).

purchase this insurance to guarantee safe operations.¹⁰³⁷

Based on this background, the *Measures for the Implementation of Safety Liability Insurance*¹⁰³⁸ (hereinafter *Safety Insurance Measure*) was issued in 2017. According to Article 2 of this *Measure*, liability insurance on safety production, or safety liability insurance, means that insurers will compensate the personal injuries and economic losses caused by the operator who purchases this safety liability insurance product. Article 6 states that companies in the eight most dangerous industrial areas ‘shall’ purchase it, including (a) coal and non-coal mining; (b) hazardous chemical; (c) firework and cracker; (d) transportation; (e) construction; (f) commercial explosives; (g) metal smelting; and (h) fishery production. Since the offshore oil sector is not on the list, its operators are merely ‘encouraged’ to follow the rule as well.¹⁰³⁹ This provision seems difficult to adopt in practice, as the term ‘most dangerous industrial areas’ remains a vague concept. It is also because local regions have the right to ‘determine their categories of the most dangerous areas under local circumstances.’ Is the offshore oil sector subject to the area of coal and non-coal mining so that it should be regarded as a most dangerous industrial area? Would it be mandatory for offshore oil operators to purchase this insurance? Neither offshore oil companies nor I could find a definite answer. Probably some detailed guidance is needed in practice.

Article 18 addresses this issue from a different angle, as it states that purchasing safety liability insurance is regarded as a significant (but not necessary) requirement to obtain a ‘safety production license.’¹⁰⁴⁰ By way of illustration, the authority will consider having ‘safety liability insurance’ as a plus when grading a company’s performance. Therefore, operator companies without safety liability insurance are less likely to earn a better grade in some safety evaluation systems; however, they can theoretically obtain a safety production license and undertake production.¹⁰⁴¹

Furthermore, the *Specifications for Accidents Prevention Technical Service in Work Safety Liability Insurance*¹⁰⁴² (hereinafter *2020 Specification*) entered into force in

¹⁰³⁷ *Ibid.*

¹⁰³⁸ *Measures for the Implementation of Safety Liability Insurance* (《安全生产责任保险实施办法》) was jointly issued by the State Administration of Work Safety (SAWS, 国家安监总局), China Insurance Regulatory Commission (in 2018 it was replaced by the China Banking and Insurance Regulatory Commission, CBIRC, 中国银行监督管理委员会) and Ministry of Finance (财政部) on December 12, 2017, and came into force on January 1, 2018.

¹⁰³⁹ Based on Article 6 of the *Safety Insurance Measure*.

¹⁰⁴⁰ For more information about safety production licenses in China, see *infra* section 3.1.1 of chapter 7.

¹⁰⁴¹ A discussion on the safe operations of offshore companies is given in section 3.2 of chapter 7.

¹⁰⁴² The Ministry of Emergency Management (应急管理部) published the *Specifications for Accident Prevention Technical Service on Work Safety Liability Insurance* (《安全生产责任保险事故预防技术服务规范》) (AQ

2020. A change highlighted by this *Specification* is to demand that insurers include mandatory standards for this insurance in their policies when the insured is subjected to the most dangerous industrial areas. An insurance contract should specify the ‘accident prevention technical service’ offered by insurance companies.¹⁰⁴³ It is noted that the purposes of accident prevention and damage compensation are equally emphasised under the *2020 Specification*.¹⁰⁴⁴ Generally, in no case can insurers refuse to perform the service or ask for an extra payment. In addition, insurers may invite partners as representatives to perform the duties, and these partners are limited to independent and neutral academic bodies specialised in safety operations, given that such technical institutes are the more appropriate professionals to offer the services.¹⁰⁴⁵ Even if insurers authorise the institutes with advanced skills to provide technical or management services regarding accident prevention, they are the parties that are obliged to compensate the damages arising from the operations.¹⁰⁴⁶

The new promotion is expected to constitute a regulatory system on safe operation with the assistance of insurance. In this situation, insurance companies that offer safety liability insurance are requested to help operators to check the loopholes in financial issues. In contrast, operators are required to purchase this insurance as long as they intend to undertake specific operations in China.¹⁰⁴⁷

According to some experts, this new model is a type of compulsory insurance product of a non-profit nature.¹⁰⁴⁸ It is because this promotion not only protects the interests of operator companies and compensates the damages via insurance but it also covers the expenses of risk evaluation, accident investigation, and even legal actions.¹⁰⁴⁹ Compared to other existing insurance products, this new type of insurance is expected

9010-2019) on August 12, 2019 and will enter into force on January 1, 2020.

¹⁰⁴³ Accident prevention technical service (事故预防技术服务) refers to insurance companies and should provide a professional service to their customer companies based on the law and in order to reduce the risks during safety operations and reduce the occurrence of damage compensation. The customer companies are the applicants who enjoy the service after paying the premium. Insurance companies, together with work safety technical service organisations that are delegated by insurance companies, are responsible for offering relevant services to their clients. See the *Specifications of Safety Insurance*.

¹⁰⁴⁴ State Council 2019.

¹⁰⁴⁵ It may refer to those professional institutes with more advanced skills, such as accreditation bodies specialised in safety evaluation or scientific research institutions. See the *Specifications of Safety Insurance*.

¹⁰⁴⁶ Article 13 of the *Work Safety Law of the People's Republic of China*.

¹⁰⁴⁷ See State Council 2019; Chang 2019. This opinion is based on the new conference organised by the Ministry of Emergency Management on August 7, 2019, where Wang, Shijie (王士杰), senior officer of the Planning and Finance Division, Ministry of Emergency Management of PRC (应急管理部, 规划财务司) gave his opinion on the matter.

¹⁰⁴⁸ See State Council 2019. This opinion is based on the new conference organised by the Ministry of Emergency Management on August 7, 2019, where Wang Jianjun (王建军), the head officer of the Enterprise Risk Management Centre of the China Enterprise Confederation (中国企业联合会企业责任风险管理研究中心), explained this *Proposal of Safety Insurance* in detail.

¹⁰⁴⁹ *Ibid.*

to have a productive outcome due to its mandatory nature.

One interesting fact is that, as a compulsory yardstick aiming at safe operations, the *2020 Specification* requires that the insurers undertake the duty to offer safety liability insurance rather than the insured (the operator) who purchases it. Moreover, this *Specification* is not a legal instrument and thus cannot provide a legal basis for operators; nor does it specify how to punish those operator companies that avoid purchasing this insurance. All these characteristics limit the effectiveness of applying this *Specification* in practice. Therefore, it seems necessary to have a legal instrument that directly governs safety liability insurance, which may explain why the Ministry of Emergency Management put forward a proposal to revise the applicable ***Work Safety Law of the People's Republic of China*** (hereinafter *Work Safety Law*).¹⁰⁵⁰ This proposal suggests imposing safety liability insurance on operator companies in specific areas, and the competent authority should be entitled to punish the operator companies not having this insurance because of their behaviour is against the law.¹⁰⁵¹ Since the *2020 Specification* was issued recently, it seems too early to conclude whether this mandatory standard on safety liability insurance would be as good as expected; nor can we be sure whether legislators will accept the advice from the Ministry of Emergency Management and offer a solid legal basis for this new insurance promotion by revising the *Work Safety Law*.

Both safety liability insurance under the *2020 Specification*, and pollution insurance under the *2017 Draft*, indicate a tendency towards compulsory liability insurance in China. Until now, the recent development is limited to the most dangerous operations or environmentally sensitive sectors, where the offshore oil industry cannot be specified. However, the central idea of this promotion seems to be in line with the general direction in China, as there is an increasing liability related to the environment associated with industrial operations. In that respect, it is significant to mention it in this chapter. There are reasons to believe that other sectors, including the offshore oil sector, may be added to this ‘compulsory’ list in the future.

¹⁰⁵⁰ *Work Safety Law of the People's Republic of China* (《中华人民共和国安全生产法》) was first adopted on June 29, 2002; and the latest version was issued on August 31, 2014.

¹⁰⁵¹ State Council 2019. This proposal was mentioned by Wu Yanyun (邬燕云), Deputy director of the Policy and Regulation Division of the Ministry of Emergency Management (应急管理部政策法规司).

7.2 The role of safety regulations in insurance

The previous sections mainly addressed the role of legal instruments, being tort law and liability insurance.¹⁰⁵² However, the dividing line between the private law and a regulatory solution is not always that clear to deal with compensation. In respect of promoting compensation in some specific areas, such as the offshore drilling industry and other environmentally sensitive sectors, the government could also play a vital role. While it is apparent that insurance mechanisms make up an essential part of damage compensation, the economic theory also stresses the importance of accident prevention.¹⁰⁵³ The question arises whether the government can be of assistance to provide favourable regulatory strategies to improve the function of the private legal system. Therefore, the role of preventive measures and, more particularly, the preventive effect of both the liability and the insurance system should be stressed.¹⁰⁵⁴ This part discusses whether and, if so, how regulation, as a public policy, affects private insurance.

Under the traditional tort law system, an operator will bear the duty to compensate the losses caused by himself (as the tortfeasor). In contrast, he will share his risks and also duties with others via insurance. In an insurance setting, insurers can make use of safety rules (i.e., licensing system, rating system) in their policies to cope with risk differentiation. If an operator fails to satisfy specific safety standards before entering into the pool, he may either be refused by the insurer or be required to pay more premiums in comparison with other operators that meet the safety requirements. Generally, a higher premium is paid for bad risks than for good ones,¹⁰⁵⁵ where bad risks are punished and good risks will be rewarded.¹⁰⁵⁶ Otherwise, good risks would have to pay for the bad risks and would therefore *de facto* subsidise bad risks, forcing people with good risks to leave while bad risks remain in, which is a typical example of ‘adverse selection.’¹⁰⁵⁷

Given this fact, China created an insurance product related to safety operations to deal with adverse selection: safety liability insurance.¹⁰⁵⁸ This insurance promotion adopts

¹⁰⁵² Faure (2011), 166.

¹⁰⁵³ Philipsen (2018), 551.

¹⁰⁵⁴ Faure & Hartlief (2003a), 149.

¹⁰⁵⁵ The discussion of the influence of risk differentiation on insurance, see Priest 1987.

¹⁰⁵⁶ Faure & Hartlief (1996), 323.

¹⁰⁵⁷ Adverse selection refers to ‘the tendency of persons with a relatively greater exposure to risk to seek insurance protection.’ Priest (1987), 1541.

¹⁰⁵⁸ See *supra* section 7 of chapter 6.

safety regulations as a yardstick for differentiating risks. In essence, a compensation mechanism can be financed by the stakeholders that substantially contribute to the damage, which, in return, triggers the real contributors to improve their incentives for prevention. In that case, specific safety requirements in the insurance policy help insurers to distinguish risks, while a well-differentiated pool stimulates the insured operators to join the pool and thus prevent the potential dangers.

Recall that operators of the offshore oil sector are not legally required to buy safety liability insurance, but the newly-issued *Safety Insurance Measure* and *2020 Specification* put forward an incentive mechanism to reward companies that are keen to strengthen their safety operations via insurance. On the one hand, local governments will give priority to the companies with safety liability insurance under same situations. For example, the authority will prefer a company with safety liability insurance (Company S) rather than one without such insurance (Company N) if both of them are applying an operation project or asking permission to enter an industrial park.¹⁰⁵⁹ On the other hand, the *Safety Insurance Measure* mentions to establishing a reward mechanism for the insurance companies that compensate the damages without delay considering their contributions to hazard prevention, but no details are provided.¹⁰⁶⁰ Furthermore, Article 11 of the *Safety Insurance Measure* sets up a flexible rate regime to determine the premium of safety liability insurance, varying between different industries. The ultimate premium of operators will be based upon two factors: (a) the accident records according to the previous experiences, and (b) the useful information indicating their capacities for safety operations. The former implies how often an accident happened and how serious the accident was, while the latter may refer to the risk level of specific industrial areas, the work safety standardisation, and the experience of handling accidents and compensating damages when accidents occurred.

Hypothetically, if safety regulations were ‘compulsorily’ involved in an insurance contract between an offshore operator and the insurance company, the insured operator would become a licensed operator after he signs the contract. That is, obtaining safety liability insurance becomes an absolute minimum for all the operators, and it is the insurance company that has the right to check whether the insured operators have a valid license or not. Accordingly, in the policy conditions,

¹⁰⁵⁹ Article 19 of the *Measure on Safety Insurance*.

¹⁰⁶⁰ Article 20 of the *Measure on Safety Insurance*.

the insurer could expressly require operators to follow the permission requirements regulated by law and could even make insurance coverage dependent upon that. As a consequence, insurance companies could make use of the fact that the administrative authorities or legislators have already made a decision about the way to reduce damages related to specific industrial activities, and it has possibly been laid down in some safety licenses.¹⁰⁶¹ As a result, insurance policies would stipulate that there is little or no coverage for some damages owing to a violation of regulatory norms. From the perspective of tort law, such a standard sets up a minimum requirement for safety operations.¹⁰⁶²

In recent years, safety requirements written by law are welcomed by insurance companies and involved in their policies in dealing with risk differentiation, whereby ‘safety liability insurance’ is a typical example of combining safety regulations and private insurance to handle the risks caused by industrial operations.

8. Fishery mutual insurance

Fishery is a high-risk sector. The high dependence of the economy on fish makes it more vulnerable to damage by human activities and natural disasters,¹⁰⁶³ which may threaten individual fishermen and fishery companies. Such hazards include but are not limited to collision, extreme weather, machinery failure, and on-board explosion, among which the accidents induced by offshore oil activities can be a threat to the fishing and aquaculture industry as well.

As discussed earlier, offshore oil accidents present potential harm to the deep ocean and coastal fishing areas, causing economic losses in production and damaged facilities to individuals and companies that are beyond their capacity to recover. Thus, insurance is regarded as a means to improve their ability to mitigate risks and protect their fishery business.¹⁰⁶⁴ This section examines whether insurance of the fishery and aquaculture sectors can be treated as a potential alternative to manage and mitigate risks caused by offshore drilling operations.

Currently, fishery mutual insurance (FMI) dominates the fishery and aquaculture sector in China, while commercial fishery insurance only serves a complementary role

¹⁰⁶¹ See *supra* sections 2-3 of this chapter.

¹⁰⁶² Faure (2011), 151.

¹⁰⁶³ Zeng *et al.* (2011), 36–47.

¹⁰⁶⁴ Yuan *et al.* (2017), 1.

that provides little coverage and holds minor shares.¹⁰⁶⁵ Guided by non-profitable China Fishery Mutual Insurance Association (hereinafter CFMI)¹⁰⁶⁶ and local FMI associations, this financial tool is an arrangement of sharing risks among fishermen that create risks, which is substantially more like a risk-sharing agreement than a form of insurance. A growing number of fishermen are now in favour of this financial mechanism, as not only can they prevent risks at a lower price but they also regard themselves as shareholders who jointly finance the risking pool.¹⁰⁶⁷ All the individual fishermen, owners of fishing vessels, and fishery companies can join the association and voluntarily purchase specific products corresponding to their business. Over the past twenty-five years (1994-now), the FMI has gone through a series of continual adjustments in terms of both programmes and practices and has gradually replaced private fishery insurance in China. Since 2008, there has been an increasing financial support for FMI provided by the central and local governments. In several provinces, a few insurance companies also started to enter the market to jointly finance the risking pool with FMI associations or undertake reinsurance.¹⁰⁶⁸

Although FMI is currently prevalent in China, this product seems not to be perfectly appropriate in dealing with fishery losses arising from offshore oil activities.¹⁰⁶⁹ On the one hand, fishery and aquaculture insurance mainly covers weather and biological risks, explosion, fire and collision, where oil pollution is excluded from the coverage in terms of fishing vessel mutual insurance. Consequently, quite a few policies of fishery and aquaculture insurance may not be effective when coping with damages stemming from offshore drilling. On the other hand, FMI on the market is a form of risk-sharing agreement (RSA) funded by fishermen. Subsidised by the government, this RSA encourages fishermen and fishery companies to share risks among the pool. In other words, even though an FMI tailors a handful of rules aiming at different fish species in different regions, it is basically irrelevant for the interests of offshore oil operators. The fishermen that participate in the FMI are responsible for paying the

¹⁰⁶⁵ Chen & Wang (2017), 67-70.

¹⁰⁶⁶ China Fishing Vessel Owner's Mutual Insurance Association (中国渔船船东互助协会) was established in 1994, which was renamed as China Fishery Mutual Insurance Association (中国渔业互助协会) in 2007. With the approval of the establishment by the Ministry of Civil Affairs, CFMI is a nonprofit organisation and regulated by the Ministry of Agriculture and Rural Affairs (MOA). See Tuo (2012), 5-11.

¹⁰⁶⁷ Zhang & Jiang (2010), 477-479; Tuo (2012), 5-11.

¹⁰⁶⁸ Zheng *et al.* (2018), 152-162.

¹⁰⁶⁹ See Clauses 5,9 of the *Policy of Fishing Vessel Mutual Insurance of CFMI* (《中国渔业互保协会渔船互保条款》) (2017); Clause 2.3 of the *Policy of Personal Accident Mutual Insurance of CFMI* (《中国渔业互保协会渔民人身平安互助保险条款》) (2017); Clause 7 of the *Policy of Employer's Liability Mutual Insurance of CFMI* (《中国渔业互保协会雇主责任互助保险条款》) (2017).

contribution in advance (which equals the premium), whereas the liable operators are free from such obligations. In this regard, the affected fishermen have to afford extra payments to get compensated, whereas the liable operators can escape from their liabilities, and no incentives can be given to them to prevent such risks from happening in an FMI setting.

In fact, the reason to consider fishery mutual insurance (FMI) in the case of offshore drilling rests in expecting that this financial tool can be adopted as an efficient alternative to tackle the fishery losses arising from offshore operations. The answer in this case seems to be negative as the fishery insurance market dominated by FMI plays a moderately limited role in compensating fishery losses stemming from offshore drilling.

9. Additional risk management techniques

After describing several particular insurance policies aiming at the damages caused by offshore drilling, this section examines whether or not other financial alternatives are adopted in China to manage such risks and how they perform. Sections 9.1 and 9.2 respectively introduce reinsurance and self-insurance, followed by an overview of the compensation fund in section 9.3. The relevant statutory rules and practical status of each risk management technique in China are sketched, the purpose of which is to provide a legal basis to discuss the performance of adopting these financial alternatives in the context of damage compensation caused by offshore oil operations.

9.1 Reinsurance

Reinsurance is, in nature, insurance for insurers, and therefore the *Insurance Law* sets forth several rules of it. First of all, at the request of a re-insurer, the ceding party (original insurer) should provide the re-insurer with information about the original insurance in written form, including its liability of insurance.¹⁰⁷⁰ Second, the re-insurer is not allowed to require the original insured to pay any insurance premium; in return, neither the insured nor the beneficiary of the original insurance may claim compensation against the re-insurer.¹⁰⁷¹ Third, the ceding party cannot refuse or delay bearing the liability of its original liability, even if the re-insurer fails to perform its

¹⁰⁷⁰ Article 28 (2) of the *Insurance Law*.

¹⁰⁷¹ Article 29 of the *Insurance Law*.

reinsurance liability.¹⁰⁷²

Insurers are legally required to maintain sufficient reserves to pay all potential claims from issued policies, while reinsurance gives insurers more security for its equity and solvency by increasing its ability to withstand the financial burden when unusual and major catastrophic events occur, which is usually the concern in the offshore drilling operations associated with catastrophes.¹⁰⁷³ Article 103 of the *Insurance Law* provides guidance on the cases when reinsurance is demanded by law, which states that:

'The liability assumed by an insurance company for each risk unit, namely, the maximum loss caused by a single insured incident, shall not exceed 10% of the sum of its actual capital and provident funds. The excess shall be re-insured.'

Risk unit, also known as exposure unit, refers to the item exposed to loss that is covered by the insurer. Insurance companies employ this risk unit to estimate the maximum possible loss and then to determine the maximum amount they can offer in the contract. For example, the risk unit in an *MOU Insurance Policy* is based upon how much it costs to repair or replace a broken MOU. The premium of this MOU insurance (P) equals the product of its rate (R) and risk unit (U), as seen below:

$$\text{Premium (P)} = \text{Rate (R)} \times \text{Risk Unit (U)}.$$

The risk unit of insurance has subtle differences according to the types of insurance, and it is determined by insurance companies themselves with specific requirements. The insurance regulatory body under the State Council, which is China Banking and Insurance Regulatory Commission (CBIRC), plays a vital role in managing this issue, and it issued the ***Guideline on the Classification of Risk Units of Insured Property*** (hereinafter *Risk Guideline*)¹⁰⁷⁴ in dealing with reinsurance.¹⁰⁷⁵ According to the *Insurance Law*, insurance companies on the market are obliged to (i) classify risk units, (ii) submit their arrangement of risk units classification to the government, and

¹⁰⁷² *Ibid.*

¹⁰⁷³ A discussion of insurance aiming at catastrophes is given in section 9.1 of this chapter.

¹⁰⁷⁴ *Guideline on the Classification of Risk Units of Insured Property* (《财产保险危险单位划分方法指引》) consists of three parts, among which the first part was issued in June 2006, the second part was issued in November 2006, and the third part was in December 2016. Apart from (1) general principles of classifying risk units, it covers risks in the areas of (2) hydroelectric generation, (3) thermal power generation, (4) spaceflight, (5) highway & bridge engineering, (6) subway & tunnel engineering, (7) upstream of the petroleum industry, (8) petrochemicals, (9) semiconductor manufacturing, (10) port engineering, (11) commercial premises, and (12) nuclear power plants. Risks generated from the upstream of the petroleum industry are specified in this Guideline. The full text with the involvement of the petroleum industry is available at the official website of the China Insurance Regulatory Commission, <http://bxjg.circ.gov.cn/web/site65/tab6529/info36944.htm> (accessed on April 15, 2022).

¹⁰⁷⁵ Li (2016), 276.

(iii) purchase reinsurance based on this *Risk Guideline*.¹⁰⁷⁶ In other words, this normative document is authorised to have legally binding force by the *Insurance Law*.¹⁰⁷⁷

The *Risk Guideline* specifies how to classify the risk units as far as the upstream of the petroleum industry is concerned. The risk unit under the *All-risk Insurance Policy* is determined by its insurance amount, the limitations of sue and labour expenses, and the general coverage.¹⁰⁷⁸ For well control insurance, the risk unit is determined in the light of a combined single limit.¹⁰⁷⁹ Therefore, insurance companies in China are obliged to determine the risk units based on such regulatory rules and guidelines concerning risk units as long as they intend to provide insurance and reinsurance products for their offshore drilling operations.

9.2 Self-insurance

As a risk management approach, self-insurance is also developed by offshore oil companies in China.¹⁰⁸⁰ It is basically a mechanism whereby larger players (majors) in the market do not take insurance coverage at all but run the risk themselves, which can be categorised into two forms: pure self-insurance and captives. In case of self-insurance, major companies hold a reserve for future losses. In a technical sense, it cannot be regarded as ‘insurance’ for the simple reason that there is no risk spreading, no risk distribution, and hence no loss spreading after an accident happens.¹⁰⁸¹ In case of a captive, an oil major would function *de facto* as an insurer, but there is still no loss spreading because it does not share risks with others. Instead of shifting the risk to a commercial insurer (and hence paying premiums), the offshore oil company creates a captive, which is substantially an insurance company that is wholly owned by itself.

Stakeholders report that major oil and gas companies, in particular, largely use self-insurance and captives to hedge offshore-related risks, which is obviously the case not only for liability following a major offshore accident but also for first-party damage (e.g., well control costs).¹⁰⁸² It is reported that around 95 percent of large

¹⁰⁷⁶ Articles 103-105 of the *Insurance Law*.

¹⁰⁷⁷ The legal force of the normative document has been addressed in section 1.2.6 of chapter 2.

¹⁰⁷⁸ Parts 7-8 of the *Risk Guideline*.

¹⁰⁷⁹ *Ibid.*

¹⁰⁸⁰ Zhang (2016b), 196-197.

¹⁰⁸¹ Faure & Hartlief (2003a), 144.

¹⁰⁸² Faure (2017), 237-242.

companies of the petroleum industry in the world wholly or partially adopt self-insurance.¹⁰⁸³ This method of handling risks is known as Alternative Risk Transfer (ART).¹⁰⁸⁴ Typically, the CNOOC is a pioneer in developing this financial alternative as CNOOC Insurance Limited (hereinafter CIL) is a captive company,¹⁰⁸⁵ which is expected to manage the risks generated from its mother company.¹⁰⁸⁶ After running this business for over ten years, the establishment of the CIL is reported to be successful.¹⁰⁸⁷ Furthermore, the CIL also develops co-insurance with other insurance companies to expand its business and enters into the international reinsurance market.¹⁰⁸⁸ The financial capacity of CIL is capped at the assets brought into the captive by the CNOOC.¹⁰⁸⁹ The total amount of registered capital of the CIL was increased from HKD 2 million (when the company was founded in 2000) to HKD 1.2 billion (at the end of 2018).¹⁰⁹⁰

In the context of China, the major CNOOC prefer self-insurance via the captive CIL than commercial insurance for several reasons. Above all, from the industry's perspective, this is a relatively low-cost solution that is able to provide guarantees for future losses on its own, instead of being forced to spend extra money on transaction costs and on profits for the insurers.¹⁰⁹¹ Moreover, the CNOOC with a very high

¹⁰⁸³ Li (2008), 49-52.

¹⁰⁸⁴ Li (2016), 264-265.

¹⁰⁸⁵ The China National Offshore Oil Corporation (CNOOC) has set up this insurance subsidiary in Hong Kong to underwrite risks and develop insurance business. It was founded in 2000 and is based in Hong Kong at present. The CIL operates as a subsidiary of the CNOOC. Hong Kong's insurance commissioner's office has issued a license to CIL, making CNOOC the first mainland State-owned enterprise to form a captive insurance firm in Hong Kong. The CIL provides insurance and reinsurance in the field of ship insurance, cargo transportation insurance, fire and natural disaster insurance, property loss insurance, ship liability insurance, and general liability insurance. See the Annual Reports of CNOOC (2014-2018), available at the official website of CNOOC, <https://www.cnoocld.com/col/col7511/index.html> (accessed on April 15, 2022). Also see Leng 2013.

¹⁰⁸⁶ This comment is given by insurance commissioner Chee-kiang, T., & Kwok-bun, C. (December 2000), available at <https://www.i-law.com/ilaw/doc/view.htm?id=14903> (accessed on April 15, 2022).

¹⁰⁸⁷ By the end of 2017, the CIL's total asset reached CNY 472.3 million. (The exchange rate of EUR/ CNY was 0.13 in 2017, which was around EUR 61.4 million) and its net assets reached CNY 277.3 billion (which was around EUR 36 million). See the Annual Reports of CNOOC (2014-2018), available at the official website of CNOOC, <https://www.cnoocld.com/col/col7511/index.html> (accessed on April 15, 2022); See also Leng, 2013.

¹⁰⁸⁸ For instance, *Haikang Life Insurance Company* was initially founded by a Dutch insurance company Aegon N.V. and CNOOC in May 2002, both of which contributed 50 percent to establish this company. Haikang Company started its business in May 2013. In 2014, the stock owned by CNOOC was transferred to another company Tsinghua Tongfang (THTF). Haikang Company was renamed Aegon THTF Insurance Company since 2013. In fact, this company mainly aims at insurance projects that protect the interests of individuals, such as health insurance, life insurance. Another example is that in December 2017, together with Taiping General Insurance, the CIL started to engage in energy insurance of the CNOOC via strategic cooperation. In May 2018, Taiping General Insurance officially became a large insurance provider of the CNOOC.

¹⁰⁸⁹ According to a report given by Standard & Poor's in May 2019, the CIL was evaluated at the A+ level. This captive company is financially supported by its mother company CNOOC and provides exclusive services for it. It is expected that the CIL will not take on any new business with other third parties in the next two years. More information on the CIL is given at the website of China Captive, available at <http://www.chinacaptive.cn/news/info/1259> (accessed on April 15, 2022).

¹⁰⁹⁰ The currency exchange rate of HKD/CNY was 1.06 in 2000, so HKD 2 million equalled CNY 2.12 million. The currency exchange rate of HKD/CNY was 0.84 in 2018, so HKD 1.2 billion equalled CNY 1 billion.

¹⁰⁹¹ Faure (2017), 237-242.

credit rating (A+) would obviously not take insurance coverage with an insurance company that has a lower rating, which would only lead to additional costs with little added value. It *de facto* mostly relies on the CIL, which is a captive insurance company with a high credit rating (A+) as well.¹⁰⁹² Generally, the number of insurance companies that are rated as high as the major oil and gas companies is fairly limited, which also explains why the major companies primarily use self-insurance.¹⁰⁹³ Additionally, captive companies like the CIL often have better information about its parent company, which helps to adjust their financial strategy based on the demand of the CNOOC without much delay.

From the perspective of policymakers, in addition to providing a low-cost solution, self-insurance also has, at least in part, a strength in curing the so-called moral-hazard risk that will always emerge in the case of insurance.¹⁰⁹⁴ By taking substantial retention payments, offshore oil companies will still be exposed to risk as a result of which moral hazard (created through insurance) can be controlled.¹⁰⁹⁵ For instance, the CIL receives a certain amount of money from the CNOOC, as the retention payment, to arrange the financial issues for its parent company. This financial arrangement provides incentives for companies to focus on prevention, as they would have to compensate on their own in cases where an accident happens.

Notably, the business pattern of offshore oil development in China also fits this self-insurance arrangement. The CNOOC has offshore oil projects in both offshore China and overseas, but the majority of Chinese insurance companies concentrate on the domestic market instead of running their business abroad.¹⁰⁹⁶ In this regard, if the CNOOC intends to be insured by a third-party insurer, it would have no choice but to purchase insurance products from different insurance companies. To be specific, this would mean purchasing insurance from Chinese insurers for their domestic projects while buying insurance from foreign insurers for their project overseas. Such a pattern would obviously lead to a complicated system of risk management associated with unnecessary costs.

¹⁰⁹² According to a report given by Standard & Poor's in May 2019, both the CNOOC and the CIL were evaluated at A+ level, available at <http://www.chinacaptive.cn/news/info/1259> (accessed on April 15, 2022).

¹⁰⁹³ Faure (2017), 238.

¹⁰⁹⁴ Faure (2017), 237-242.

¹⁰⁹⁵ Shavell 1979a.

¹⁰⁹⁶ The core operation areas of the CNOOC include Bohai, Western South China Sea, Eastern South China Sea, and the East China Sea. Speaking of overseas, the CNOOC has offshore oil and gas projects in Asia, Africa, North America, South America, Oceania, and Europe, available at <https://www.cnooc ltd.com/col/col7261/index.html> (accessed on April 15, 2022).

Although the creation of captives could manage risks via setting aside a pool of assets to mitigate unexpected losses, the disadvantages of self-insurance (either via reserves, captives, or the use of the capital market) also exist when handling damage compensation caused by offshore oil activities.

The first concern is that self-insurance is not necessarily a waterproof guarantee against insolvency.¹⁰⁹⁷ Even worse, it may lead to the externalisation of risk in the case of insolvency, especially for medium and small operators without strong balance sheets or high credit ratings, because they would simply run the risk of liability. If the risk materialises, it would pass on the costs to taxpayers.¹⁰⁹⁸ In this regard, self-insurance may only be considered effective financial security if guarantees can be provided that the reserves set aside will be used for the potential losses for which they were earmarked. Otherwise, the risk would also exist in case of insolvency, and the trustee in bankruptcy could collect the assets. Consequently, no money could be available to compensate victims.¹⁰⁹⁹

Self-insurance can be a risky option, because no protection is provided from claims of creditors.¹¹⁰⁰ Consequently, policymakers need to impose strict controls to verify the viability of self-insurance as a guarantee.¹¹⁰¹ In this respect, China ought to consider stringent criteria in the offshore sector to determine whether a company is allowed to become a self-insurer; however, relevant regulations are not applicable under the current legal regime.

Second, the issue in the case of offshore-related damage is that self-insurance may be a valuable hedging strategy for major oil companies like the CNOOC, but it is not for others. For medium- and small-sized players, self-insurance can only act as a deductible in addition to other strategies.¹¹⁰² Apart from the subsidiaries of international oil companies that can pursue financial guarantees from their powerful parent companies, however, it is known that a large number of players in the area of offshore drilling in China are medium and small companies, where self-insurance

¹⁰⁹⁷ Faure (2017), 237-242.

¹⁰⁹⁸ *Ibid.*

¹⁰⁹⁹ *Ibid.*

¹¹⁰⁰ Given these concerns, quite a few regulatory documents concerning financial security doubt whether self-insurance is built upon a financial test. For example, it is pointed out in the EU Commission guidance document concerning the geological storage of carbon dioxide. See the *Implementation of Directive 2009/31/EC* (2012), 12.

¹¹⁰¹ For example, both in the Guidelines on Financial Responsibility issued by the Oil & Gas UK (the 'OGUK Guidelines') from Oil and Gas UK and in the rules concerning the establishment of financial responsibility under the Offshore Pollution Liability Agreement (OPOL), strict requirements are offered to check whether self-insurance can be as a means of a financial guarantee.

¹¹⁰² Faure (2017), 237-242.

would play a marginal role.¹¹⁰³

Third, although self-insurance is believed to mitigate the problem of moral hazard, some commentators worry that it may simultaneously dilute the deterrent effect, because its low cost would lead to a reduced sense of responsibility from the company that self-insures.¹¹⁰⁴

9.3 Compensation fund

Apart from insurance, a compensation fund may be used to offer compensation in the case of the injurer or his insurer's insolvency. Consequently, the question asked by legislators and scholars is whether compensation for damage arising from offshore drilling can also be provided through an alternative, such as a compensation fund, as it is advocated as a miracle solution for the myriad problems of environmental damage.¹¹⁰⁵

Before going forward, the definition of 'fund' in the context of China can be misleading, as it is widely used in a variety of public and private financial arrangements. Although the CNOOC dominates the offshore oil industry in China, there are a number of entities and companies that participate in the drilling operations, i.e., foreign and domestic operators, contractors, and service providers. All these stakeholders may take part in establishing a mutual fund against the risks generated from the offshore drilling and spread these risks in theory.¹¹⁰⁶ However, an interesting fact in China is that the compensation fund in real cases is not created in advance. As seen in the 2011 Bohai case, the fund was made by the liable operator ConocoPhillips China (COPC) and the CNOOC, required by the government after the accident. This part outlines this kind of specific fund and examines its role in dealing with compensation.

Recall that chapter 3 (section 2.3.1) gives an overview of the accident that occurred in the Bohai Bay. The government played a crucial role in formulating a special remedial scheme to handle compensation for damage originating from the offshore oil accident; the major step was the establishment of an ecological fund by the COPC and

¹¹⁰³ Li (2016), 254-255.

¹¹⁰⁴ See European Commission (2014), 133. The full text is available at:

https://ec.europa.eu/energy/sites/ener/files/documents/BIO_Offshore%20Civil%20Liability_Revised%20Final%20Report%20%2831102014%29.pdf (accessed on April 15, 2022).

¹¹⁰⁵ Faure & Hartlief (1996), 321.

¹¹⁰⁶ Li (2016), 281-282.

CNOOC.

Furthermore, the government was in favour of administrative coordination in that case, because it could determine the compensation issue in a short time compared to litigation. It was proved that in China this administrative method usually cost less, saves more time, and makes the decision more easy with the intervention of the authority. This may explain why the government required the COPC and CNOOC to set up a fund aiming at ecological restoration shortly after the accident. It was apparent that the fund was not made through the court but required by the government,¹¹⁰⁷ which was soon criticised by the public. They doubted how the Ministry of Agriculture (MOA) and the State Oceanic Administration (SOA) facilitated this compensation package plan but left many stakeholders out.

Although this fund is a temporary remedy for economic loss as well as environmental damage after the accident, it is in some cases similar to a limitation fund, because, in both arrangements, fund contributors make an agreement to limit the liability to the amount brought into the fund. The idea of a limitation fund is that the liable party may be willing to make an agreement with victims, on conditions that it can offer a fixed sum to all the victims in a final agreement for the damage caused by a specific tort.¹¹⁰⁸

As far as the 2011 Bohai case is concerned, the procedure is slightly different, as the fund is negotiated between liable operators and administrative agencies (the Ministry of Agriculture & the State Oceanic Administration). Moreover, the fund in the 2011 Bohai case was a temporary remedy after the incident rather than a regular fund set up in advance.

Concerns may arise when this kind of compensation fund is applied. This compensation fund definitely has a bearing on the cost factor.¹¹⁰⁹ On the one hand, crucial issues such as what is the coverage, how much is the compensation amount, and how to require compensation, are directly determined by the negotiation between the liable operators and the government without there being a clear statutory or regulatory rule, which is questioned by the public.¹¹¹⁰ It is more like a case-by-case approach than a regular mechanism that can be applicable for other similar cases in the long term. In this case, insurance may cost less because liability insurance policies are not concluded for a single case, but for the whole set of risks that can be used

¹¹⁰⁷ Du (2013), 11-13.

¹¹⁰⁸ Faure & Hartlief (1996), 322.

¹¹⁰⁹ Faure & Hartlief (1996), 324.

¹¹¹⁰ For instance, See Feng 2019a; see Yin 2013; Zhuang 2012.

repeatedly,¹¹¹¹ implying that the transaction cost for one insurance policy is incurred only once. Therefore, such a publicly operated compensation fund would not necessarily provide compensation at lower costs than the private insurance market.¹¹¹² Furthermore, it is theoretically difficult to figure out why government agencies, acting as administrators of a compensation fund, could have better access to information on risks than a professional insurer.¹¹¹³ Especially as far as an offshore oil incident is concerned, it usually involves highly technical risks, which implies that operators of certain facilities would be in a much better position than the authority to monitor. Moreover, insurers are highly specialised in acquiring information on risk differentiation, and hence the costs of risk spreading spent by an insurance company might also be less than those spent by a compensation fund.

As regards a traditional compensation fund, although it plays a role when a significant number of victims are involved, most problems associated with the liability and insurance system will still arise with it. In comparison, the temporary fund created in the 2011 Bohai case was *de facto* different from the traditional one and will be further examined in chapter 9.¹¹¹⁴ Therefore, the duty to contribute and the entitlement to compensation from the fund need to be considered.¹¹¹⁵

10. Summary

Offshore drilling operations are particularly exposed to health, safety, and environmental risks, where uncertainty comes from various sources. When the damages originating from offshore drilling are not well compensated by law, alternative financial alternatives are developed, both within and outside the insurance business, to provide financial coverage for the risks either voluntarily or compulsorily. As far as insurance aiming at the offshore oil industry in China is concerned, development has been coupled with the growing influence of first-party and third-party insurance schemes, but there are also other mechanisms that can achieve a similar goal.¹¹¹⁶ There are several *de facto* arrangements used to tackle the damage suffered by the operator and the costs of well control.¹¹¹⁷ Apart from private

¹¹¹¹ Faure & Hartlief (1996), 323-324.

¹¹¹² *Ibid.*

¹¹¹³ Faure & Hartlief (1996), 323.

¹¹¹⁴ See *infra* chapter 9.

¹¹¹⁵ Faure & Hartlief (1996), 325.

¹¹¹⁶ Faure & Hartlief (2003a), 152.

¹¹¹⁷ Faure *et al.* (2015), 384.

insurance, offshore oil companies look actively for alternatives such as self-insurance, while the public administration prefers to develop a temporary fund to cope with the loss after the accident.

On the whole, although several provisions under the *Insurance Law* and *Maritime Law* are related to insurance in the area of offshore drilling, neither of them provides specific guidance on this sector. As the definition of a ship is uncertain under the *Maritime Law*, whether or not mobile offshore units (MOUs) are considered ships is unclear. This leads to problems in applying the rules of compulsory insurance and liability limits under the *Maritime Law* to handle the damage caused by MOUs.

All-risk offshore insurance consists of a set of insurance policies, which offers coverage and protection for all risks or perils associated with physical damage to facilities in the area of the offshore drilling industry with specific exclusions. It is further classified into all-risk insurance for fixed offshore platforms (*Platform Insurance Policy*) and mobile offshore units (*MOU Insurance Policy*). This particular all-risk insurance is welcomed by offshore oil operators and insurance companies due to its several advantages. For operators, a package of insurance (i) reduces the occurrence of uncovered damages; (ii) relieves their burden from collecting evidence of claiming compensation; and (iii) avoids repeated coverage and charges, using one comprehensive insurance instead of a handful of specific insurance products. For insurers, it lowers the expenses of risk management, which brings more profits to them. Even though this all-risk insurance covers a wide range of risks, some types of damages, such as personal injury, environmental harm, as well as blowouts, are excluded from its policy.

Well control insurance is independently examined, because it aims at preventing particular serious risks caused by offshore operations, especially for blowouts. Such a loss is always regarded as a nightmare for both offshore oil operators and insurance companies, and it is excluded from the coverage of all-risk insurance.

It is noted that both all-risk offshore insurance and well control insurance concentrate more on compensating the direct loss of insured property (i.e., platforms, MOUs, wells, equipment), and the following clean-up costs due to the accident, whereas the damage to life safety and marine environment, as well as indirect economic loss in offshore accidents are excluded. Moreover, the exclusion clauses in both insurance policies refuse to insure quite a few catastrophes arising from natural or human-made

disasters, which may restrict a wider spread of risk.¹¹¹⁸

Personal injury of offshore workers is a form of damage that deserves attention. In particular, there are two forms of insurance aimed at risks for people who work at or near offshore platforms: *occupational injury insurance* and *employer's liability insurance*. The former, based upon the *Occupational Injury Law* and *Work Safety Law*, belongs to the social security system in China, while the latter is a liability insurance product run by private insurers. The concurrent liability between tort liability and compulsory occupational injury insurance related to an injured employee is divided into two situations, depending on whether the injury is caused by the employer company or a third party. The injured employee can only receive indemnity from occupational injury insurance in the former case; in contrast, the injured employee may enjoy double compensation in the latter case.

Environmental pollution liability insurance is designed to prevent pollution arising from offshore drilling. Currently, the EPL only 'encourages' companies of environmentally sensitive sectors to purchase this insurance. Although the *Offshore Exploitation Regulation* and the *Marine Engineering Regulation* require companies in the offshore petroleum sector to purchase pollution insurance, neither of them provides any detailed guidance on applying the rule. In the absence of national rules, the pilot programme of compulsory pollution insurance is hindered in regional areas. Although a draft of compulsory pollution insurance was issued in 2017, it is still too early to conclude that this draft provides a guiding line of mandatory pollution insurance in the future.

Safety liability insurance is another promotion of mandatory insurance for the most dangerous sectors, but whether it applies to the 'offshore oil industry' is unclear as it is not specified in the list. Nevertheless, as a new model introduced by the *Specification of Safety Insurance* in 2020, safety liability insurance, together with pollution liability insurance, may indicate a tendency to introduce 'mandatory liability insurance' in the field of environmentally sensitive industries. In recent years, some safety regulations (i.e., the licensing system and rating system) prescribed by law are welcomed by insurance companies and adopted in their policies in dealing with risk differentiation, whereby this insurance is a typical example of combining private insurance and the regulatory system to handle the risks caused by industrial operations.

¹¹¹⁸ Li (2016), 249.

In an insurance setting, the duty to contribute should be related to the degree to which a specific activity or operator contributed to the risk.

The threat of offshore oil accidents to the fishing sector is the reason to consider *fishery mutual insurance* in this chapter. Fishery mutual insurance (FMI), which is guided by specific associations, dominates the market in China. However, it plays a marginal role in preventing offshore oil incidents for two reasons. First, fishing vessel mutual insurance excludes oil pollution in its coverage. Second, even though personal accident mutual insurance and employer's liability mutual insurance may cover the damages caused by offshore oil accidents, such a risk-sharing agreement cannot offer incentives to the risk creators. This is because the FMI is not financed by liable offshore operators, but by affected fishermen.

Apart from these specific insurance policies for damage compensation caused by offshore drilling operations, several risk management techniques also offer financial alternatives in dealing with damage compensation. (a) *Reinsurance* is insurance for insurers in order to prevent the insolvency problem of insurers. The *Insurance Law* introduces a factor called 'risk unit' to determine whether or not insurers are required to have reinsurance by law, among which the *Risk Guideline* provides the detailed requirements on how to classify the risk unit in the petroleum industry. (b) Self-insurance could be a valuable hedging strategy for major oil companies to count on, as it mitigates future losses and controls the risk of moral hazard without paying higher premiums to the insurers. The captive company CIL created by the CNOOC is a typical example of adopting this financial arrangement in the Chinese offshore industry. However, self-insurance may only be considered valid financial security if regulation could guarantee that the money set aside to cover the offshore-related losses would be used only for that specific goal. Otherwise, it may lead to the externalisation of risk in the case of insolvency, and thus no money could be available to compensate victims. In this regard, stringent criteria should be applied to verify whether offshore oil companies can offer self-insurance. (c) The *compensation fund* is another arrangement dealing with the damage caused by offshore drilling operations and has been used in real cases. However, the fund created in the 2011 Bohai case was a temporary agreement financed by the COPC and the CNOOC. In practice, it is rare that one type of liability or compensation instrument is used. While major operators (such as the CNOOC) effectively self-insure with other schemes, most other

offshore operators tend to use a combination of hedging strategies.¹¹¹⁹

Given the necessary limits of this chapter, it described several insurance policies related to offshore drilling and their compensatory roles. A tentative conclusion can be drawn that these financial alternatives, together with liability rules, may still have problems reaching full compensation for the damage caused by offshore drilling. The next chapter (chapter 7) will continue to examine another tool that affects damage compensation and accident prevention: safety regulation, where specific safety rules aiming at offshore drilling in China will be addressed.

¹¹¹⁹ Faure *et al.* (2015), 391.

Chapter 7 Safety regulations concerning offshore drilling in China

1. Introduction

Recall that oil discharge from an offshore rig is the kind of risk that has a low probability of occurrence; however, once it takes place, the damage can be disastrous and everlasting.¹¹²⁰ Apart from considering damage compensation associated with oil spills, preventing such accidents from happening is of equal importance, as is handling the losses in case it happens, which brings ‘safety regulation’ into the picture. Instead of focusing on liability compensation *ex post*, safety regulations are rules aiming at prevention in daily operations *ex ante*. Generally speaking, breaking such rules may trigger a tort liability, while following them may reduce the possibility of tackling damage compensation, indicating that an interplay does exist between safety regulation and liability rules.

Regulation is defined as a mandatory requirement that aims to prevent or reduce risk and injury,¹¹²¹ which includes (a) law and regulation, such as prohibiting garbage dumping into the sea, and (b) mandatory standards, such as allowing offshore workers with specific certificates to undertake relevant jobs. There are plenty of safety standards for offshore oil and gas operations worldwide, especially for areas with a high energy demand, indicating that it is crucial to ensure a secure supply of energy.¹¹²² As the study is developed to examine domestic legal rules in China, this chapter focuses on examining the requirements of safety operations under the Chinese legal system. Currently, safety regulations concerning offshore drilling are regulated in the *Marine Environmental Protection Law* (MEPL) and in the *Offshore Exploitation Regulation*. Moreover, there are another three administrative measures regarding offshore oil activities that provide further guidance on this issue. One is the

¹¹²⁰ Smith *et al.* (2011), 563-585.

¹¹²¹ See Haworth 2001.

¹¹²² Lindoe *et al.* (2013) address the risk governance of offshore drilling in the world. For example, *Directive 2013/30/EU* concerns the safety of offshore oil and gas operations. The EU has put in place a set of rules to prevent accidents, to respond promptly and efficiently. The Directive is available at https://ec.europa.eu/energy/topics/energy-security/offshore-oil-and-gas-safety/offshore-oil-and-gas-operations-directive_en (accessed on April 18, 2022).

2016 Measure¹¹²³ that has been frequently mentioned in the previous chapters. The others are two legal instruments focusing on safety operations: the *Provision on Offshore Oil Work Safety of the People's Republic of China* (hereinafter *Offshore Safety Provision*),¹¹²⁴ and the *Detailed Rules for the Administration of Offshore Oil Safety of the People's Republic of China* (hereinafter *Offshore Safety Rule*).¹¹²⁵ The ultimate goal of this chapter is to investigate how regulation of offshore drilling contributes to its activities and what role regulation plays in dealing with offshore oil accidents. Therefore, after the introduction, section 2 addresses the administrative bodies in charge of safety operations. Section 3 illustrates the obligations of offshore oil companies before, during, and after operations, followed by a discussion of the internal compliance mechanisms in the Chinese offshore oil companies (section 4). Section 5 addresses the recent safety records of the Chinese offshore oil sector and then examines the factors contributing to that performance. Section 6 ends this chapter.

2. The authority in charge of safe operations in the offshore oil industry

2.1 The OOOSO and its agencies

Based on Article 4 of the *Offshore Safety Provision*, the State Administration of Work Safety (hereinafter SAWS)¹¹²⁶ comprehensively takes charge of supervising work safety in the offshore oil industry. The SAWS has a subordinate body named Offshore Oil Operation Safety Office (hereinafter OOOSO),¹¹²⁷ which serves as the executive

¹¹²³ The 2016 Measure refers to the *Measures for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (《中华人民共和国海洋石油勘探开发环境保护管理条例实施办法》), which was issued on January 5, 2016.

¹¹²⁴ The State Administration of Work Safety first issued the *Provision on Offshore Oil Work Safety of the People's Republic of China* (《中华人民共和国海洋石油安全生产规定》) on February 7, 2006. The latest version was revised on May 29, 2015.

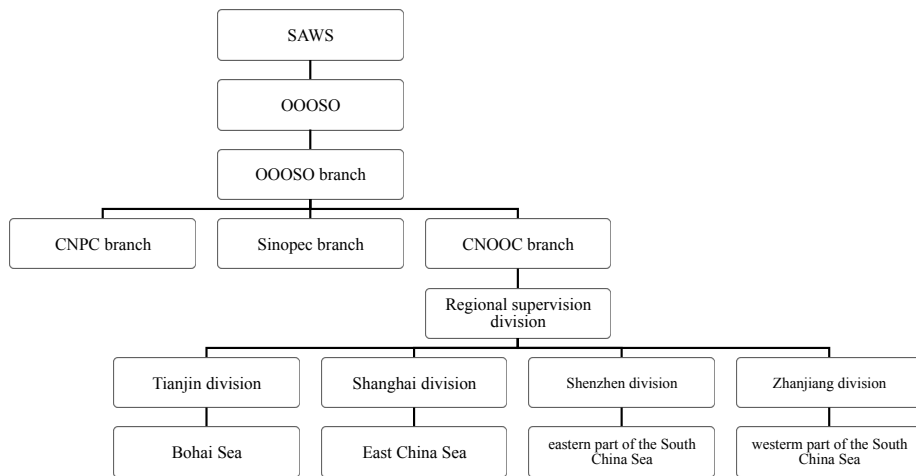
¹¹²⁵ The State Administration of Work Safety first issued the *Detailed Rules for the Administration of Offshore Oil Safety of the People's Republic of China* (《中华人民共和国海洋石油安全管理细则》) on September 7, 2009. The latest version was revised on May 26, 2015.

¹¹²⁶ The State Administration of Work Safety (国家安全生产监督管理总局), reporting to the State Council, was a non-ministerial agency of the Government of the People's Republic of China responsible for the regulation of risks to occupational safety and health in China. Since March 2018, the SAWS was replaced by the Ministry of Emergency Management (应急管理部) due to the Reform of the State Council. Given the fact that applicable regulations relating to safety regulations still adopt the term 'SAWS,' this chapter will continue to use this term.

¹¹²⁷ Offshore Oil Operation Safety Office of the State Administration of Work Safety (hereinafter OOOSO) (海洋石油作业安全办公室, 海油安办) used to be an office that particularly copes with safety issues of offshore drilling. Since March 2018, the SAW Office (海油安办) was replaced by the First Division of Safety Management (安全监督管理一司) as the SAW was incorporated into the Ministry of Emergency Management (应急管理部). Since the functions of the new division remain the same as the OOOSO and relevant safety regulations still use the term 'OOOSO,' this chapter will still use the term 'OOOSO' to be in line with applicable rules.

agency managing safety matters of offshore oil operations. Article 4 of the *Offshore Safety Rule* states that the OOOSO has the duty to guarantee the safety of offshore oil operations nationwide. Furthermore, the OOOSO has set up three branches in major Chinese oil companies, namely in the China National Offshore Oil Corporation (CNOOC), China Petrochemical Corporation (Sinopec), and in the China National Oil Corporation (CNPC).¹¹²⁸ These three branches are responsible for supervising safety operations in their respective oil companies. In particular, the CNOOC branch has four regional supervision divisions located in Tianjin, Shanghai, Shenzhen, and Zhanjiang, respectively ensuring the safety issue of offshore production in the Bohai Bay, East China Sea, eastern, and western parts of the South China Sea.¹¹²⁹ As far as offshore oil operations are concerned, the competent authorities are the SAWS, OOOSO, the CNOOC branch, and its four regional divisions in charge of supervision and administration over safety operations.¹¹³⁰ It is evident that these administrative departments and agencies answer to the government.

Figure 12 The authorities in charge of offshore safety production¹¹³¹



This indicates that the CNOOC plays a dual role in terms of offshore safety: on the one hand, it runs offshore installations while having an internal agency monitoring its own activities, on the other. Although this CNOOC branch is an administrative body

¹¹²⁸ These three major companies are China National Offshore Oil Corporation (CNOOC, 中海油), China Petrochemical Corporation (Sinopec, 中石化), and China National Oil Corporation (CNPC, 中石油). All of them are Central State-owned enterprises specialised in the petroleum industry. Generally, the oil industry in China is dominated by these three world-class energy companies. See Carpenter 2022a, 2022b.

¹¹²⁹ Zhong *et al.* (2014), 222-223.

¹¹³⁰ Articles 28-33 the *Offshore Safety Provision*.

¹¹³¹ The figure was made by the author.

subordinate to the OOOSO and thus, in principle, does not belong to the petroleum company CNOOC, it is still like ‘a law student who marks his own paper,’¹¹³² casting doubt on whether the OOOSO branch plays an independent and impartial role in supervision and monitoring.¹¹³³

2.2 The SOA and its branches

As mentioned earlier,¹¹³⁴ the State Oceanic Administration (SOA)¹¹³⁵ and its local offices¹¹³⁶ are the competent authorities responsible for environmental protection concerning offshore oil operations under the MEPL. Led by the SOA, its dispatched branches and oceanic and fishery departments at local levels constitute an institutional structure of marine affairs. According to the *2016 Measure*, the marine administrative organs at the provincial level¹¹³⁷ are deemed competent authorities in the coastal regions.¹¹³⁸

In the following sections, the SOA and its branches may also be mentioned when the matter concerns the marine environment; by comparison, the OOOSO and its agencies are particularly in charge of the safety issues of offshore oil operations. Their specific duties and functions on managing, inspecting, and monitoring the offshore operations will be explained.

3. The requirements for offshore oil operations

A whole chapter ‘*prevention and control of damage to the marine environment caused by marine construction projects*’ under the MEPL is *de facto* the part

¹¹³² Mencken_1982.

¹¹³³ A discussion about the multiple roles of the CNOOC in the offshore oil industry is provide in chapter 8.

¹¹³⁴ See *supra* section 1.3.1.2 of chapter 5.

¹¹³⁵ Article 3 of the *Offshore Exploitation Regulation*. For more information about the role of the SOA, see *supra* section 1.3.1.2 of chapter 5.

¹¹³⁶ Article 4 of the *2014 Measure*; Article 3 of the *2016 Measure*. For more information about the dispatched branches of SOA, see *supra* section 1.3.1.2 of chapter 5.

¹¹³⁷ Led by the Central Government, an institutional structure is as follows: (1) provincial and sub-provincial level; (2) prefectural and sub-prefectural level; (3) county level (and analogous county-level units); (4) township level (and analogous township-level units); and (5) village level. The first provincial level consists of provinces (省, i.e., Shandong Province), autonomous administrative regions (自治区, i.e., Xinjiang Uygur Autonomous Region), municipalities directly under the Central Government (直辖市, including Beijing, Shanghai, Tianjin, and Chongqing), and special administrative regions of China (特别行政区, Hong Kong and Macao). Therefore, marine administrative organs at the provincial level refer to departments of coastal provinces, autonomous regions, and municipalities directly under the Central Government. See *The Introduction of China's Administrative Structure* (August 26, 2014), available at http://english.www.gov.cn/archive/china_abc/2014/08/27/content_281474983873401.htm (accessed on April 18, 2022); See also Parion (2017).

¹¹³⁸ The figure was made by the author. More information about the specific functions and daily operations of SOA, see *supra* section 1.3.1.2 of chapter 5.

concerning the safety issue related to marine industrial activities, which also applies to the offshore drilling sector.¹¹³⁹ The MEPL states that ‘effective measures’¹¹⁴⁰ should be taken by relevant operators ‘*in the course of offshore oil exploration, exploitation, and transportation*’¹¹⁴¹ to avoid accidents such as oil spills or blowouts.¹¹⁴²

To be specific, as indicated in table 18, regulations with regard to safety operations can be classified into three categories, depending on the different phases they are aiming at: (a) safety requirements to be qualified and enter the offshore drilling industry; (b) safety standards during industrial operations; and (c) the post reactions in case an accident occurs. The last phase can be further categorised into (c₁) measures to deal with the accident and (c₂) steps to deal with the losses arising from the accident. Section 3 presents the safety regulations of offshore drilling operators from these four aspects in sequence.

Table 18 Safety regulations of offshore drilling industry in different phases¹¹⁴³

Phase	Purpose	Section
Before operations	Select eligible companies	3.1-a
During operations	Ensure safety operations	3.2-b
After operations	Respond to the accident	3.3- c ₁ &c ₂

3.1 Before offshore oil operations

3.1.1 The threshold for entering the offshore oil industry

According to the rules under the *Offshore Foreign Regulation*, the CNOOC is a Central State-owned enterprise (Central-SOE) dominating the offshore oil industry in China since 1982. In this regard, the CNOOC is automatically granted the privileges to enter the offshore drilling industry by law, whereas such rights are not given to other oil companies. For other companies specialised in the offshore petroleum industry, they should follow the procedure below if it intends to initiate or develop an offshore oil project in China.

¹¹³⁹ See Chapter VI of the MEPL.

¹¹⁴⁰ Article 50 of the MEPL.

¹¹⁴¹ *Ibid.*

¹¹⁴² A detailed explanation of ‘effective measures’ is illustrated in Articles 51-53 of the MEPL.

¹¹⁴³ The table was made by the author.

A. Making a contract with the CNOOC

The first step for either a foreign-funded or domestic company to enter the offshore oil industry is linked with the CNOOC. As addressed in chapter 2 (section 2), considering the dominant role of the CNOOC, offshore oil companies will sign a petroleum contract with the CNOOC after winning the bidding so that they can establish a cooperative relationship with it to develop specific oil projects in China.¹¹⁴⁴ In other words, the CNOOC takes the initiative to select and determine its business partner as it makes contracts with foreign companies through public bidding. An additional yet necessary step for the CNOOC is to report the petroleum contract as well as other relevant documents concerning offshore oil projects to the Ministry of Commerce for the record. Since 2013, the validity of offshore oil contracts depends on themselves rather than the approval of the authority.¹¹⁴⁵

B. Obtaining a safety production license

The second step concerns the particular license required in the area of the offshore oil industry. For foreign-funded companies in particular, the *Foreign Investment Law of the People's Republic of China*¹¹⁴⁶ (hereinafter *Foreign Investment Law*) states that 'in the industries and fields where foreign investors need to obtain legal permits for their investment, they shall undergo the relevant licensing formalities according to the law.'¹¹⁴⁷ A more specific requirement is given in the *Offshore Safety Provision*, where it allows operators to launch an oil project only after they receive a 'safety production license.'¹¹⁴⁸

To be precise, the *Provision* requires offshore operators (i) to conduct a preliminary safety assessment of their offshore oil projects in the initial stage, usually in the

¹¹⁴⁴ Based on Article 7 of the Offshore Cooperation Regulation, as far as offshore petroleum cooperation is concerned, the CNOOC should first determine its foreign partners via bidding. Then, both parties will agree to cooperative exploitation and sign the contract. The CNOOC will submit the contracts and other necessary documents to the Ministry of Commerce of the PRC for the record.

¹¹⁴⁵ See *supra* section 2.2.2 of chapter 2.

¹¹⁴⁶ *Foreign Investment Law of the People's Republic of China* (《中华人民共和国外商投资法》) was issued on March 15, 2019 and came into force on January 1, 2020. Since then, the *Law of the People's Republic of China on Chinese-foreign Equity Joint Ventures* (《中华人民共和国中外合资经营企业法》), the *Law of the People's Republic of China on Wholly Foreign-Owned Enterprises* (《中华人民共和国外资企业法》), and the *Law of the People's Republic of China on Chinese-foreign Cooperative Joint Ventures* (《中华人民共和国中外合作经营企业法》) were repealed and merged into one piece of legislation.

¹¹⁴⁷ Article 30 of the *Foreign Investment Law*.

¹¹⁴⁸ Article 14 of the *Offshore Safety Provision*.

period of drafting the *Overall Oilfield Development Scheme*.¹¹⁴⁹ The report of this assessment should be submitted to the OOOSO or its branches for the record.¹¹⁵⁰ Moreover, (ii) the documents indicating the engineering design and safety matters should also be forwarded to the OOOSO branch that is responsible for managing safety operations. This branch will examine whether these documents are consistent with the legal requirements and, if so, offshore companies will be authorised to proceed with their projects to the next step with official approval. Accordingly, (iii) such offshore oil projects will be conducted by professional entities with relevant qualifications or certificates.¹¹⁵¹ (iv) Before an offshore oil facility is put into trial production, the competent agency will inspect the offshore project again and then issue an ‘interim certificate’ to the operator. Operators are also asked to develop specific safety measures for the trial production and then submit the plan to the OOOSO branch forty-five days before the trial production for the record.¹¹⁵² (v) During the trial production of the project, the OOOSO will evaluate whether or not the facilities and machines that will be used for the operation are in good condition based on the test.¹¹⁵³ If the outcome is positive, the operators in charge will check the project, finish the acceptance test, and write a report as an ‘official record.’¹¹⁵⁴ Finally, operators will receive a final ‘safety production license’ from the OOOSO so that they are allowed to start production.¹¹⁵⁵ The procedure for obtaining this license is illustrated in table 19. Notably, no financial guarantee in case of an incident is compulsorily required in the licensing system to prevent potential risks under this legal instrument.

Table 19 The procedure to obtain a safety production license¹¹⁵⁶

Step	Tasks	Offshore oil operators	The OOOSO and its branches
Launch an offshore project			
i	Preliminary safety assessment	Formulate a report of	Record the assessment

¹¹⁴⁹ See Article 11 of the *Offshore Safety Provision*. More information about the ‘Overall Oilfield Development Scheme’ (in Chinese: 油田总体开发方案), see the *Guide to Programming Overall Development Program for Oilfields (SY/T 10011-2006)* (《油田总体开发方案编制指南》). It is a nation-wide recommended standard jointly written by the CNOOC, Sinopec, and CNPC, and published by the National Development and Reform Commission (国家发展改革委员会) in 2006.

¹¹⁵⁰ See Article 11 of the *Offshore Safety Provision*.

¹¹⁵¹ Article 12 of the *Offshore Safety Provision*.

¹¹⁵² Article 13 of the *Offshore Safety Provision*.

¹¹⁵³ *Ibid.*

¹¹⁵⁴ Article 14 the *Offshore Safety Provision*.

¹¹⁵⁵ *Ibid.*

¹¹⁵⁶ The table was made by the author.

		the assessment	
ii	Engineering design and safety matters	Submit relevant documents	Examine the materials and allow the project to proceed;
iii	Professional entity with relevant certificates	Provide all the required qualifications	-
Start the trial production			
iv	Interim certificate Safety measures in detail	Formulate specific safety measures and submit 45 days before the trial	Issue the interim certificate, Record safety measures;
v	Safety production license after the acceptance test	Check the project, finish the acceptance test, and write a report as an official record.	Issue the safety production license
Start the production			

Source: Articles 11-14 of the *Offshore Safety Provision*

Only when the necessary steps above are followed can a company be allowed to undertake offshore oil projects in China. The only approach of an enterprise to lawfully undertake offshore oil operations in China is to seize the business opportunity through bidding and then formulate a cooperation project with the CNOOC. After finishing the trial production and passing the acceptance test, operators may obtain the safety production license issued by the authority and have access to developing offshore oil operations in China.

C. Passing the environmental impact assessment

Apart from the safety production license issued by the OOOSO and its CNOOC branch, offshore oil companies should also obtain another certificate to guarantee that their operations pass the environmental impact assessment, which is important for the SOA and its branches.

While preparing the *Overall Oilfield Development Scheme*, offshore companies should also formulate a *Marine Environmental Impact Statement* (hereinafter *MEI Statement*)¹¹⁵⁷ and submit it to the Ministry of Ecology and Environment.¹¹⁵⁸ This

¹¹⁵⁷ Based on Article 5 of the *Offshore Exploitation Regulation*, a 'Marine Environmental Impact Statement' (in Chinese: 海洋环境影响报告书) contains the following items: (1) The name, geographical location, and size of the oil field; (2) the natural environment and condition of marine resources in the sea area where the oil field is located; (3) the types, composition, quantities, and methods of disposal of the waste that need to be discharged in the course of exploiting the oil field; (4) an assessment of marine environmental impacts: the possible effects of offshore oil exploitation on the natural environment and marine resources in the surrounding sea area; their possible effects on marine fisheries, shipping, and other offshore activities; and the environmental protection measures proposed to be taken to avoid and mitigate various adverse effects; (5) the ultimately unavoidable effects

Ministry, along with the National Energy Administration (NEA)¹¹⁵⁹ and the SOA, will jointly examine this *Statement* to determine whether the project complies with the environmental requirements of a construction project.¹¹⁶⁰ Offshore operators still need to submit the *MEI Statement* to the competent departments of sea areas where they are located after it is approved.¹¹⁶¹ In this regard, offshore oil companies will have met one of the requirements concerning environmental protection so that they are one step further to be qualified for offshore drilling in China.

The *2016 Measure* reinstates the function of this *MEI Statement*, requiring operators to hire the Class-A accreditation bodies in the area of environmental evaluation¹¹⁶² to complete the *MEI Statement*; as such professional entities are capable of evaluating the environmental consequences of offshore oil operations.¹¹⁶³ This is a compulsory requirement for both fixed platforms and mobile offshore units (MOUs).¹¹⁶⁴ To be specific, after submitting the *MEI Statement* to the authority, the offshore operator has to wait for the result. If the outcome is positive and the competent authority verifies this *MEI Statement*, the offshore oil project will pass the assessment successfully; operators are allowed to initiate their projects.

In addition to the *MEI Statement*, offshore companies are also required to submit the other document named *Environmental Protection for Offshore Oil Exploitation and Exploitation Statement*¹¹⁶⁵ to the authority in advance, where it addresses the accurate

and the extent and causes thereof; and (6) measures to prevent major oil-pollution accidents, including, among others, the preventative organisation, personnel, technical equipment, and communication and liaison.’

¹¹⁵⁸ Due to a series of State Council Institutional Reform, the Ministry of Urban and Rural Construction and Environmental Protection (1982-1988) was divided into the Ministry of Construction (建设部) and State Environmental Protection Administration (国家环境保护总局) in 1988. The latter department was renamed as the Ministry of Ecology and Environment (生态环境部) in 2018.

¹¹⁵⁹ Since 1988, the National Energy Administration (国家能源局) replaced the Ministry of Petroleum Industry (石油部) and has taken charge of the petroleum industry. See *supra* section 2.2.2 of chapter 2.

¹¹⁶⁰ Article 4 of the *Offshore Exploitation Regulation*.

¹¹⁶¹ Article 6 of the *2016 Measure*.

¹¹⁶² *Regulations on the Administration of Construction Project Environmental Protection* (《建设项目环境保护管理条例》) was first issued in 1998 and revised in 2017. The Regulation is formulated to prevent construction projects from generating toxic pollutants and damaging the ecological environment (Article 1), and it should be applicable to the construction projects that impact on the marine environment within territorial sea areas of China (Article 2). Article 13 states that ‘construction units may select the accreditation body engaging in the area of environmental impact evaluation through open bidding. No administrative organs shall directly appoint an accreditation body.’ Guided by this provision, *The Measures on the Certificate of Accreditation Entities on Environmental Impact Assessment* (《建设项目环境影响评价资格证书管理办法》) issued in 1999 provides guidance on the procedure of selecting qualified accreditation bodies to undertake environmental impact assessment. Article 3 of this Measure stipulates that ‘the accreditation bodies are classified into Class-A and Class-B, depending on their specialties and capacities.’ Article 4 allows ‘accreditation bodies with a Class-A certificate to undertake environmental impact assessment required by the administrative bodies at any level, and they need to draw their conclusion by giving an assessment report. By comparison, accreditation bodies holding a Class-B certificate can only undertake the tasks required by the administrative bodies below the provincial level.’

¹¹⁶³ Article 7 of the *2016 Measure*.

¹¹⁶⁴ Article 8 of the *2016 Measure*.

¹¹⁶⁵ According to Article 4 of the *2016 Measure, Environmental Protection for Offshore Oil Exploitation and*

position and scope of all the oil projects.¹¹⁶⁶ Offshore operators also have the duty to keep reporting their oil activities to the OOOSO and its branches under specific circumstances. For instance, when operators intend to use a method that may endanger fishery resources (i.e., the use of high explosives sources), they should report this to the authority half a month earlier. More importantly, they should take technical measures to minimise the damage as much as possible while undertaking the dangerous operations.¹¹⁶⁷

3.1.2 Intervention of the authority

As indicated earlier, the *Offshore Safety Provision* sets out a handful obligations on operators and contractors to guarantee safe operations in the offshore oil operations. At the same time, the *Offshore Safety Rule* stipulates safety requirements and technical standards for various tasks in relation to offshore operations in detail. Any company that violates these rules can be subject to an administrative sanction.¹¹⁶⁸ Furthermore, it highlights the crucial role of the OOOSO and its branches in managing the safety operation. The administrative body will also be punished by law if they abuse their powers or neglect the duties, based on the rules regulating the wrongful behaviour of the officials.¹¹⁶⁹ The licensing system under the current legal instruments does not require operators to provide any financial guarantees to cope with potential risks accompanied by the offshore oil activities, meaning that it fails to touch upon the compensation issue.

In China, all the construction projects with the need to ensure the safety of facilities, including offshore oil programmes, should follow the *Interim Measures for the Supervision and Administration of Three-Concurrency for Safety Facilities in Construction Projects*¹¹⁷⁰ (hereinafter *Three-Concurrency Measures*). The term ‘three concurrency’ derives from Article 4, as the safety devices of the construction

Exploitation Statement (海洋石油勘探开发环境保护报告表) mainly provides detailed information about the oil projects that will be undertaken.

¹¹⁶⁶ Article 4 of the *2016 Measure*.

¹¹⁶⁷ Article 5 of the *2016 Measure*.

¹¹⁶⁸ Based on Articles 43-44 of the *Offshore Safety Provision*, operators that disobey safety rules may be subject to some kinds of administrative penalties, such as a warning or a fine of maximum 30,000 (approx. EUR 4,500, (the currency exchange rate of EUR/CNY is 0.15 in April 2022), which depends on the seriousness of their misconduct.

¹¹⁶⁹ Article 42 of the *Offshore Safety Provision*.

¹¹⁷⁰ *Interim Measures for the Supervision and Administration of ‘Three-Concurrency’ for Safety Facilities in Construction Projects* (《建设项目安全设施“三同时”监督管理办法》) was promulgated by the State Administration of Work Safety on December 14, 2010, and amended on April 2, 2015.

project must be ‘*designed, built, and put into production at the same time as the main project is designed, built, and put into production.*’¹¹⁷¹ That is, safety devices should be in position along with every phase of the whole operation, ensuring the operations are undertaken under safe circumstances. Moreover, the expense of safety devices should be included in the budget of the construction project and should be paid by the operator.

3.2 During offshore operations

3.2.1 Safety requirements applicable to offshore oil companies

Currently, the MEPL, together with the *Offshore Safety Provision* and *Offshore Safety Rule*, sets forth a few legal requirements for companies that participate in the offshore drilling operations.

Formulated by the SAWS, the *Offshore Safety Provision* aims to strengthen safety operations, prevent and reduce risks in the course of offshore drilling, and ensure the health and safety of platform workers and other participants.¹¹⁷² Operators¹¹⁷³ of and contractors¹¹⁷⁴ for offshore oil activities are obliged to undertake safety operations by law,¹¹⁷⁵ where it requires operators to follow all the safety rules in laws, administrative regulations, measures, as well as national standards and industry standards related to work safety.¹¹⁷⁶ Compared to the *Offshore Safety Provision*, the *Offshore Safety Rule* provides more detailed guidance. This part illustrates the obligations of operator companies during their activities in four respects, namely: (1) routine maintenance; (2) pollutant discharge; (2) emergency response plans; and (4) employee training.

¹¹⁷¹ According to Article 3 of the *Three- Concurrency Measures*, ‘*safety devices of construction projects refer to all devices, facilities, installations, fixtures, buildings, and other technical measures used by production and operation entities in production and operation activities to prevent work safety accidents.*’

¹¹⁷² Article 1 of the *Offshore Safety Provision*.

¹¹⁷³ Article 3 of the *Offshore Safety Provision* states that ‘*operators refer to the enterprises responsible for the operations of offshore oil exploration and exploitation, or the entities that are responsible for the implementation of offshore drilling as agreed in the petroleum contract.*’ This definition of operators is similar to that discussed in the previous chapter. See *supra* section 2.3.2 of chapter 2.

¹¹⁷⁴ Article 3 of the *Offshore Safety Provision* states that ‘*contractors mean the enterprises or entities that provide services for the operator.*’ This definition of subcontractors is similar to that discussed in the previous chapter. See *supra* section 2.3.2 of chapter 2.

¹¹⁷⁵ Article 3 of the *Offshore Safety Provision*.

¹¹⁷⁶ Article 5 of the *Offshore Safety Provision*.

A. Strengthening safety in daily maintenance

First of all, based on the *Offshore Safety Rule*, operators are obliged to report basic information about offshore facilities to the OOOSO and its branches for the record, such as conditions of the facilities used for production and operation.¹¹⁷⁷

Second, operators have the duty to ‘*strengthen safety supervision of contractors*’ by themselves.¹¹⁷⁸ Generally, they will make an agreement with their business partners and allocate the safety duties in the written contract. When an offshore incident occurs, the man in charge, usually the leader of an offshore project, will be comprehensively liable for all the operational activities of the particular project.¹¹⁷⁹

Last but not least, operators should also guarantee the safety of operations on their own.¹¹⁸⁰ The *Foreign Investment Law* stipulates that ‘*compulsory standards developed by the State shall equally apply to foreign-funded enterprises*’, reinstating a legal basis to require all the oil companies to obey the requirements under the *Offshore Safety Provision* while implementing operations.¹¹⁸¹ Detailed rules are given by the *Offshore Safety Rule*, where it provides technical guidance in eight respects, including the management of standby vessels (Articles 33-39), helicopter renting (Articles 40-47), electrical system (Articles 48-50), well control (Articles 51-64), sulfurated hydrogen prevention (Articles 65-69), fastenings (Articles 70-76), hazardous articles (Articles 77-82), and abandoned wells (Articles 83-86).¹¹⁸²

B. Discharging pollutants under specific standards

Unfortunately, it is inevitable that a large amount of wastewater and other pollutants are produced in the course of offshore drilling, which causes the MEPL to require operators of all types of oil rigs, facilities, and platforms to treat and discharge waste properly. To be specific, (i) pollutants should reach specific discharge standards before being poured into the sea; (ii) certain types of residual, waste oil, and toxic materials should be carefully handled instead of being dumped into the sea directly.¹¹⁸³ In other words, it is forbidden to discharge oil containing industrial

¹¹⁷⁷ Articles 5-16 of the *Offshore Safety Rule*.

¹¹⁷⁸ Article 6 of the *Offshore Safety Provision*.

¹¹⁷⁹ Article 7 of the *Offshore Safety Provision*.

¹¹⁸⁰ Articles 6 of the *Offshore Safety Provision*.

¹¹⁸¹ Articles 6-7 of the *Offshore Safety Provision*.

¹¹⁸² Articles 17-86 of the *Offshore Safety Rule*.

¹¹⁸³ Article 51 of the MEPL.

garbage into the sea due to its toxic nature, while other types of industrial waste may only be discharged into the sea under specific circumstances. The ultimate goal of these safety rules is to avoid or at least mitigate marine pollution during industrial operations.¹¹⁸⁴

C. Formulating emergency plans

Apart from pollutants generated in the routine maintenance, the MEPL also sets forth safety rules in the case of emergency, which requires both the administrative body in charge of marine pollution and offshore oil operators to formulate their contingency plans to cope with offshore accidents. On the one hand, the marine administrative body is obliged to ‘draw up a state contingency scheme to tackle major marine pollution accidents.’¹¹⁸⁵ The ‘State oceanic administrative department,’ refers to the State Oceanic Administration (SOA)¹¹⁸⁶ and its branches based on Article 3 of the *Offshore Exploitation Regulation*. They should be responsible for ‘formulating a state contingency scheme to handle major oil spill accidents on the sea area caused by offshore drilling and then report it to the administrative department in charge of environmental protection.’¹¹⁸⁷ Guided by this provision, the SOA formulated an ‘*Emergency Response Plan of the State Oceanic Administration for Oil Spills During Offshore Exploration and Development*’¹¹⁸⁸ (hereinafter *Offshore Emergency Plan*) in 2015 to provide rules on dealing with oil spill accidents.

However, any entity that intends to explore offshore oil in China is obliged to formulate an ‘oil spill contingency plan’ and submit it to the relevant administrative bodies of the local sea area for the record.¹¹⁸⁹ It is believed that a feasible emergency plan may provide professional guidance for the liable operator and the authorities in emergency response and pollution control so that the negative consequences to the economy and environment can be mitigated. Since the potential damage

¹¹⁸⁴ Articles 52-53 of the MEPL.

¹¹⁸⁵ Articles 18 and 54 of the MEPL.

¹¹⁸⁶ Article 3 of the *Offshore Exploitation Regulation* states that ‘the competent authority in charge of the environmental protection in offshore oil exploration and exploitation shall be the National State Administration of the People’s Republic of China (SOA), including its branches, which is hereinafter referred to as “the competent authority”.’

¹¹⁸⁷ Article 18 of the MEPL. It refers to the Ministry of Ecological Environment.

¹¹⁸⁸ *Emergency Response Plan of the State Oceanic Administration for Oil Spills During Offshore Exploration and Development* (《国家海洋局海洋石油勘探开发溢油应急预案》) was issued by the State Oceanic Administration (SOA) on April 3, 2015. This normative document is formulated for handling an emergency in relation to offshore oil operations, especially for oil spills during offshore oil operations.

¹¹⁸⁹ Article 54 of the MEPL and Article 9 of the *2016 Measure*.

compensation can be decreased, it favours operators as well.

The *Offshore Safety Provision* and *Offshore Safety Rule*¹¹⁹⁰ echo the MEPL by stating that operators should ‘*establish an emergency rescue organisation or sign a rescue contract with professional rescue organisations to formulate an emergency plan before launching operations.*’¹¹⁹¹ Moreover, operators are obliged to submit the report to the relevant branches of the OOOSO.¹¹⁹² In cases where an emergency related to offshore operations occurs, operators will take safety measures at that time according to the contingency plan to prevent the escalation of the incident and to reduce casualties and property loss.¹¹⁹³ Meanwhile, regional marine branches will activate the State contingency plan and retrieve the emergency plan of the specific company.

With the promulgation of the *Regulation on Emergency Responses to Work Safety Accidents* (hereinafter *Accident Emergency Regulation*) in 2019,¹¹⁹⁴ any entities that engage in ‘*production, distribution, storage, or transportation of high-risk goods in large quantities, such as flammables, explosives, and hazardous chemicals, are required to set up a 24-hour response system managed by emergency technical teams.*’¹¹⁹⁵ Accordingly, as offshore drilling is regarded as a high-risk operation by law, this *Regulation* requires all the offshore oil companies to establish emergency rescue teams of their own to ensure that their industrial activities are under control. In other words, currently, all these companies should have their own 24-hour emergency teams so that any dangers arising from the operations can be alerted and responded to immediately.¹¹⁹⁶

D. Capacity building

According to the *Offshore Safety Provision*, a significant measure to guarantee safety work is to select, train, and cultivate offshore employees into professional workers so

¹¹⁹⁰ Articles 97-103 of the *Offshore Safety Rule*.

¹¹⁹¹ Article 34 of the *Offshore Safety Provision*.

¹¹⁹² Article 34 of the *Offshore Safety Provision*.

¹¹⁹³ Article 37 of the *Offshore Safety Provision*.

¹¹⁹⁴ The *Regulation on Emergency Responses to Work Safety Accidents* (in Chinese: 《生产安全事故应急条例》) was adopted at the 33rd executive meeting of the State Council on December 5, 2018 and came into force on April 1, 2019. This Regulation was developed in accordance with the *Work Safety Law* and the *Emergency Response Law*, which aims at addressing emergency responses to work safety accidents (Article 1).

¹¹⁹⁵ Article 14 (3) of the *Accident Emergency Regulation*.

¹¹⁹⁶ See *infra* section 4 of this chapter.

that they will be capable of conducting their tasks.¹¹⁹⁷ Meanwhile, anyone who participates in the offshore oil activities should gain sufficient knowledge in respect of safety operations. In particular, some jobs are risky and unpredictable, i.e., geophysical exploration, well testing, underground operations, or other types of long-term tasks. Consequently, offshore workers that engage in high-risk positions should receive safety qualification training to master safety skills in case of potential dangers.¹¹⁹⁸ Thus, anyone that conducts such tasks must pass relevant examinations and acquire certificates.

Specifically, employer companies should provide safety courses to their employees.¹¹⁹⁹ Operating employees, platform workers, and other participants in the offshore activities are obliged to follow courses of different levels, depending on what types of tasks they will undertake and how hazardous those tasks will be. For instance, according to Article 89 of the *Offshore Safety Rule*, employees that engage in offshore operations must receive the specialised training in ‘*safety and lifesaving with respect to offshore oil exploration and exploitation*’ so that they can obtain a ‘*qualification certificate*’ after finishing the course and passing the test. To be specific, an offshore worker that engages in long-term operation is obliged to take the entire training course, and the training hours should be not less than forty periods; he has the duty to retake the course every five years. In comparison, an employee that participates in a short-term offshore operation will take the entire course in no less than twenty-four periods, and the re-training will be conducted every three years. As the worker that undertakes a temporary offshore operation, he will only take the ‘*audio-visual part of the training*’ rather than the entire course, and the training hours will be reduced to over four periods. However, he has to take the course every year.¹²⁰⁰ (See table 20)

Table 20 Training requirements for offshore workers¹²⁰¹

Offshore operation	The period of engaging in offshore operations in one year (Days:D)	Content	Training hour (Period)	Frequency of re-training
Long-term	D ≥ 15 each time (consecutive); D ≥ 30 (aggregated);	Entire course	>40	Every 5 years
Short-term	5 ≤ D < 15 each time (consecutive);		>24	Every 3

¹¹⁹⁷ Article 8 of the *Offshore Safety Provision*.

¹¹⁹⁸ Articles 7-10 of the *Offshore Safety Provision*.

¹¹⁹⁹ Articles 87-96 of the *Offshore Safety Rule*.

¹²⁰⁰ Articles 89, 116 of the *Offshore Safety Rule*.

¹²⁰¹ The table was made by the author based on Articles 89, 116 of the *Offshore Safety Rule*.

	$10 \leq D < 30$ (aggregated);			years
Temporary	$D < 5$ each time (consecutive); $D < 10$ (aggregated);	Audio-visual part of the training	> 4	Every year

3.2.2 Intervention of the authority

Article 109 of the *Safety Offshore Rule* stipulates that the OOOSO and its relevant branches should supervise and inspect the oil activities undertaken by offshore operators and regularly examine whether operators follow safety regulations during their activities. As the competent authorities, the OOOSO, its CNOOC branch, and regional supervision divisions bear the responsibility to check whether an operator has good performance regarding safety operations. The *Offshore Safety Rule* states that anyone that disobeys relevant safety rules will be punished under four circumstances: they fail to (a) report its offshore facilities to the authority; (b) register a standby vessel as required; (c) inspect professional equipment on time; or (d) accept the supervision of the OOOSO and its relevant branches.¹²⁰² If the operators do not rectify the above misconduct within the time limit and correct their activities that are in great danger, the authority may impose a warning or an administrative fine of maximum CNY 30,000;¹²⁰³ their operations may even be suspended as punishment.¹²⁰⁴

3.3 Post-accident response

Sections 3.1-3.2 of this chapter explained that offshore operators have to follow specific safety rules before and during the operations, whereas safety rules aiming at post-disaster responses are discussed in sections 3.3. Guided by the *Offshore Exploitation Regulation*, if an offshore incident, such as an oil spill or blowout, occurs during operations, the liable operator should ‘take prompt measures to enclose and recover the oil to control, mitigate and eliminate the pollution.’¹²⁰⁵ In other words, operators have two fundamental obligations immediately after the accident: (i) to mitigate the damage without delay; and, in the meanwhile, (ii) to report the accident to the competent authority.

¹²⁰² Article 113 of the *Offshore Safety Rule*.

¹²⁰³ CNY 30,000 = approx. EUR 4,500 (The currency exchange rate of EUR/CNY is 0.15 in April 2022).

¹²⁰⁴ Article 114 of the *Offshore Safety Rule*.

¹²⁰⁵ Article 16 of the *Offshore Exploitation Regulation*.

3.3.1 The duty to report based on the classification system

One difficulty with measuring performance is that most measures are self-reported.¹²⁰⁶ Operators have a duty to report, investigate, and tackle the offshore incident when it occurs.¹²⁰⁷ The accident reporting system (ARS) merits much attention in this case, because it directly determines what duties are imposed upon operators after the accident. Interestingly, the ARS in China is built upon the accident classification, which is widely applied in the area of marine oil spills, safety production accidents, and environmental emergencies. Briefly speaking, the more severe damage an accident causes, the more urgently it should be reported to the competent authority, and the more requirements that are imposed upon the liable operator to handle the accident. The following parts will examine and compare three types of accident classifications in handling different forms of incidents; these categories can be applied in the case of offshore oil accidents.

A. Classification of marine oil spills under the 2016 Measure

Based on the *Offshore Exploitation Regulation*, if the incident caused by offshore drilling leads to a ‘major’ accident, the liable operator needs to ‘report the incident to the competent authority.’¹²⁰⁸ Such an accident can be ‘an oil spill, oil leakage, or blowout.’ The competent authority will be in charge of the case, receiving the report, and investigating the accident. To determine whether it is a ‘major’ accident or not, and what are the obligations of the liable operator, we should resort to the *2016 Measure*, which illustrates the classification of oil spill incidents and the corresponding reporting system.

According to Article 19 of the *2016 Measure*, a distinction of oil spill accidents is made among small, medium, and large accidents.¹²⁰⁹ An accident with oil spillage below 10 tonnes is a small-scale accident; an accident with the oil spillage of 10 to 100 tonnes is a medium one; and an accident with oil spillage of more than 100 tonnes is considered large.¹²¹⁰ Accordingly, the amount of oil spilled and the location of the

¹²⁰⁶ Cohen 2000.

¹²⁰⁷ Articles 104-115 of the *Offshore Safety Rule*.

¹²⁰⁸ Article 16 of the *Offshore Exploitation Regulation*.

¹²⁰⁹ *Measures for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (《中华人民共和国海洋石油勘探开发环境保护管理条例实施办法》) (*2016 Measure*) was issued in October 2016. See *supra* section 2.5.1 of chapter 2.

¹²¹⁰ Article 32 (4) of the *2016 Measure*.

offshore platform are the most two fundamental factors in determining how liable operators should report the accident to the competent department.¹²¹¹ Specifically, the operator should report the incident to the authority, which is the SOA and its branches empowered by the *2016 Measure*, within no more than 24 hours (i) if the platform is less than 20 sea miles away from the coast, and the amount of oil spill is over 1 ton; or, (ii) if the platform is over 20 sea miles away from the coast, but the amount of oil spilled is over 10 tonnes. Otherwise, the liable operator is obliged to report the incident within 48 hours.¹²¹² As indicated in table 21, this reporting system implies that the duties taken by operators are directly linked to the amount of oil spilled, as this suggests the extent of damages after the accident.

Table 21 The reporting system of oil spill accidents in China¹²¹³

Oil spill accident	Amount of oil spillage (tonne)		Location of the accident from the coast (sea mile)	Report the accident to the SOA and its branches	
				<24 hours	< 48 hours
Small	<10	<1	-		√
		>1	<20	√	
		<10	>20		√
Medium	10-100		-	√	
Large	>100		-	√	

B. Classification of the safety of a production accident under the *RID Regulation*

As shown in table 22, the classification of the safety of production accidents is provided for in the *Regulations on the Reporting, Investigation and Disposition of Work Safety Accidents*¹²¹⁴ (hereinafter *RID Regulation*), where an accident originating from production is graded into four classes, depending upon the casualties and direct economic losses generated from it.

Table 22 Classification of safety of a production accident¹²¹⁵

¹²¹¹ Article 19 of the *2016 Measure*.

¹²¹² Under two circumstances, the liable party should report the accident within 48 hours: the first is when the platform is less than 20 sea miles away from the coast, and the oil spill is less than 1 tonne; the second is when the platform is over 20 sea miles away from the coast, and the amount of oil spill is less than 10 tonnes. See Article 19 of the *2016 Measure*.

¹²¹³ The table was made by the author based on Articles 19, 32 (4) of the *2016 Measure*. See also *infra* figure 13.

¹²¹⁴ *Regulations on the Reporting, Investigation and Disposition of Work Safety Accidents* (《生产安全事故报告和调查处理条例》) was issued in March 2007 and came into force on April 9, 2007. According to the *Law on Safe Production of the People's Republic of China* (《中华人民共和国安全生产法》), the Regulation aims to implement the system concerning safety production accidents (Article 1).

¹²¹⁵ The table was made by the author.

Criterion Category	Casualty (death D; serious Injury: I)	Direct economic loss (E) (CNY, million)
Extremely serious (tebie zhongda)	D ≥ 30 I ≥ 100	E ≥ 100
Serious (zhongda)	10 ≤ D < 30 50 ≤ I < 100	50 ≤ E < 100
Significant (jiaoda)	3 ≤ D < 10 10 ≤ I < 50	10 ≤ E < 50
Ordinary (yiban)	D < 3 I < 10	E < 10

Source: *RID Regulation*¹²¹⁶

However, since Article 2 of the *RID Regulation* specifies that this classification should exclude ‘environmental pollution accidents,’ it may only apply to the accidents that occur during normal safe production. In other words, an offshore oil accident will not apply the above classification unless the consequence is only restricted to personal injury and direct economic loss, which is usually not the case in practice.

C. Classification of environmental emergency under the *Environmental Emergency Measure*

Considering the distinctive feature of environmental issues, legislators issued a particular administrative measure concerning the classification of an environmental emergency: *Measure for Information Reporting of Environmental Emergencies*¹²¹⁷ (hereinafter *Environmental Emergency Measure*). Even if this classification also divides the accident into four levels, it is apparent that the criteria for an environmental emergency in table 23 are more specific than the other one concerning safety in production accidents shown in table 22. The differences are shown with the added highlighting in these two tables.

Table 23 Classification of an environmental emergency¹²¹⁸

¹²¹⁶ Based on Article 3 of the *RID Regulation*, the four categories are extremely serious (tebie zhongda, 特别重大), serious (zhongda, 重大), significant (jiaoda, 较大) and ordinary (yiban, 一般) accidents. However, the classification under the *RID Regulation* is not fixed, as the Administration of Work Safety of the State Council (SAWS) may make supplementary rules on grading the accidents in conjunction with the relevant authorities of the State Council.

¹²¹⁷ *The Measures for Information Reporting of Environmental Emergencies* (《突发环境事件信息报告办法》) was issued on March 24, 2011 and came into force on May 1, 2011. Based on the *Emergency Response Law of the People's Republic of China* (《中华人民共和国突发事件应对法》), this Measure aims to regulate the reporting system for environmental emergencies.

¹²¹⁸ The table was made by the author based on the Appendix of the *Environmental Emergency Measure*.

Criterion Category	Casualty (death D; serious injury due to intoxication I')	Direct economy c loss (E) (CNY, million)	The number of people evacuated/ transferred (P)	Environmental consequences	The affected area due to potable water supply interruption	Contami nated area
Extremel y serious	$D \geq 10$ $I' \geq 100$	$E \geq 100$	$P \geq 50,000$	Loss of regional ecological functions, extinction of endangered species	Municipality or sub-prefecture level	Cross national boundari es
Serious	$3 \leq D < 10$ $50 \leq I' < 100$	$20 \leq E < 100$	$10,000 \leq P < 50,000$	Partial loss of regional ecological functions; death of many endangered species; accidents of toxic pollutants in sensitive areas ¹²¹⁹	County level	Crossing boundari es of provinc es
Significan t	$3 \leq D < 10$ $10 \leq I' < 50$	$5 \leq E < 20$	$5,000 \leq P < 10,000$	Damage to endangered species	Town or village level	Crossing boundari es of prefectur es
Ordinary	Refers to the rest of the environmental emergencies except for the above three categories.					

Consequently, whether an offshore oil accident is accompanied by environmental consequences makes little difference when grading the accident, because the classification systems of the safety of production accidents (in table 22) and environmental emergencies (in table 23) both divide the accident into four categories: (i) extremely serious, (ii) serious, (iii) significant, and (iv) ordinary. The criteria in both classifications are fundamentally similar, but with some slight differences. By illustration, an accident with thirty casualties will be regarded as ‘extremely serious’ under both classification systems. However, an offshore oil accident associated with eleven casualties is a ‘serious’ one in the first scenario (*as 11 casualties belong to $10 \leq D < 30$, meaning ‘serious’ accidents*). By contrast, the same accident will be seen as ‘extremely serious’ in the second scenario (*as 11 casualties fall into the scope of $D \geq 10$, referring to ‘extremely serious’*). Moreover, some factors, like the number of people evacuated, the environmental consequences, and the size of contaminated areas, are also significant criteria to determine how serious an accident is. Accordingly, the classification of safety operations illustrated in table 22 is much

¹²¹⁹ The sensitive areas include a vital State river basin, the nation reserves, national nature reserve, famous scenic sites or residential area, hospital, school.

looser than that of environmental emergencies in table 23, meaning offshore operators have to follow stricter requirements and have greater responsibilities under the latter circumstance.

3.3.2 Intervention of the authority

A. Accident reporting

Before going further, when tackling specific issues in an offshore oil accident accompanied by marine ecological damage, it seems difficult for offshore operators to figure out which authority is competent. Is it the State Oceanic Administration (SOA) and its branches¹²²⁰ dealing with marine pollution or the Offshore Oil Operation Safety Office of the State Administration of Work Safety (OOOSO) and its CNOOC branch in charge of safe operations? In order to answer this question, a distinction should be made between these two administrative bodies as far as an offshore oil accident is concerned.

Apart from the reporting system illustrated in table 21, based on the *Offshore Safety Provision*, offshore operators are obliged to report the emergency to the OOOSO or its CNOOC branch so that the authority can send experts and officers to the scene of the accident immediately, as the accident would be considered a ‘serious’ one.¹²²¹ Article 104 of the *Offshore Safety Rule* adds that operators should report the accident to the regional supervision division of the OOOSO branch, under eleven specific circumstances,¹²²² where it lists at least seven consequences that are frequently accompanied by an offshore oil accident, namely: (i) out-of-control well blowout; (ii) fire or explosion; (iii) platform-related danger; (iv) damages to oil production facilities and pipelines; (v) the leakage toxic pollutants; (vi) large-scale oil spill accidents (over 100 tonnes of oil spillage); (vii) other cases associated with direct economic losses or even casualties. To put it simply, as long as an accident occurs in the course of offshore drilling, operators should report the accident to the OOOSO division immediately, because an offshore-related accident is likely to trigger one or

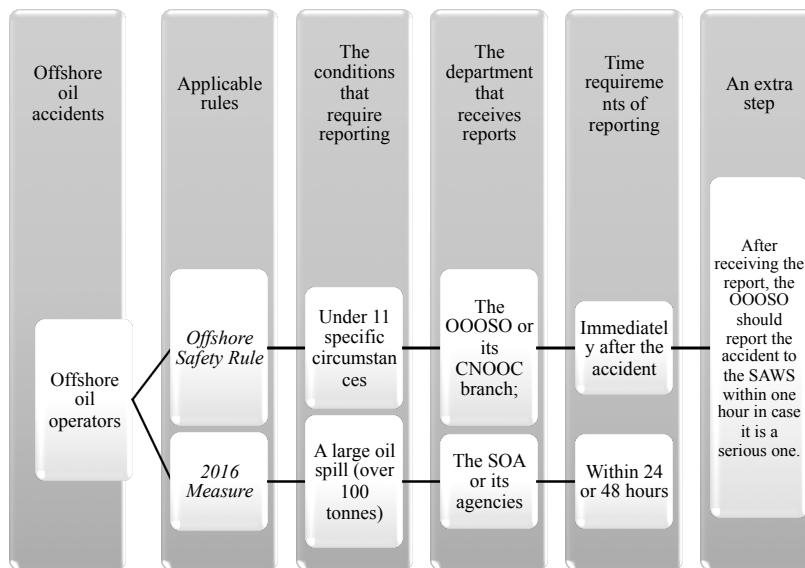
¹²²⁰ Article 4 of the *2014 Measure*; Article 3 of the *2016 Measure*. The dispatched branch is introduced in section 1.3.1.2 of chapter 5.

¹²²¹ Articles 38, 39 of the *Offshore Safety Provision*. The definition of a ‘serious’ accident is also explained in tables 21 and 22.

¹²²² These eleven circumstances are (1) out-of-control well blowout; (2) fire or explosion; (3) platform-related danger; (4) aircraft accidents; (5) damages to a vessel; (6) damages to oil production facilities and pipelines; (7) the leakage toxic pollutants; (8) acute intoxication; (9) diving accidents; (10) large-scale oil spill accidents (over 100 tonnes of oil spillage); and (11) other accidents causing casualties or direct economic losses.

several consequences regulated under the *Offshore Safety Rule*. The regional supervision division of the OOOSO should simultaneously report the case to its superior, the relevant branch of the OOOSO. Moreover, the OOOSO branch should report the case to the higher authority, State Administration of Work Safety (SAWS), within one hour if it is a ‘serious’ one.¹²²³ An additional duty is imposed upon the division in the case of a large-scale oil spill (over 100 tonnes based on the *2016 Measure*), where the division should also report the case to the competent departments in relation to marine pollution.¹²²⁴ This provision also implies that, although the OOOSO and SOA are subject to diverse sectors with different duties, they should cooperate to tackle the accident in practice. Notably, the time requirements of reporting are different, as operators are required to report an oil spill accident to the SOA and its branches within 24 or 48 hours, depending upon the amount of oil spilled and the location of the accident. The duties of offshore oil operators to report in case of accidents are shown in figure 13.

Figure 13 Offshore oil operators’ duty to report an accident¹²²⁵



By way of illustration, if an oil platform A₁, located near the coastline of Qingdao, spills an amount of 180 tonnes of crude oil into the sea after a blowout, the Qingdao

¹²²³ Article 105 of the *Offshore Safety Rule*.

¹²²⁴ Article 104 of the *Offshore Safety Rule*. This provision regulates extra duties of reporting under three special circumstances. The other two cases are in the case of an aircraft accident, or a vessel-induced accident.

¹²²⁵ The figure was made by the author based on Articles 38, 39 of the *Offshore Safety Provision*, Articles 19, 32 (4) of the *2016 Measure*. See also *supra* table 21.

Regional Supervision Division should report the accident to its superiors, which are the CNNOC branch of the OOOSO and the Bohai & Yellow Sea Branch of the SOA in charge of marine pollution in this area.¹²²⁶ If the accident is likely to cause a direct economic loss beyond CNY 20 million (which is categorised as a ‘serious’ incident based on tables 22 and 23), the OOOSO branch is obliged to report the case to its superior - the SAWS - within one hour after it receives the message. The OOOSO (and its branches) and the SOA (and its dispatched branches) should not only take charge of their affairs, they should also coordinate with each other such as sharing updated messages, offering accessibility, and enhancing information exchange if necessary.

However, all these detailed rules have a major problem: how can the operator or the authority foresee the causalities, direct economic losses, or environmental consequences right after the occurrence of the accident? If impossible, what is the method of the OOOSO and its branch at the CNOOC to estimate the seriousness of the accident at an early stage? It may be reasonable and feasible for operators and authorities to distinguish whether there is an aircraft accident or an oil spill at issue but evaluating and classifying the accident as it happens is an impossible mission. The latter could only be possibly known based on a technical investigation or assessment. For instance, how can they estimate whether the oil spilled from the platform is over 100 tonnes or just below 99 tonnes? How can they ensure that the accident will evacuate over 10,000 people before the evacuation happens? How can they know for sure it will cause over CNY 20 million direct economic losses in such a short time? The provisions mentioned above do not solve these questions.

According to the *Offshore Safety Provision*, if an offshore oil accident is qualified as ‘serious,’ the competent authorities in charge of safety are empowered to undertake five tasks: (a) report the accident to their superiors; (b) immediately go to the scene of the accident after receiving the report; (c) organise rescue work; (d) launch an accident investigation;¹²²⁷ and (e) receive the annual statistics report of the accident from the liable operators.¹²²⁸ However, this provision seems to be an ideal model

¹²²⁶ Article 3 of the *2016 Measure* mentions that the SOA and its local offices (including dispatched branches) are the competent departments in charge of marine pollution. For more information on the institutional setting in charge of marine issues, see *supra* section 1.3.1.2 of chapter 5.

¹²²⁷ Articles 37-41 of the *Offshore Safety Provision*.

¹²²⁸ Article 41 of the *Offshore Safety Provision* states that ‘the operator shall collect statistics of accidents and formulate a system to carry out relevant analysis regularly. The annual report of accident statistics shall be submitted to relevant departments.’

solution instead of a practical instruction, simply because the prerequisite that an accident can be categorised as ‘serious’ immediately after the occurrence of an accident is unrealistic.

B. Accident investigation

The accident reporting procedure is closely followed by an investigation. Article 106 of the *Offshore Safety Rule* sets forth rules on investigating the offshore oil accident, which is listed in table 24. The competent authority at certain levels will appoint the liable operators or require them to organise a special accident investigation team on their own. The procuratorates will be invited to join the investigation if the accident is regarded as a ‘significant’ or ‘serious’ one. In particular, an ‘extremely serious’ accident will be handled by the State Council considering its disastrous consequences; relevant departments will separately take charge of tackling offshore accidents concerning aircraft, vessels, or large oil spills. The team will give a final report based on their findings. The decision in the report will be replied to and sent to the liable operator after the competent authority has checked it. The operator company should accordingly punish liable persons and correct their behaviour based upon the final report.¹²²⁹

Another doubt that may arise is which classification of the accident reporting system (ARS) in tables 21-23 should be linked with the classification of the accident investigation in table 24. In practice, since the latter two classifications of ARS both categorise an accident into ‘extremely serious,’ ‘serious,’ ‘significant,’ and ‘ordinary,’ it would be practical to classify an accident into the category of investigation corresponding to its classification given by the ARS. That is, if an accident is regarded as ‘serious’ according to the classification of ARS (in table 22 or 23), this accident should also be seen as ‘serious’ in the context of accident investigation. Therefore, an investigation can easily follow relevant procedures in table 24.

The classification illustrated in table 21 is a little different, as an oil spill is treated separately when conducting an investigation. Table 24 shows that an oil spill should be investigated separately by the department of environmental protection and marine pollution as long as it is a ‘major’ one. However, it is unclear how to arrange the investigation if an oil spill is classified as medium or small.

¹²²⁹ Article 108 of the *Offshore Safety Rule*.

Table 24 The arrangement of an investigation concerning offshore accidents¹²³⁰

Category		Accident investigation team		Investigation report	
		Leadership	Participants	Approval	Reply
Ordinary	No casualties	The OOOSO branch authorises the operator to organise the team	Offshore employee, trade union member	OOOSO	OOOSO branch
	With casualties	The OOOSO branch	OOOSO branch officer, trade union member, procuratorial personnel		
significant				OOOSO branch officer, procuratorial personnel	SAWS
Serious		The SAWS	SAW officer, procuratorial personnel		
Extremely serious		Governed by the relevant provisions of the State Council			
Particular case	Aircraft crash	Department of civil aviation			
	Vessel-induced accident	Department of maritime affairs			
	Large-scale oil spill	Department of environmental protection and marine pollution			

The next move following the accident response - classification, reporting, and investigation - would be compensation and recovery issues originating from the accident. Given that the above legal instruments concentrate on safety operations related to accident prevention, seemingly, these preventive and remedial measures seldom contribute to damage compensation.

4. Internal compliance mechanisms of Chinese offshore oil companies

This section gives an overview of what Chinese offshore oil companies (the CNOOC and its operator partners) do to prevent accidents, as they set up internal compliance mechanisms. Considering that it is a formal compliance strategy, the companies may obey or disobey the safety rules in practice. Based on safety statistics in the offshore drilling industry, section 5 will, further examine and evaluate Chinese companies' safety compliance in daily operations.

As a State-owned enterprise that dominates the offshore oil industry and participates in nearly every offshore oil project in China, the CNOOC merits much attention when examining all these legal issues, as its performance on the particular issues largely

¹²³⁰ The table was made by the author based on Articles 106, 107 of the *Offshore Safety Rule*.

reflects the situations in the Chinese offshore oil industry. Moreover, the limited data available on the records of this sector are mainly about the CNOOC and its subsidiaries, whereas is not easy for the public to collect information about other offshore operators and oilfield service providers.

Given this background in China, this part uses the CNOOC as a typical example to examine how an offshore oil company maintains compliance with regulatory requirements in terms of safe operations. In 2018, the CNOOC established a mechanism called ‘CNOOC HSE Management System’¹²³¹ (hereinafter as CHSEMS) as their internal standards of safe operations,¹²³² which is *de facto* built upon an international standard: HSE (Health, Safety, and Environment) mechanism.¹²³³ As the leading company in China, it is noted that the CNOOC chooses to emulate the international standards of safe operations instead of directly adopting the domestic safe regulations. Probably one of the reasons for this is that the CNOOC has cooperative relationships with foreign oil companies and engages intensively in overseas business. The idea is that adopting similar global standards for safe operations and environmental protection would facilitate the promotion of those worldwide joint projects.¹²³⁴ It is also because the principles of safe operations in the global HSE discipline are similar to those under the Chinese legal regime. Given that some standards in the CHSEMS are even higher than the safety regulations in China, the CNOOC claims that the adoption of the HSE standard is in line with its pursuit of ‘*achieving the world-class level of safety and environmental protection.*’¹²³⁵ The CHSEMS mechanism was first put on trial in some selected subsidiaries in 2018 and has played a significant role in managing safe operations since then.¹²³⁶

Work safety is one of the three most significant disciplines highlighted in the CSHEMS, as the CNOOC considers ‘safety’ to be an essential part of daily

¹²³¹ In 2018, the CNOOC developed a ‘*Health, Safety, and Environment Management System of the CNOOC*’ (CHSEMS, 《中国海洋石油 HSE (健康、安全、环保) 体系框架》), which originated from a safety system in the US and is currently applied worldwide. Oil companies use HSE policies for all levels of operations and in all sectors. Health, safety, and environment are separate issues, they are all combined with for offshore oil operations, among which ‘safety’ focuses on protecting employees and assets from the potential risks caused by activities. The explanation of CHSEMS is available at <https://cnocointernational.com/sustainability/safety> (accessed on April 18, 2022).

¹²³² See CNOOC 2019b.

¹²³³ The HSE discipline of the CNOOC is available at <https://www.cnocold.com/col/col5151/index.html> (accessed on April 18, 2022).

¹²³⁴ Niu (2020), 81-82.

¹²³⁵ The CNOOC develops the HSE discipline and aims at ‘achieving world-class safety management.’ See CNOOC (2019b), 3-4.

¹²³⁶ CNOOC (2019b), 29-30.

operations.¹²³⁷ It means that all the contractors and employees should make every effort to ensure that offshore oil operations are in safe hands, thereby not triggering any risks or damage. According to the CNOOC, the ‘S’ letter (safety) in the CHSEMS touches upon six aspects: (a) safety awareness; (b) continuous practice at work; (c) hazard identification *ex ante*; (d) risk mitigation (especially for non-routine tasks); (e) a reward mechanism for good safety performance; and (f) continuous safety training.¹²³⁸ Accordingly, the following paragraphs divide internal rules into two categories: (i) safety requirements preventing occupational risks of offshore workers; and (ii) safety measures preventing marine pollution, which are addressed respectively in sections 4.1 and 4.2.

4.1 Internal rules for preventing occupational risks

4.1.1 Occupational safety of offshore employees

HSE standards are adopted in the field of occupational safety and health.¹²³⁹ A report on 2016 to 2018 indicated that the CNOOC adhered to the HSE standards, the performance of which is shown as follows.¹²⁴⁰ Based on the data in table 25, although the CNOOC claimed that it had a remarkable performance of safe production after promoting the CHSEMS system in 2018, *de facto* there was not a significant difference in the data of accidents in the last three years, while some rates related to incidents in 2018 were even higher than those in 2016 or 2017. Considering 2018 was the first year of initiating the CHSEMS, perhaps it would take more time to conclude whether the HSE standards would improve the safety and health of employees.

Table 25 The incident records of employees in the CNOOC from 2016 to 2018¹²⁴¹

¹²³⁷ Wang (2016b), 12-13.

¹²³⁸ The explanation of CHSEMS is available at <https://cnoocinternational.com/sustainability/safety> (accessed on April 18, 2022).

¹²³⁹ *Ibid.*

¹²⁴⁰ CNOOC (2019b), 35.

¹²⁴¹ See CNOOC (2019b), the 2018 CNOOC Limited Environmental, Social and Governance Report.

	Scope	Total Work Hours (200 thousand man- hours)	Number of Recordable Incidents	Rate of Recordable Incidents	Cases of Lost Work Days	Rate of Lost Work Days	Casualties
2018	Employees	202	16	0.08	10	0.05	1
	Employees and Direct Contractors	557	44	0.08	22	0.04	2
2017	Employees	205	12	0.06	6	0.03	0
	Employees and Direct Contractors	545	48	0.09	17	0.03	1
2016	Employees	200	12	0.06	6	0.03	3
	Employees and Direct Contractors	560	68	0.12	25	0.04	5

In practice, however, offshore oil companies and workers may not strictly obey the safety standards. In the course of safety inspections, the authority often finds that some old equipment is not repaired or replaced in time.¹²⁴² Quite a few offshore oil projects and their safety devices are not designed, built, or put into production simultaneously, meaning the facilities have already been in operation, yet no sufficient protection is provided. Given that oil-production cannot be paused randomly, especially for some dangerous oilfields and complicated equipment used for extraction can be damaged when production stops, operators will be unable to simply suspend the operation and restart it once the problems are fixed.¹²⁴³ Therefore, the people in charge of safety are likely to solve workplace problems while offshore oil facilities are still in operation, which increases unnecessary risks.¹²⁴⁴

Against this background, the CNOOC pays more attention to maintaining operational integrity. It focuses on checking the conditions of the equipment subject to high risks, such as aged equipment, sub-sea installations, electrical devices, and drilling machines. To be specific, it updates the Automatic Identification System (AIS), expands the coverage of the radar system, improves the surveillance system on the site, and increases the frequency of regular supervision.¹²⁴⁵ The safety mechanism has been promoted for overseas business as well, ensuring that no major accidents, environmental pollution, or safety hazards occurred in all its subsidiaries.¹²⁴⁶ Recently, the CNOOC has begun to invite independent third parties to conduct

¹²⁴² Li (2020), 197-198.

¹²⁴³ Ma *et al.* (2019), 1904-1910.

¹²⁴⁴ CNOOC 2020b, 2021b.

¹²⁴⁵ For more information about the methods of CNOOC to maintain operational integrity, see 'Committed to process safety', available at <https://cnoocinternational.com/en/related-content/safety/process-safety> (accessed on April 18, 2022).

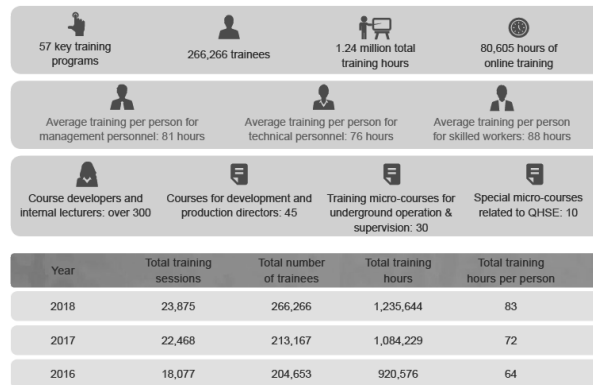
¹²⁴⁶ CNOOC (2019b), 34. The report addressed that the CNOOC International improved a safety management system overseas in these years, such as evaluating the threats in high-risk areas, monitoring the situations on the site, reexamining the security programs, and organising safety training sessions. These subsidiaries are located in Iraq, Mexico, and Indonesia.

workplace investigations on its subsidiaries for safety inspections.¹²⁴⁷

4.1.2 Capacity building for safe production

Capacity building is another focus under the *Offshore Safety Rule*, which is also a crucial aspect of the CHSEMS.¹²⁴⁸ On the one hand, the CNOOC develops an online learning platform called ‘Haixue’ (ocean learnig) in addition to traditional courses, the records of which are shown in figure 14.¹²⁴⁹ From 2016 to 2018, the number of trainees and their training hours kept increasing. Up to 2018, the online platform consisted of 57 key training programmes with a variety of courses. In the two-year period (2016-2018), 266,266 trainees were in the programmes, and their training time reached 1.24 million hours. It is expected to promote training programmes via online and mobile platforms in a more accessible way, thereby enabling employees to update their knowledge of safe production, while dramatically reducing training costs. The impact of the digital transformation on training is evident: it reaches more learners and makes it easier for them to be trained without being restricted to places or times. Instead of spending extra time taking courses in class, people can finish courses and take exams at their convenience, offering them opportunities to put into practice what they learned from the books while they are in the workplace.

Figure 14 The training performance of the CNOOC from 2016-2018¹²⁵⁰



In 2018, CNOOC employed 4,585 senior workers and 963 (senior) technicians,

¹²⁴⁷ In 2019, the CNOOC invited the DNV GL (which is an international accredited registrar and classification society headquartered in Norway) to conduct an investigation in its three subsidiaries in Tianjin, Zhanjiang, and Shanghai, available at <https://cnoocinternational.com/en/related-content/safety/process-safety> (accessed on April 18, 2022).

¹²⁴⁸ See *supra* section 3.2.1.D of this chapter.

¹²⁴⁹ ‘Haixue’ (in Chinese: 海学) means to learn the ocean and from the ocean. See CNOOC (2019b), 61.

¹²⁵⁰ See CNOOC (2019b), 61.

accounting for 76.16 percent and 16 percent of all skilled workers respectively.¹²⁵¹ Figure 14 illustrates that there are also specific courses particularly designed for them, such as underground operations. The CNOOC pays close attention to spotting and cultivating skilled workers in a variety of ways, which is also in line with national policies.¹²⁵² Furthermore, it offers job rotation for highly skilled employees (i.e. engineers and technicians) in its subsidiaries located in different regions or even countries. There is also cooperation between the CNOOC and domestic institutions and universities abroad in the safe production field.¹²⁵³ It is expected that such methods could bring a valuable contribution to a group of advanced technicians with good safety awareness which would benefit the company.

Although the strategy of capacity building is in line with the *Offshore Safety Rule*, there are many problems when applying it in practice. First of all, some training courses, focusing on a theoretical analysis of safe operations, are loosely related to actual activities. Neither traditional lectures in the classroom nor online learning systems offer field practice, which is precisely the most critical part of safety training.¹²⁵⁴

The second issue is about the management of workers on duty. Generally, the number of people who work on an oil rig or platform is around 100-120 (i.e. the maximum number of platform workers on one rig in the Bohai area is 120). They all have various kinds of tasks, are from different backgrounds, and their safety awareness and knowledge on safe operations varies among each other. It is reported that quite a few workers are even interns who lack experience.¹²⁵⁵ Some people suggest that an online system concerning safety operations would contribute to preventing occupational risks, as it offers not only general safety instructions for everyone but also technical knowledge aiming at different groups of workers. It also provides tests to evaluate the performance of learners after they finish all the compulsory and voluntary courses. However, since such an online system lacks real-time interactions or field practice, it may be more suitable for picking up general safety knowledge instead of learning

¹²⁵¹ CNOOC (2019b), 58-59.

¹²⁵² It mainly refers to the strategy of developing more core talents in the *Thirteenth Five-Year Plan*. The Five-Year Plans (in Chinese: 五年计划) are a series of social and economic development initiatives issued since 1953 in the People's Republic of China. The Thirteenth Five-Year Plan, which covers the period from 2016–2020, sets ambitious targets for technological development to date. Innovation takes first place in the Plan and takes up a whopping thirty-eight pages. The full text in English is available at https://en.ndrc.gov.cn/policyrelease_8233/201612/P020191101482242850325.pdf (accessed on April 18, 2022).

¹²⁵³ CNOOC (2019b), 62.

¹²⁵⁴ Qian (2007), 1-5.

¹²⁵⁵ Ru 2019.

professional skills.

The third issue concerns offshore workers that *de facto* pay more attention to their specific tasks than general safety rules, because it is more productive for them to improve their professional skills compared to safety rules. Furthermore, even though there are evaluation tests on safety, it is not easy to quantify workers' behaviours on this issue or attract their interests for the safety programs. Therefore, although incentive mechanisms are promoted by the companies, such as reward systems, safety culture programmes, and safety skill contests, many offshore employees are reluctant to participate in the programmes linked to learning about safety.¹²⁵⁶ Even if every person who works offshore should behave properly according to safety requirements, quite a few employees are not aware of their responsibilities while on duty, as they consider safety matters are only relevant for the safety groups. In their opinion, it is the leadership that takes responsibility for supervising safety operations, while they have nothing to do with this.¹²⁵⁷

4.2 Internal rules for preventing marine pollution

The CHSEMS echoes the safety requirements of offshore oil companies during operations under the *Offshore Safety Rule* and the *Three-Concurrency Measures*,¹²⁵⁸ where companies should '*strengthen safety supervision and management over workers and contractors*' in daily operations. It is expected that safety inspection will become part of offshore oil production, with a focus on the high-risks, such as underwater drilling or well control in case of blowouts. Regular checking for safety issues is vital to minimise the technical errors in machines and enhance the awareness of workers, ensuring both the employees and the apparatus are ready for work.¹²⁵⁹

4.2.1 Emergency response system

Given that one of the legal obligations of offshore oil companies is to set up

¹²⁵⁶ Chen & Wang 2019.

¹²⁵⁷ Ru (2019) 27-28; Zhang (2018), 78.

¹²⁵⁸ See *supra* section 3.2.1 of this chapter.

¹²⁵⁹ Guided by the CHSEMS policy, the CNOOC develops specific methods to conduct safety inspections, which involve eleven key aspects. In 2019, it organised a joint inspection on thirteen land terminals and two special booster stations, initiated regular inspections aimed at helicopters, and checked the qualifications of nine contractors that provide diving services. The safety inspection conducted by the CNOOC covers a broad spectrum of activities related to offshore drilling. All these requirements are developed from the *Offshore Safety Rule*. See CNOOC 2020b, 2021b.

emergency plans,¹²⁶⁰ the CNOOC developed an Incident Management System as its emergency response mechanism.¹²⁶¹ It does not directly use relevant safety rules under the *Offshore Safety Rule* but it borrows the idea from two standardised approaches applied worldwide: the Process Safety Management System (hereinafter as PSMS)¹²⁶² and the Incident Command System (hereinafter as ICS), which are explained in this part.¹²⁶³

Since producing energy offshore is a type of continuous industrial activity, the CNOOC designed a 24/7 responsibility system to be prepared at all times in case of any danger.¹²⁶⁴ Since 2019, it set up an emergency centre to make sure safety personnel are always on standby, which echoes the legal requirement under the *Accident Emergency Regulation*.¹²⁶⁵ The CNOOC also addresses the duty to report an accident to the competent authority in time, which complies with the accident reporting system under the *Offshore Safety Provision* and *Offshore Safety Rule*.¹²⁶⁶

The Process Safety Management System (PSMS) is an approach to take care of process safety incidents, which refers to the unexpected release of hazardous material or energy that can harm people, assets, or the environment. The CNOOC intends to reduce the likelihood and severity of such incidents using this system. Theoretically, PSMS can discover, identify, and tackle the potential risks hidden in the operations using a handful of methods, such as scenario simulation, regular safety drill, hazard analysis, and risk assessment, thereby allowing offshore workers to maintain safe operations. By illustration, the idea inspired by international practice is a multi-scenario simulation of accident responses, which aims to simulate or recreate a variety of incidents with negative consequences and then consider how to prevent or

¹²⁶⁰ See *supra* section 3.2.1.C of this chapter.

¹²⁶¹ The full title is CNOOC Incident Management System (in Chinese: 中国海洋石油应急管理系统), which was promoted by the CNOOC in 2018 as well.

¹²⁶² Process Safety Management System (PSMS) is a regulation initially promulgated by the US Occupational Safety and Health Administration (OSHA) and currently applicable to many other countries. Generally speaking, PSMS refers to a set of interrelated approaches to managing hazards associated with the process industries and is intended to reduce the frequency and severity of incidents resulting from releases of chemicals and other energy sources (US OSHA 1999). These standards are composed of organisational and operational procedures, design guidance, audit programs, and a host of other methods. For more information on PSM, see the United States Department of Labour, available at <https://www.osha.gov/SLTC/processsafetymanagement/> (accessed on April 18, 2022).

¹²⁶³ The Incident Command System (ICS) is a standardised approach to the command, control, and coordination of emergency response providing a common hierarchy within which respondents from multiple agencies can be effective. The ICS was initially developed to address problems of inter-agency responses to wildfires in California and Arizona but grew to be a component of the National Incident Management System (NIMS) in the US. Nowadays, ICS is a pattern for similar approaches internationally. See Bigley & Roberts 2001.

¹²⁶⁴ For more information on PSMS, see CNOOC 'Committed to emergency preparedness,' available at <https://cnocinternational.com/en/related-content/safety/emergency-preparedness> (accessed on April 18, 2022).

¹²⁶⁵ Article 14 (3) of the *Accident Emergency Regulation*. See *supra* section 3.2.1.C of this chapter.

¹²⁶⁶ See *supra* section 3.2.1.C of this chapter.

minimise the damages in these simulated scenarios.¹²⁶⁷

The other approach to avoid the occurrence of incidents in daily operations is also built upon an internationally recognised mechanism called Incident Command System (ICS), which is a management system designed to enable effective internal incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organisational structure. An example of applying ICS are regular safety drills,¹²⁶⁸ which are practised to prepare everyone for an emergency. They aim to activate all the functional emergency responses suitable for companies, to offer incentives for employees, and to integrate internal and external resources that can be used for accident prevention. A drill may also touch upon regulatory bodies and other parties that offer services to offshore oil activities, who will also become the important actors that respond to the simulated emergency situation. Therefore, all their performances and reactions to the drill will be part of the lessons received from ICS.¹²⁶⁹

4.2.2 Using technology to improve safety in the workplace

Offshore oil exploration and exploitation within Chinese waters faces a series of challenging tasks associated with catastrophic consequences. There is thus a need for substantial investment and advanced technology to tackle these issues.¹²⁷⁰ Although this part is basically a technical issue instead of a legal one, using technology to improve security is illustrated in the *Offshore Safety Rule*, which is of equal importance to safety management.

In each operation (i.e. exploring, drilling, or producing), there is plenty of bulky equipment in operation that is placed on the platforms, where wires, cables, and ropes may get entangled together. Generally, a number of offshore workers are also present in that area, specialising in different tasks. Some of them engage in complex works with high risks, such as gun perforation or blowout prevention.¹²⁷¹ In the meantime,

¹²⁶⁷ *Ibid.*

¹²⁶⁸ Regular safety drills for emergency responses is an important form of the ICS, which consists of test procedures, safety devices, and communication equipment outlined in the emergency plans. The drills can proceed in a variety of theoretical scenarios, such as in an office environment or a computer setting. It also invites some employees to become members of an emergency response team during the drills. They would be able to find existing problems and improve their skills using such safety exercises. See CNOOC 'Committed to emergency preparedness,' available at <https://cnoocinternational.com/en/related-content/safety/emergency-preparedness> (accessed on April 18, 2022).

¹²⁶⁹ *Ibid.*

¹²⁷⁰ See *supra* section 2.4.1 of chapter 2.

¹²⁷¹ Zhang & Li (2020), 85-86.

other tasks, such as electrical engineering, equipment maintenance, installation, and transportation, are also going on at the same site with flammable and explosive articles nearby.¹²⁷² As a result, such a working environment faces tremendous safety hazards, as the past offshore oil accidents worldwide and in China have already demonstrated.¹²⁷³ It is against this background that offshore oil companies make considerable effort to develop more advanced facilities aiming at risk prevention,¹²⁷⁴ such as blowout preventers (BOPs) and other protective devices.¹²⁷⁵

Recall that the geographical and meteorological conditions in China inevitably increase the technical difficulties in exploring and producing oil, especially for the South China Sea with abundant oil reserves. Offshore oil activities are continually growing but in the shadow of the risk of natural disasters.¹²⁷⁶ Since the operating wells for offshore drilling cause high pressure and high temperatures (HPHT) and are mostly filled with toxic gas, the facilities and devices must be built to work functionally under such conditions. Offshore workers have to test these new technologies in the first place whenever they introduce new techniques or devices and then gradually get accustomed to them. Admittedly, all these factors imply that offshore workers are often exposed to risks, and thus safety remains a real concern.¹²⁷⁷ Consequently, offshore drilling facilities in this sea area should be designed in such a way that such possible hazards can be avoided through appropriate structural configuration. By illustration, *Hai Yang Shi You 981 Oil Rig* (better known as HYSY 981) is technically built to resist super typhoons, hydraulic pressure, changeable water temperature, and geological hazards that existed in the South China Sea.¹²⁷⁸ It is also equipped with a powerful engine to ensure that the oil rig is stable at

¹²⁷² Jiang (2018), 7-8.

¹²⁷³ See *supra* section 2.5 of chapter 2.

¹²⁷⁴ Jiang (2020), 252, 262; see also Zhang 2012b. This idea was based on an interview with vice CEO of the CNOOC, Yuan Guangyu (袁光宇).

¹²⁷⁵ Zhang 2012b. This idea was based on an interview with the vice chief engineer of the CNOOC, Jiang Wei (姜伟), who was also the general manager of the drilling technology department. He introduced the new technologies used on the HYSY 981 to tackle safety issues in 2012. By illustration, this drilling rig used an underwater blowout preventer (BOP), which was independently designed and built by China to prevent accidents like the *Deepwater Horizon Oil Spill* in 2010. The BOP was 13 meters high and had a total weight of 330 tonnes. It had the capacity to seal the well with 15000 PSI (per square inch) pressure. There were three major ways to control and seal a well during that time (in 2012). The first was to close the well when on the platform; the second was to use a sonar system to close it by remote control; the third was to shut down the well with the help of an autonomous underwater vehicle. The HYSY 981 developed the fourth way when none of the above methods worked: a hydraulic force control system. In this case, the device could turn itself off as the electrical control was out of power.

¹²⁷⁶ See *supra* section 2.5 of chapter 2.

¹²⁷⁷ Jiang (2018), 7-8.

¹²⁷⁸ Zhang 2012b. This idea was based on an interview with the vice general manager of MOU projects for deepwater areas of the CNOOC, Su Jing (粟京). Su said that the HYSY 981 was able to resist a super typhoon of

all times.¹²⁷⁹

5. Safety performance in Chinese offshore drilling in practice

Although section 4 showed that offshore oil companies formulate an internal safety system in line with safety regulations, it is still unknown to what degree the companies comply with the rules. This section uses the safety statistics of offshore oil production to evaluate the companies' safety compliance. Sections 5.1-5.2 respectively sketch and evaluate the safety data in the workplace from both international and domestic sources. Additionally, a discussion on the administrators' role in supervising offshore safety compliance is given in section 5.3.

5.1 Statistics of workplace safety performance in the offshore oil industry

Currently, OSHA statistics¹²⁸⁰ are regarded as an internationally adopted practice to evaluate safety performance in many industrial sectors, including offshore drilling. China has acknowledged and employed this criterion as well. The total recordable injury rate (TRIR)¹²⁸¹ and lost time incident rate (LTIR)¹²⁸² are two standard OSHA metrics used to indicate the number of incidents and injuries, which gives a picture of how safe a workplace is for its workers. A petroleum industry's global forum, International Association of Oil & Gas Producers (IOGP),¹²⁸³ offers a series of annual reports, where these two fundamental indicators are used to present the safety

17 Beaufort scale. Theoretically, HYSY 981 would hardly overturn even if it collided with a huge tanker (it weight is 5,000 tonnes). Su further explained the difficulties of using facilities to explore and exploit oil in the South China Sea. First, unlike operating at shallow waters, oil exploitation and producing in the deepwater fields would face high hydraulic pressure, thereby special technical designs were needed to cope with such matters. Second, there were problems with changing temperature when operating at different sea levels. The seabed was extremely cold, yet the bottom of a well usually had an extremely high temperature. Third, unstable seabeds and geological hazards always posed threats to the activities. From a technical perspective, offshore oil facilities should be designed to overcome these risks, ensuring that the oil projects operated safely. It was reported that the HYSY 981 has plenty of designs and variable loads so that the facility could modify itself to handle the above problems.

¹²⁷⁹ According to the principal technical advisor of the CNOOC, Zhou Shouwei (周守为), who is also an academic of the Chinese Academy of Engineering (中国工程院), HYSY 981 has a power of 44,000 kilowatts, which almost equals the power generation of a middle-sized city. It also has multiple screw propellers. All these devices are used to make the oil rig more stable. See Zhang 2012b.

¹²⁸⁰ OSHA's workplace safety inspections have been shown to reduce injury rates and injury costs without adverse effects to employment, sales, credit ratings, or firm survival. See Levine *et al.* (2012), 907-911.

¹²⁸¹ FRIR (total recordable injury rate). It means the number of recordable injuries (fatalities + lost work day cases + restricted work day cases + medical treatment cases) per million hours worked.

¹²⁸² Lost time injury (LTI) means a fatality or lost work day case. The number of LTIs is the sum of fatalities and lost work day case. Lost time injury rate (LTIR), which means the rate of lost time injuries (fatalities + lost work day cases) incidents one million hours worked.

¹²⁸³ International Association of Oil & Gas Producers (IOGP) is the petroleum industry's global forum in which members identify and share best practices to achieve improvements in health, safety, the environment, security, social responsibility, engineering, and operations. For more information, see its official website, available at <https://www.iogp.org/> (accessed on April 18, 2022).

performance globally. Table 26 is based upon the latest data (2017-2019) reported by participating IOGP member companies of individual countries in terms of the TRIR and the LTIR of companies jointly with contractors. Despite the original statistics containing relative safety indicators for 80 IOGP member countries, table 26 only lists a dozen major oil-producing countries to keep the text reasonably concise.¹²⁸⁴

Table 26 The TRIR & LTIR by major regions and countries in terms of oil production (2017-2019)¹²⁸⁵

Country	TRIR			LTIR		
	2017	2018	2019	2017	2018	2019
Asia- Australia average	0.75	0.72	0.60	0.16	0.15	0.13
Australia	1.67	2.01	2.42	0.20	0.28	0.39
New zealand	1.50	3.93	5.35	0.75	0.00	1.07
China	0.37	0.33	0.28	0.23	0.20	0.18
India	0.17	0.76	0.36	0.17	0.50	0.18
Europe average	2.07	2.17	2.28	0.76	0.70	0.80
Denmark	2.72	3.25	3.64	0.83	0.90	1.21
Netherlands	2.50	2.13	2.65	1.07	0.53	1.03
Norway	2.67	2.62	2.76	0.97	0.75	0.78
UK	1.98	2.35	1.85	0.53	0.72	0.52
Russia& Central Asia average	0.44	0.54	0.58	0.16	0.19	0.13
Russia	0.29	0.19	0.28	0.16	0.00	0.04
Kazakhstan	0.50	0.66	0.61	0.20	0.26	0.12
Africa average	0.48	0.50	0.42	0.15	0.15	0.12
Kenya	0.00	0.55	0.99	0.00	0.00	0.49
Egypt	0.28	0.24	0.28	0.14	0.14	0.12
Middle East average	0.55	0.43	0.45	0.11	0.09	0.08
Kuwait	0.30	0.31	0.36	0.08	0.10	0.11
UAE	0.81	0.45	0.54	0.16	0.06	0.06
Iran	0.00	0.00	N/A	0.00	0.00	N/A
Iraq	0.36	0.54	0.18	0.07	0.16	0.07
North America average	1.96	2.00	1.66	0.39	0.36	0.30
USA	1.88	1.94	1.67	0.40	0.36	0.33
Mexico	1.96	2.36	0.80	0.00	1.62	0.18
South&Central America average	1.44	1.64	1.35	0.59	0.54	0.42
Argentina	1.14	2.66	2.34	0.36	0.28	0.33
Brazil	1.51	1.34	0.95	0.68	0.70	0.49
Other countries	...					

¹²⁸⁴ The entire tabulation is presented in IOGP (2020), Figures 55, 56. It shows the breakdown of reported hours worked in regions and countries. Also the number of companies reporting data in 80 countries is shown. The table does not necessarily show all hours worked in the exploration and production sectors of the oil and gas industry in each country.

¹²⁸⁵ IOGP (2020), 123, Tables B.17, 18.

Overall	0.96	0.99	0.92	0.27	0.26	0.24
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As shown above, most countries achieved a total recordable injury rate (TRIR) equal to or lower than the overall average TRIR (0.92) worldwide as of 2019, among which China had a rate of 0.28, far lower than the average. In contrast, most countries in Europe, North America, and South & Central America showed a TRIR higher than the global average. The TRIR of Europe average (2.28) and the USA (1.67) in 2019 were respectively eight and six times higher than that of China (0.28). When it came to the lost time incident rate (LTIR), the majority of countries in Asia-Australasia (0.13) achieved an LTIR equal to or lower than the overall average LTIR (0.24). By comparison, the majority of countries in Europe, North America, and South-Central America showed an LTIR higher than the global average. The LTIRs of China in 2017 (0.23), 2018 (0.20), and 2019 (0.18) were slightly higher than the Asia-Australasia average, but it was still lower than the global average.

Table 27 further shows global average indicators in 2019 by distinguishing companies and contractors, onshore and offshore operations. Globally, three companies' fatalities resulted from two separate incidents, while twenty-two contractor fatalities resulted from twenty separate incidents, making its Fatal Accident Rate (FAR) relatively higher.¹²⁸⁶ Moreover, offshore operations (in bold) seemed to be more risky than onshore operations, as all its three indicators (FAR, TRIR, and LTIR) were higher than those for onshore operations; they also all exceeded the global average level. Given this fact, it would be more challenging for individual offshore companies to keep accident rates at a low level.

Table 27 Summary of safety data regarding oil production (2019)¹²⁸⁷

Operations	Hours worked (thousands)	Fatalities	LWDC - <i>Lost Work Day Case</i> ¹²⁸⁸	RWDC- <i>Restricted Work Day Case</i> ¹²⁸⁹	FAR- <i>Fatal Accident Rate</i>	TRIR- <i>Total Recordable Injury Rate</i>	LTIR - <i>Lost Time Incident Rate</i>
Overall	3 038 352	25	703	652	0.82	0.92	0.24
Company	657 258	3	152	83	0.46	0.67	0.24
Contractor	2 381 094	22	551	569	0.92	0.98	0.24

¹²⁸⁶ Fatal Accident Rate (FAR) means the number of company/contractor fatalities per 100 million hours worked.

¹²⁸⁷ IOGP (2020), 116.

¹²⁸⁸ Lost Work Day Case (LWDC) means any work-related injury, other than a fatal injury, which results in a person being unfit for work on any day after the day of occurrence of the occupational injury. 'Any day' includes rest days, weekend days, leave days, public holidays, or days after ceasing employment.

¹²⁸⁹ Restricted Work Day Case (RWDC) means any work-related injury other than a fatality or lost workday case, resulting in a person being unfit for a full performance of the regular job on any day after the occupational injury. If no meaningful restricted work is being performed, the incident is recorded as a lost workday case (LWDC).

Onshore	2 193 257	17	405	408	0.78	0.81	0.19
Offshore	845 095	8	298	244	0.95	1.20	0.36

As a significant player that can be linked to almost all oil projects in China, the OSHA statistics of the CNOOC maintained a good level on paper, and its contractors also maintained a good level on paper. The database in recent years (2015-2019) is shown in table 28.

Table 28 The OSHA statistics of the CNOOC and its contractors (contr.) (2015-2019)¹²⁹⁰

Scope	Year	2019	2018	2017	2016	2015
CNOOC	Hours worked (thousands)	41 000	40 000	41 000	43 000	44 000
CNOOC& contr.		143 000	111 000	109 000	122 000	124 000
CNOOC	TRI- <i>Total Recordable Injury</i>	16	16	12	10	20
CNOOC& contr.		46	44	48	65	68
CNOOC	TRIR- <i>Total Recordable Injury Rate</i>	0.08	0.08	0.06	0.05	0.09
CNOOC& contr.		0.07	0.08	0.08	0.11	0.11
CNOOC	LTI- <i>Lost Time Incident</i>	5	10	6	5	3
CNOOC& contr.		20	22	17	26	15
CNOOC	LTIR- <i>Lost Time Incident Rate</i>	0.02	0.05	0.03	0.02	0.01
CNOOC& contr.		0.03	0.04	0.03	0.04	0.02
CNOOC	Fatality	0	1	0	3	0
CNOOC& contr.		1	2	2	5	0

Table 29 draws a comparison between the safety indicators of the CNOOC and that of the global average level in 2019. The rates for China in terms of TRIR (0.28) and LTIR (0.18) were much lower than overall (onshore&offshore) or offshore average levels. The CNOOC also performed fairly well, with its TRIR and LTIR being respectively 8.3 (0.67/0.08) and 12 (0.18/0.02) times lower than those of company average levels worldwide, with no casualty. Moreover, the TRIR and LTIR of the CNOOC's contractors were also below the global average levels.

Table 29 Comparison between the safety performance of the world and China (2019)¹²⁹¹

Operations	Hours worked (thousands)	Fatalities	TRIR- <i>Total Recordable Injury Rate</i>	LTIR- <i>Lost Time Incident Rate</i>
Global average	3 038 352	25	0.92	0.24
Global average - offshore	845 095	8	1.20	0.36
China	133 480	-	0.28	0.18

¹²⁹⁰ The database in the table is from the Annual Result Releases given by the CNOOC Limited from 2015 to 2019. See CNOOC (2020a), 26; CNOOC (2019a), 25; CNOOC (2018b), 23; CNOOC (2017), 24; CNOOC (2016), 26.

¹²⁹¹ *Ibid.* See, also IOGP (2020).

Company	657 258	3	0.67	0.24
CNOOC	41 000	0	0.08	0.02
Contractor	2 381 094	22	0.98	0.24
CNOOC& contractor	143 000	1	0.07	0.03

In addition, when going through disastrous offshore drilling accidents in China, it is striking that most of the fatal accidents happened before the 1990s.¹²⁹² In the past thirty years, the Chinese offshore oil industry did not report many major oil spills.¹²⁹³ It is worthwhile to mention that the only incident with disastrous consequences would be a series of oil spills that occurred in the Bohai area as of 2011. Although the accident resulted in substantial economic loss and ecological damage, no one was injured or died. In comparison, offshore oil projects in other countries have resulted in quite a few accidents in recent years.¹²⁹⁴ For example, in 2010, the oil drilling rig *Deepwater Horizon* (US), operating in the Gulf of Mexico, exploded and sank, resulting in the death of eleven workers and the largest spill of oil in the history of marine oil drilling operations.¹²⁹⁵ The *Mumbai High North* disaster (India) in 2005 caught fire after a collision with a support vessel in the Arabian Sea, killing twenty-two people.¹²⁹⁶ The *Usumacinta* Jack-up disaster (Mexico), which occurred in 2007 in the Gulf of Mexico, claimed twenty-two lives after a collision with a platform in the Bay of Campeche.¹²⁹⁷ The deadliest offshore oil rig accident in history would be the *Piper Alpha* disaster (the UK) in the North Sea that killed 167 people in 1988.¹²⁹⁸

The Chinese offshore oil industry develops rapidly, which leads to more projects, more offshore rigs, more working hours, and more employees. According to the safety indicators on paper, China nevertheless does not show a higher total recordable

¹²⁹² See *supra* section 2.5 of chapter 2. The Bohai-2 oil rig accident in the Gulf of Bohai off the coast of China in 1979 caused the death of 72 out of the 76 people on board. Half a year later, a blowout of the Bohai-3 oil rig resulted in the death of 70 people in June 1980. In 1981, an accident occurred in the South China Sea as a severe tropical storm forced the Bohai-6 oil rig to slip from its original location. In October 1983, a drill-ship named *Glomar Java Sea* positioned at the south of Hainan Island was supposed to commence drilling operations in the sea area, leading to the death of 81 people. In July 1988, another blowout of the Bohai-7 platform lasted 28 hours in the Bohai Bay.

¹²⁹³ IOGP 2010.

¹²⁹⁴ Offshore Technology 2019.

¹²⁹⁵ Environmental Protection Agency (EPA) of the United States. *Deepwater Horizon – BP Gulf of Mexico Oil Spill*, available at <https://www.epa.gov/enforcement/deepwater-horizon-bp-gulf-mexico-oil-spill> (accessed on April 18, 2022).

¹²⁹⁶ OGI Journal (June 28, 2015). India's Mumbai High platform lost in collision, fire, available at <https://www.ogi.com/drilling-production/article/17244183/indias-mumbai-high-platform-lost-in-collision-fire> (accessed on April 18, 2022).

¹²⁹⁷ Hanlon 2013.

¹²⁹⁸ Safety4Sea (October 17, 2019). *Piper Alpha: The world's deadliest offshore oil disaster*, available at <https://safety4sea.com/cm-piper-alpha-the-worlds-deadliest-offshore-oil-disaster/> (accessed on April 18, 2022).

injury rate (TRIR) or lost time incident rate (LTIR). Seemingly, it maintains relatively low fatalities and injury rates, given the statistics presented above.

5.2 Evaluation of the Chinese offshore oil safety statistics

The above-presented data suggest that China has a good safety performance in the offshore oil industry, provided that the statistics are trustworthy and accurate. Before going forward, this sub-section examines the data carefully rather than jumping to any conclusions that may lead in the wrong direction.

Hypothetically, if China's safety records were reliable and trustworthy, it would indicate that China performs much better than other countries in this sector. In that sense, if China's data were attributable to the compliance with safety rules, it would probably indicate that Chinese safety regulations were substantively different from the rules in other jurisdictions and that they were enforced well and complied with in practice. However, such a hypothesis is likely to be groundless speculation. Major offshore oil companies and operators are international corporations that generally have oil projects worldwide and thus comply with similar safety standards everywhere. As discussed previously,¹²⁹⁹ the CNOOC and its partners also formulate their internal mechanisms based on international standards.

Some literature suggests that the environmental regulatory compliance in China is far from ideal,¹³⁰⁰ moreover, it is weak and inadequate.¹³⁰¹ In many industrialising countries, including China, limited law enforcement capacity and poor regulatory compliance result in environmental compliance problems.¹³⁰² Against the background of the Chinese industries' poor performance in general, there are two possibilities for the offshore oil sector's exceptionally good safety records: the offshore oil industry is a unique branch that is functioning differently from other domains in China, or the offshore oil industry data are not reliable.

Many researchers argue that statistical data in developing countries are not accurate, and thus the credibility of data can generally be an issue.¹³⁰³ The literature claims that Chinese economic activity is composed of variables that are susceptible to official

¹²⁹⁹ See *supra* sections 3-4 of this chapter.

¹³⁰⁰ McAllister et al. (2010), 1-13; Van Rooij (2013), 116.

¹³⁰¹ See, for example, Yang 2007; Andrew 2005; Cooney 2007.

¹³⁰² Laffont 2005; Blackman 2006; Van Rooij et al. 2011.

¹³⁰³ Owyang & Shell 2017.

manipulation.¹³⁰⁴ Even worse, China has been troubled with fraudulent data concerning economic activities for decades in many domains.¹³⁰⁵ It is frequently reported that a growing number of Chinese local governments have been accused of reporting fake economic data and correcting their doctored numbers.¹³⁰⁶ The National Bureau of Statistics of China¹³⁰⁷ has also found many provincial and municipal governments that were involved in fabricating economic data.¹³⁰⁸ Although China has started taking steps to root out fake data,¹³⁰⁹ scepticism regarding data validity is widespread.¹³¹⁰ Moreover, the problem of data credibility is not limited to local governments, as a number of private and State-owned companies specialised in many industrial sectors also have data problems.¹³¹¹ For example, coal mining safety in China has been hotly debated for years. The discrepancy between reported coal mine casualties and actual fatalities is usually for two reasons: the liable companies either misinterpreted casualties carelessly or concealed accidents on purpose.¹³¹²

If we look at other domains in terms of safety operations in China, there is quite a bit of literature and many reports showing that Chinese industrial activities suffer from a bad record. China's work safety accidents are still serious: major accidents have not yet been effectively controlled¹³¹³ and the work safety situation is still grim.¹³¹⁴ For example, the coal mining industry remains one of China's most high-risk industries, bearing the world's worst safety record.¹³¹⁵ Even with steady safety improvements in recent years, thousands of people were killed in coal mining each year, hundreds of times greater than the related fatalities in the US.¹³¹⁶ It was even reported that the actual death toll was likely to be much higher, partly due to the under-reporting of

¹³⁰⁴ Fernald *et al.* 2013; Holz 2004; Koch-Weser & Haacke 2013.

¹³⁰⁵ Leng 2019b.

¹³⁰⁶ *Ibid.*

¹³⁰⁷ The National Bureau of Statistics (in Chinese: 国家统计局), abbreviated as NBS, is a deputy-cabinet level agency directly under the State Council of the People's Republic of China. It is responsible for data collection, investigation, research, and publication of statistics concerning the nation's economy, population, and other aspects of society.

¹³⁰⁸ As source of official media, the People's Daily, said that, while inflated data may look good on paper, it would lead to more stress in the less developed parts of the country as it would cause the Central Government to reduce funding. Since local officials were under tremendous pressure to meet economic growth targets, some took risks by falsifying and fabricating economic data. See, Chen & Woo 2018; Leng 2019a.

¹³⁰⁹ Since 2019, the media reported that China intended to punish regional leaders and even deploy artificial intelligence amid scepticism about the reliability of its economic statistics. See Leng, 2019b; Watts 2019; Liu 2019.

¹³¹⁰ Owyang & Shell (2017).

¹³¹¹ Taplin 2018.

¹³¹² For more discussion on the concealment of accidents in the Chinese mining industry, see, for example, Tu 2007; Wright 2004; Zou *et al.* 2021.

¹³¹³ Zhang (2013a), 123-129; Huang *et al.* (2012), 950-958; Fan (2015), 190-201.

¹³¹⁴ Chen *et al.* 2013.

¹³¹⁵ Yin 2017.

¹³¹⁶ Yin 2017; Zhang *et al.* 2019.

accidents. Sometimes mine bosses sought to limit their economic losses and avoided punishment.¹³¹⁷ Guo and Wu (2011) reported that the Chinese industry's fatality rate was estimated at 10 times and 100 times higher, respectively, compared to other developing countries (i.e., India, Russia) and the US.¹³¹⁸ Other sources address that Chinese miners were 350 times more likely to die at their workplace than their American or British counterparts. In terms of production, the statistics are even worse. China accounts for a third of the world's coal production but fourth-fifths of the world's coal mining deaths.¹³¹⁹ Although China's coal mine industry is becoming safer than before, many accidents still occur nowadays.¹³²⁰

Another example is the construction industry. Working in this sector has long been the most dangerous occupation in China. According to official government statistics, it is becoming even more hazardous.¹³²¹ As shown on China's Ministry of Housing and Urban-Rural Development website,¹³²² the safety situation in the building industry has improved steadily in recent years,¹³²³ but the fatal accident rate remains higher than that of other occupational sectors.¹³²⁴ Over the past ten years, the number of fatal accidents first steadily declined from 2009 to 2015. However, the production safety situation during the most recent three years (2016-2018) became worse.¹³²⁵ Serious accidents that caused mass casualties have not been completely prevented in China.¹³²⁶

Scholars point out that accidents in these hazardous industrial sectors are largely due to the violation of regulations.¹³²⁷ Quite a number of Chinese mining companies routinely ignore safety procedures and disobey management practices, which bring about great risks to the coal mining activities.¹³²⁸ Because proper safety management to identify and eliminate various potential hazards is lacking, inadequate management

¹³¹⁷ *Coal Mine Safety, death and injuries in China* (April 2011), Facts and Details, available at <http://factsanddetails.com/china/cat13/sub85/item321.html> (accessed on April 18, 2022).

¹³¹⁸ Guo & Wu 2011.

¹³¹⁹ *Coal Mine Safety, death and injuries in China* (April 2011), Facts and Details, available at <http://factsanddetails.com/china/cat13/sub85/item321.html> (accessed on April 18, 2022).

¹³²⁰ See Wu *et al.* 2011; Chen 2006. According to Chen (2006), although the coal mine industry is becoming safer than before, many accidents still occur nowadays, and the situation is more difficult than before. Research of fatal accidents in China coal mines previously even showed that the human factor was the critical direct reason and accounted for 97.67% of total casualties.

¹³²¹ China Labour Bulletin 2018.

¹³²² Shao *et al.* 2019; Tam *et al.* 2004; Zeng *et al.* 2004.

¹³²³ Zhou *et al.* 2015.

¹³²⁴ Amiri *et al.* 2017; Beavers *et al.* 2009; Kang *et al.* 2017; Suarez-Cebador *et al.* 2015.

¹³²⁵ Zhou *et al.* 2015.

¹³²⁶ *Ibid.*

¹³²⁷ See, for example, Fu 2013; Wu *et al.* 2011; Yin *et al.* 2017; Chen *et al.* 2012a.

¹³²⁸ *Ibid.*

led to high safety risks and fatal accidents in the construction industry.¹³²⁹

As a result, China almost has the highest accident rate worldwide in several important industrial domains, such as mining and construction. In that respect, it seems striking that China reports an excellent safety record in the domain of offshore drilling. Nevertheless, compared to the accidents in construction and mining, an offshore oil accident, associated with oil spills, explosions, and blowouts, usually polluted large bodies of water and thus can hardly be concealed from the public. Therefore, the drastic accident rates in those industrial domains of China may be of limited value when analysing the data reliability in the offshore oil sector.

Another reason to distrust the data is that it is all self-reported, meaning that the offshore oil companies are the reporters themselves, which further creates doubts about data credibility. For domestic data, the self-reported safety statistics in the CNOOC's annual reports can be problematic, since no independent third party supervises data collection. Even in the domains where third-party verification is available (such as mining and construction sectors) to check the data, there are still severe compliance problems. It would be reasonable to doubt whether the self-reported data come from reliable sources. For data from international sources, the international organisation IOGP particularly asserts that its safety database has built-in data validation requirements. Accordingly, the IOGP expected that the Secretariat validates each company's data submission. Furthermore, the work group can help members to obey the rules of data collection and reporting procedures strictly.¹³³⁰ Nevertheless, the self-reported database that is given to the international organisation from each company (including the CNOOC) greatly depends on company members themselves.

Generally speaking, the literature addresses that the statistics on work safety in various domains in fact show the opposite of the work safety levels.¹³³¹ In particular, countries around the world currently have work safety statistics systems for the offshore oil industry. These safety indicators may, to some extent, reflect a country or an industry's work safety level.¹³³² However, the overall work safety level can also be

¹³²⁹ Zhou *et al.* 2019.

¹³³⁰ Additionally, a self-assessment questionnaire is included within the data submission process to determine the alignment between the requested data and the company submissions. Therefore, data that appears to be incorrect and that cannot be confirmed by the submitting company as correct may be excluded from the data set at the Secretariat's discretion. See IOGP (2020), 6, Scope of reporting and data validation.

¹³³¹ Wu 2020.

¹³³² Jimmie *et al.* 2013; Sadeghi *et al.* 2015; Sinelnikov *et al.* 2015.

difficult to determine when the trend of the indicators from annual statistics is inconsistent in a country or an industry. It means that merely using one indicator cannot reflect the work safety level scientifically and comprehensively.¹³³³ The study uses the available safety statistics as a reference to evaluate the safety performance of the Chinese offshore drilling activities. It at least provides a view of what may happen in cases where empirical research has not yet been available. However, it is also of equal importance to take into account the various factors that may challenge data credibility and treat the data with caution.

Since Chinese offshore safety indicators can be in doubt, current research may neither confirm nor deny the Chinese offshore drilling's safety records on paper. We are also unsure if China's overall good performance - with a relatively low number of casualties and a low percentage as the accident rate - is really convincing. Therefore, whether China's existing safety measures (both domestic regulations and internal rules) provide prevention incentives or not remains in doubt.

5.3 Procedures for offshore safety inspection

5.3.1 Two administrative organs in charge of offshore safety inspection

The previous text mentioned that several parties have the duty to conduct safety inspections of offshore drilling.¹³³⁴ Apart from offshore oil companies that have to go through an inspection by themselves, the OOOSO and its branches take charge of safety matters for offshore oil operations.¹³³⁵ In terms of mobile offshore units (MOUs), there is, *de facto*, a third party in charge of safety management: the Maritime Safety Administration (hereinafter as MSA), and its subordinates, the maritime bureaus.¹³³⁶

Offshore oil projects include a series of phases and touch upon quite a few legal

¹³³³ Wu 2020.

¹³³⁴ See *supra* section 2 of this chapter.

¹³³⁵ See *supra* section 2.1 of this chapter. Article 4 of the *Offshore Safety Rule* clarifies that the SAWS, the OOOSO, and its branches are in charge of guaranteeing safe operations in offshore drilling. Ministry of Emergency Management of the PRC (应急管理部) (July 31, 2019). *Improving the oil and gas industry with four safe production measures* (安全生产四大举措保障油气增储扩能战略—应急管理部安全基础司负责人就《应急管理部关于切实强化油气增储扩能安全生产保障的通知》答记者问). The report is based on an interview with the Head of the Safety Division (安全生产基础司) of the Ministry of Emergency Management (which is another title of the OOOSO) considering the measures of safe production and energy security, available at https://www.mem.gov.cn/gk/zcjd/201907/t20190731_327458.shtml (accessed on April 18, 2022).

¹³³⁶ See Li 2012. The news report described a specific safety inspection on '981 Offshore Drilling Unit' that was conducted by the Guangdong Maritime Bureau.

instruments. Offshore oil activities involve not only the particular activities of offshore drilling (i.e. exploring, exploiting, and production operations) but also general activities on the sea (i.e. towing, transportation, and shipping) when needed. Currently, the legal regime empowers the OOOSO and its branches to supervise offshore drilling, while it authorises the MSA and its maritime bureaus to manage the general safety matters on the ocean. Therefore, it is likely that the legal duties of OOOSO (and its branches) and the MSA (and its maritime bureaus) may overlap under specific circumstances. It will be legally possible for these two administrative bodies to manage one particular case, especially when it is an offshore oil project of MOUs. However, it does not mean that maritime bureaus are empowered to inspect the safety of offshore drilling in practice.

As a governmental agency that administers maritime and shipping safety, the MSA and its maritime bureaus in local areas are responsible for marine accident investigation.¹³³⁷ Seemingly, the only provision that mentions the duty of maritime bureaus regarding MOUs is Article 16 of the *Maritime Traffic Safety Law of the People's Republic of China* (hereinafter '*Maritime Traffic Law*'), which authorises *the departments of vessel inspection (referring to 'maritime bureaus' in this case) to conduct an inspection on any towing operations of large-sized installations and mobile units.*¹³³⁸ Some reporters accordingly argue that this provision provides a legal basis for maritime bureaus to inspect the safety of offshore drilling.¹³³⁹ However, since towing operations are used to position or move vessels or facilities into place, it is a type of activity more relevant to maritime traffic matters rather than offshore drilling. Since chapter 6 shared that, whether MOUs belong to vessels is not clear under the *Maritime Law*, we may be unable to conclude whether the regulations aiming at shipping safety can be applicable to MOUs.¹³⁴⁰

However, in practice, MOUs are regarded as vessels by local maritime bureaus and

¹³³⁷ The Maritime Safety Administration of the People's Republic of China (in Chinese: 中华人民共和国海事局) is a government agency which administers all matters related to maritime and shipping safety, including the supervision of maritime traffic safety and security, prevention of pollution from ships, inspection of ships and offshore facilities, navigational safety measures (including search and rescue, aids to navigation and the Global Maritime Distress and Safety System), administrative management of port operations, and law enforcement on matters of maritime safety law. It is also responsible for marine accident investigations. The China MSA is subordinate to the Ministry of Transport of the People's Republic of China (in Chinese: 交通运输部).

¹³³⁸ *Maritime Traffic Safety Law of the People's Republic of China* (《中华人民共和国海上交通安全法》) was first adopted on September 2, 1983, and the latest version was issued on November 7, 2016. Article 16 states that '*large installations and mobile platforms must undergo towing inspection conducted by vessel inspection departments and be reported to the competent authority for examination and approval.*'

¹³³⁹ Li 2012.

¹³⁴⁰ See *supra* section 2 of chapter 6.

are subject to safety inspections by them.¹³⁴¹ Given that maritime bureaus are supposed to focus on general safety issues of sailing, they may not be clearly empowered to check the conditions of the equipment used for oil exploration and exploitation. On the other side, even though the OOOSO and its branches are legally authorised to take over the duty of safety management for offshore facilities (including for MOUs), their least independent role of supervision put them in an awkward position. Compared to that, the MSA and its local agencies, regardless of whether they are authorised agencies or not, are maritime administrative bodies that completely separated from offshore oil companies.

5.3.2 Specific procedures of safety inspection

As sketched above, multiple parties may have the right to check the safety conditions of offshore oil projects. For fixed offshore platforms, safety inspection is conducted by the OOOSO and its branches. In contrast, MOUs seem to be treated as vessels in practice, so they are additionally checked by the maritime bureaus to make sure the MOUs meet the standards of safe ‘sailing’.¹³⁴²

Specifically, officials of maritime bureaus are required to check the safety conditions of offshore units with a series of steps before sailing. The very first step of every offshore oil unit is to check whether it has sufficient safety devices and whether all of them are in good condition. In addition, all the certificates should be prepared in advance, which includes certificates about oil rigs (vessels), personnel, lifesaving equipment, emergency communication equipment, and anti-pollution devices. Considering that the whole inspection covers a number of workers and devices, it takes a few hours to conduct such an inspection.

By illustration, *Hai Yang Shi You 981 Oil Rig* (HYSY 981) was the first domestic semi-submersible drilling rig used for ultra deep-water areas, which was a self-propelled mobile offshore unit (MOU) created in 2011. As HYSY 981 was deemed as a huge ‘vessel,’ the Guangdong Maritime Bureau went through the first overall inspection before it was put into operation, which was also the first time a

¹³⁴¹ A typical example of the maritime bureau conducting safety inspections on offshore oil rigs in practice is provided in section 5.3.2 of this chapter.

¹³⁴² See Li 2012. The report was partly based on an interview with the vice chief of Guangdong Maritime Bureau (广东海事局), Cai Haiwei (蔡海卫), who was also a safety inspector of vessels, concerning the safety issues of offshore oil rigs.

maritime bureau checked the safety conditions of offshore units in practice.¹³⁴³ A three-hour inspection involved a series of tasks, which was proceeded 170 miles away from the coast. For instance, the officials ensured that the rig was equipped with four lifeboats and four life rafts (the capacity of which was 120) so that 116 members on the oil rig were all able to escape from it in case of emergency.¹³⁴⁴ According to the distinctive features of offshore oil facilities, the maritime bureau modified its inspection procedure and checked multiple propellers, emergency plans aiming at oil spills, and protective devices against blowouts.

Seemingly, the authority pays attention to safety inspections of oil rigs in practice. It is probably because all these facilities serve for offshore oil projects, which are run by the State-owned CNOOC and other large oil operators. It was reported that the bureau played an active role during the whole process, providing all the essential documents, estimating the number of employees that could guarantee safe operations on board, and taking care of procedural matters even before HYSY 981 was completed. Strictly speaking, even though the MSA and its maritime bureaus may not be empowered to be authorised agencies under the existing legal regime, they are at least independent from offshore oil companies and can conduct inspections in the name of the maritime authority. The OOOSO and its branches, by comparison, are closely linked to the CNOOC, and thus how to maintain their authority and impartiality becomes a problem. Furthermore, the relationship between OOOSO branches and MSA bureaus may also trigger practical issues in the field of MOUs: when two administrative bodies respectively conduct the safety inspection, there may be unnecessary overlaps in their duties.

6. Summary

Safety requirements applicable in the area of offshore drilling in China are mainly addressed by the MEPL, the *Offshore Safety Regulation*, and the *Offshore Safety Rule*. Guided by the rules, the OOOSO and its branches take charge of inspecting their safety operations regularly, while the SOA and its branches intervene when they believe the marine environment is also contaminated by the incident.

Safety regulations aiming at the offshore oil sector are mainly presented with two

¹³⁴³ *Ibid.* HYSY 981 was put into operation on December 2, 2011, which was believed to initiate a new stage of oil producing in China.

¹³⁴⁴ *Ibid.*

aims: (a) to prevent offshore oil accidents *ex ante* and (b) to handle marine pollution and other losses *ex post*. Operators and contractors that participate in offshore oil activities play a vital role in safety operations, where they are obliged to obtain a safety production license in advance, formulate an emergency response plan, and follow strict technical standards during operations. To increase the safety awareness of offshore workers and reduce the occurrence of incidents caused by human errors, employer companies bear the responsibility to organise their employees to take training courses, by which the workers should obtain relevant certificates by learning specific techniques and general safety skills. In cases where an offshore accident takes place, the liable operator should report the incident to the competent authority within a short time, and the director of the offshore oil project should be fully responsible. However, neither the safety licensing system nor any other specific instrument requires offshore operators to provide any financial guarantees in dealing with the losses arising from the incident.

As described above, it is concluded that the *Offshore Safety Provision* and *Offshore Safety Rule* attempt to guarantee safe operations by preventing or mitigating human errors. For instance, before issuing a safety production license, the preliminary safe assessment and trial production are adopted to ensure that the facilities used for production are in good condition so as to reduce the likelihood of equipment failure. The other example concerns the safety rules aiming at offshore employees. The strict technical standards and various training requirements on offshore workers are based on three concerns: to prevent the accidents due to employees' negligent behaviour, to enhance their capacity to manage an emergency in the event of an accident, and to increase their chances of survival by protecting themselves in that case.

Since obtaining a safety production license does not require any financial guarantees as an investment in prevention means that legislators fail to consider adopting any financial tools to tackle potential damages in a safety regulation setting. Seemingly, it is for good reasons that the applicable safety regulations focus on mitigating the occurrence of accidents instead of compensating the losses, the latter of which remains the crucial point under tort law.¹³⁴⁵

The internal compliance mechanisms of offshore oil companies imply their attitudes towards safety regulations. The CNOOC, on behalf of Chinese offshore oil companies,

¹³⁴⁵ See *supra* chapters 2-5.

establishes a CHSEMS mechanism as internal safety standards. It is categorised into two parts: regulations aiming at occupational risks and marine environmental damage. Instead of adopting domestic rules directly, the CHSEMS is *de facto* based upon internationally recognised disciplines. An overall inspection of offshore facilities is comprised of a series of tasks and complicated procedures, which require specific regulatory authorities to go through the process.

Despite the fact that statutory rules and internal standards are established to regulate safety operations, they merely provide strategic guidance theoretically. More empirical research is necessary to examine the safe performance of offshore oil operators in practice. The available safety data from both international and domestic sources show relatively low fatality and injury rates in the Chinese offshore oil industry. However, such an excellent safety record in the domain of offshore drilling may not spontaneously lead to the great safety performance of offshore oil companies. After all, there is no independent third party to supervise or verify the self-reported data, and the data credibility in some other industrial sectors may create a negative impression of the offshore-related data. We could not confirm to what extent the data reflects the actual performance of offshore oil operators in reality. Nor could we conclude whether the existing safety regulations incentivise operators with regard to prevention and thus contribute to an overall good safety record. Therefore, this study will treat the data with great caution, using the available safety statistics as a reference to evaluate the safety performance of the Chinese offshore drilling activities, on the one hand, while taking into account the various factors that may challenge data credibility, on the other.

Chapter 8 Critical analysis of the compensation and regulation of offshore oil damage in China

1. Introduction

Recall that the preceding chapters set out a legal framework for dealing with offshore oil damage, including the offshore oil business (chapter 2), liability rules (chapter 3), tort damages (chapters 4-5), financial security (chapter 6), and safety regulations (chapter 7). It presented the current legal rules in China aiming at compensating and preventing offshore oil damage.

A detailed explanation of the legal rules regarding offshore oil damage has been presented in previous chapters and thus will not be repeated. This chapter provides a critical analysis of the existing legal framework by answering the central research question in this contribution: does China have a developed system in place to remedy offshore oil damage, providing adequate compensation to victims and prevention incentives to risk creators? This question will first be examined by analysing the applicable legal rules in China regarding offshore drilling based on a law and economics approach, as this methodology not only touches upon the adequacy of compensation but also addresses whether the applicable rules provide adequate incentives for prevention.¹³⁴⁶

In addition to analysing the written laws based on law and economics, applying the rules in practice is equally important. Hence, a follow-up discussion on the application of legal rules is provided, where it examines if the laws comprehensively comply in actual cases or there are some deviations from the theory due to some particular limits in practice, for example, whether there are barriers that victims encounter when obtaining compensation through the claims process, whether there is guidance for offshore oil operators when pursuing financial guarantees in case of insolvency, and whether there are strict procedures for operators concerning safety operations. The methodological goal is to analyse how the legal system on paper is applied in practice in China and how the application of legal rules in practice may impact this legal system, which would reveal the strengths and weaknesses of this legal system.

¹³⁴⁶ Bergkamp (2021), 67-118.

The remainder of this chapter is set up as follows: after this introduction, sections 2-5 respectively address the topics of liability (section 2), tort damages (section 3), financial guarantee (section 4), and regulation (section 5), which basically maintain the order of the previous chapters.¹³⁴⁷ Each section respectively develops the ideas in three parts. The first part is a descriptive analysis, which briefly sketches the legal remedies for offshore oil damage in China. The second part observes the efficiency of the applicable rules based on a law and economics approach. Despite the availability of liability rules and procedural devices to tackle damage, there are emerging issues in practice that can affect the application of the rules. The entitled claimants, including victims who sustained injuries or economic losses, may have difficulties pursuing an award of damages. Authorised marine administrators, legally mandated NGOs, and procuratorates have specific requirements when claiming the restoration of the contaminated marine environment. Therefore, the third part pays attention to the issues particular to China that may affect the implementation of the law. It analyses whether the efficiency objectives based on the law and economics analysis can be feasibly achieved in practice. Based on the findings in sections 2-5, section 6 summarises the strengths and weaknesses of the existing legal system in China. Instead of using one single methodology, both legal analysis and economic analysis are employed to analyse the compensation system governing offshore oil damage in this chapter, as the research question will be considered alongside the economic analysis, legal rationale, and specific situation in China.

2. Liability rules governing offshore oil pollution

2.1 Liability rules

The *Marine Environmental Protection Law* (MEPL) clarifies that the doctrine of strict liability applies to marine oil pollution.¹³⁴⁸ Regardless of whether the polluter causes the damage intentionally or negligently, he is held accountable to eliminate the danger and compensate the loss.¹³⁴⁹ As addressed in chapter 3, anyone who causes an offshore oil accident is presumed to be liable for the pollution, and thus he is obliged to prove his operation is not linked to the pollution, indicating that the burden of proof

¹³⁴⁷ Following the sequence of previous chapters, section 2 refers to chapters 2-3; section 3 refers to chapters 4-5; section 4 refers to chapter 6 while section 5 refers to chapter 7.

¹³⁴⁸ See *supra* section 2.1 of chapter 3.

¹³⁴⁹ *Ibid.*

regarding causation is shifted to him under strict liability.¹³⁵⁰

Based on the strict liability regarding offshore oil pollution in China, another important feature of the current liability regime for offshore oil damage is that no financial cap is given. Theoretically, the actual polluter would be effectively exposed to the total costs of the polluting activities he engages in and is therefore required to provide full compensation for the losses caused by his operations.¹³⁵¹

When offshore oil operations cause marine pollution, legislation stipulates that an offshore oil operator is held fully accountable for the damage, because he is exposed to the potential risks that ultimately cause the pollution.¹³⁵² The CNOOC, usually the oilfield owner as well as the holding party of these offshore oil projects in China, jointly develops the projects and assesses the accident risk. However, the CNOOC can walk away from the liability under the *Offshore Cooperation Regulation*.¹³⁵³ In that respect, the liable party is narrowly interpreted as an operator who engages in offshore oil activities.

The MEPL holds that no liability is imposed on the polluters in case of *force majeure* or in case of an intentional act of a third party. If we assume that liability will provide incentives to increase the level of precaution, providing for a liability exemption in these two situations, where the polluter could not influence the accident risk and could therefore not have affected his incentives, does make sense from an economic perspective.¹³⁵⁴ Chapter 3 discussed that a third-party defence is contained in the legislation to exempt the polluters from liability if someone else causes marine pollution, and thus victims may make a claim against the third party. A precondition is that the polluter can only reduce or escape from tort liability after successfully submitting a report of liability exemption to the competent authority.¹³⁵⁵ Thus, this provision takes into account not just the polluter but also the contributing third party.

In the face of an offshore oil accident associated with disastrous consequences, the influence of polluters on the accident risk seems to be far more significant than that of the victims.¹³⁵⁶ It is possible that the victims can hardly play a role in the accident risk but only in damage mitigation by taking precautionary measures, which implies

¹³⁵⁰ See *supra* section 2.2 of chapter 3.

¹³⁵¹ *Ibid.*

¹³⁵² See *supra* sections 2.4 of chapter 2.

¹³⁵³ See *supra* section 2.4 of chapter 2. The CNOOC will only take risks when the project is finished and transferred to the CNOOC.

¹³⁵⁴ Faure & Wang (2006), 211.

¹³⁵⁵ See *supra* section 2.3.2 of chapter 3.

¹³⁵⁶ Section *infra* 2.2.4 of this chapter.

that offshore oil pollution is bilateral instead of unilateral.¹³⁵⁷

The MEPL remains silent on whether the victims' behaviour can become a reason for liability exemption. The new *Civil Code* of 2021 fills in the gap by providing a legal basis for a contributory negligence defence, stating that '*the injurer shall not be liable for any harm that is negligently or intentionally caused by the victim*' in tort cases.¹³⁵⁸

2.2 Economic observations

This sub-section analyses the applicable liability rules governing offshore oil damage in China, which employs efficiency as a benchmark to evaluate the efficiency of the compensation system. To be specific, the classic social costs theory of Calabresi (1970)¹³⁵⁹ will be used to examine if the rules governing offshore oil damage comply with the general economic remarks. Section 2.2.1 addresses the basis of liability, where the social cost theory is introduced as a liability standard to evaluate the compensation system. A discussion on whether liability should be capped or remain unlimited in case of offshore oil damage is provided in section 2.2.2. Section 2.2.3 discusses whether the liability should be exclusively channelled to the offshore oil operator or extended to the CNOOC since the *Offshore Cooperation Regulation* allocates all the liability to the operator. Although victims suffering from an offshore oil accident may not affect the accident risk itself, their behaviours can affect damage mitigation. Section 2.2.4 therefore discusses the role of victims in offshore oil cases and whether a contributory negligence defence should be added to a strict liability rule to control the victim's incentives.

2.2.1 Basis of liability

Although the starting point in the economic analysis, generally and also concerning the compensation for victims of marine pollution, is the Coase theorem,¹³⁶⁰ the situation is different when the victim is not a party standing in a contractual relationship with the polluter but a third party. In that case, transaction costs are prohibitive, and hence Coasian bargaining may not provide a solution.¹³⁶¹ This is

¹³⁵⁷ Shavell (1980), 1.

¹³⁵⁸ Articles 1173, 1174, 1177 (2) of the *Civil Code*.

¹³⁵⁹ Calabresi 1970.

¹³⁶⁰ Coase (1960), 87-137.

¹³⁶¹ Faure & Wang (2006), 183.

precisely the situation in the context of the damage stemming from offshore drilling, where the victims are not involved in the petroleum contract. The victims of offshore oil damage are not in a contractual relationship with the polluter (offshore oil operator). They can be injured offshore workers, affected fishermen, aquatic companies, and tourism providers, as well as contaminated marine areas. Therefore, legislative intervention is necessary to remedy the externality resulting from offshore oil accidents.¹³⁶² A legal rule should thus be put in place to give the polluters appropriate incentives and compel them to follow an optimal level of care. The economic literature on accident law has largely demonstrated that liability rules may be introduced to serve this goal.¹³⁶³

The following economic analysis uses the influential works of Calabresi (1965, 1968, 1970).¹³⁶⁴ According to his well-known total social cost theory, ‘optimal’ liability rules can minimise total social cost. More precisely, the principal function of accident law is to reduce the expected costs of accidents and the costs of avoiding accidents, which can be divided into three sub-goals.¹³⁶⁵ The first is a reduction of the number and severity of accidents, focusing on the deterrent function. Compensation is termed secondary, which concerns reducing the societal costs resulting from accidents. The parties who are disinclined to take risks (risk-averse parties) should transfer them to more risk-neutral parties (deep-pocket method) or spread the offshore-related risk through some financial arrangements (risk-spreading method). The third sub-goal involves reducing administrative costs.¹³⁶⁶ These three types of costs can be integrated with the criteria to evaluate the compensation system governing offshore oil damage in China.

A. Primary cost reduction

Prevention is in line with reducing primary costs, offering optimal deterrent incentives to minimise the sum of accident avoidance costs plus the costs of damage.¹³⁶⁷ The literature distinguishes two situations: (i) the unilateral cases, in which only polluters contribute to the loss, and (ii) bilateral cases in which preventing damage is a function of both polluters’ and victims’ incentives for prevention. The care level and activity

¹³⁶² Faure & Wang (2006), 184-185.

¹³⁶³ For a summary of this literature see Shavell 1987; Shavell (2004), 175-287.

¹³⁶⁴ Calabresi (1965), 713-745; Calabresi (1968), 67-73. Calabresi (1970), 26-30.

¹³⁶⁵ Calabresi (1970), 26-30.

¹³⁶⁶ *Ibid.*

¹³⁶⁷ Liu (2013), 99-100.

level are two pillars to minimise the primary costs.¹³⁶⁸ Given that in an offshore oil accident the polluter determines the accident risk while victims mostly affect damage mitigation, attention is paid to bilateral cases.

To determine the optimal *care level*, a balance should be achieved between accident avoidance costs and the reduction of actual damages. More care taken by the polluter will reduce the costs of damage but increase the costs of accident avoidance. The optimum is achieved when the marginal costs of care-taking equal the marginal benefits in accident reduction.¹³⁶⁹ In a bilateral situation, it seems far more critical to control the polluter's activity level than the victims, which gives an edge to strict liability. However, pure strict liability only gives incentives to the polluters (offshore oil operators) to take care but to not the victims, since they can always get compensation from the polluters. Efficient liability rules should give incentives to both the polluter and the victim, while combining strict liability with a contributory negligence defence that can make the victims take the optimal care to prevent the expected damage as well.¹³⁷⁰

Furthermore, under negligence, it will be challenging for the judges, who are often laymen addressing technical problems, to decide the optimal care level or to assess offshore oil damage.¹³⁷¹ Administrators in charge of the marine environment may have relatively more information to fulfil the tasks compared to judges, but they are still not in a position as favourable as the polluters. Since potential polluters can have access to more information concerning the methods and costs to reduce the damage, and thus are in a position to determine the efficient care level, this could lead to information asymmetry among the decision-makers and the liable polluter. In contrast, judges and marine administrative organs can leave aside this concern in the case of strict liability, which means that strict liability is preferable to negligence in providing an efficient care level, as long as an insolvency problem does not arise.¹³⁷²

Furthermore, in both unilateral and bilateral cases, the optimal deterrent function will only be realised when the polluter has enough capital to pay for the compensation. If an insolvency problem arises, the polluter in neither case will have a great enough incentive to take sufficient care. Under strict liability, the polluter will only take care

¹³⁶⁸ Shavell 1980.

¹³⁶⁹ Shavell (1987), 7.

¹³⁷⁰ Schäfer & Muller-Langer (2009), 17-19.

¹³⁷¹ Liu (2013), 73.

¹³⁷² *Ibid.*

to prevent an accident with a magnitude equal to his total wealth. While under negligence, it is rational for the polluter to bear the costs of caretaking up to his total wealth.¹³⁷³ Therefore, if the insolvency problem is accompanied by the fact that no financial guarantee is available for the liable party to cover all the loss, a negligence rule would be preferable.¹³⁷⁴

In addition to the care level, liability rules can also minimise the primary costs of accidents through their influence on the *activity level*. The activity level reflects the number of times that a particular polluter engages in a risky situation that could lead to an accident. In an offshore oil activity situation, the activity level largely corresponds to the frequency and amount of oil being exploited and produced. Law and economics literature proposes that it constitutes an argument in favour of strict liability rather than negligence in an offshore oil accident. Under strict liability, the potential polluter is always liable for the damage he caused, whatever care level he chose. He can therefore only reduce the expected damage by reducing the activity level, assuming that he takes optimal care.¹³⁷⁵

Although the behaviour of the victims has an impact on the damage mitigation *ex post*, they are incapable of contributing to reducing the accident risk *ex ante*, indicating that the question of whether victims are given incentives to adopt an efficient activity level is insignificant in this scenario. Shavell (1980) addressed that neither strict liability with a defence of contributory negligence nor negligence can lead to optimal incentives for both parties.¹³⁷⁶ Without a first-best choice, the second-best one depends on whose activity has more influence on the accident risk. It is apparent that strict liability is more favourable when the potential polluter is the major influencing factor, which is precisely the case in an offshore oil accident.¹³⁷⁷ There are some cases where other parties, apart from the operators, can also influence the offshore-related risk, such as the CNOOC in the Chinese offshore oil activities. Generally speaking, victims are not the other contributing parties to the accident, but they can definitely take appropriate measures to mitigate the damage. Other than the traditional victims, some third parties, such as administrative agencies in charge of marine affairs, can alleviate the negative consequences as well.¹³⁷⁸ Even in this case,

¹³⁷³ Faure & Grimeaud (2003), 35.

¹³⁷⁴ Liu (2013), 70-71.

¹³⁷⁵ Shavell (1980), 2-3.

¹³⁷⁶ Shavell (1980), 7.

¹³⁷⁷ Liu (2013), 71.

¹³⁷⁸ Faure & Grimeaud (2003), 31.

the polluters' influence on the accident still prevails over the influence of other parties. The optimal liability rules in this situation can give incentives to injurers to adopt an efficient activity level. Therefore, once again, it constitutes a situation where strict liability (with defences) is favourable.¹³⁷⁹

B. Secondary cost reduction

Secondary cost reduction aims to minimise the impact of a loss on social welfare by spreading it over a larger group and/or by transferring it to the parties who can best bear the loss.¹³⁸⁰ In an ideal situation, all parties would make optimal decisions regarding their care level and activity level: risk-averse parties do not bear the risk, because the risks are perfectly spread through insurance arrangements or transferred to risk-neutral parties.¹³⁸¹ The secondary cost reduction goal is concerned with victim compensation, i.e., to reduce the social costs that result from accidents, concerning loss spreading and loss bearing.¹³⁸²

In comparison to the primary cost reduction, Calabresi's secondary cost reduction goal is eventually regarded as better addressed through insurance rather than via tort law.¹³⁸³ The reason is that, if tort law primarily aims at allocating risk, it should allocate the risk to the less risk-averse parties. While it is possible in some cases (i.e., one party is a firm and the other is an individual), this is not easily generalised. Therefore, law and economics scholars argued that insurance, rather than tort liability, is a preferable and more easily adaptable mechanism for redistributing the accident risk.¹³⁸⁴ For example, the risk-averse party, either the polluter or the victim, can share the offshore-related risk by purchasing liability insurance. Insurance could minimise the secondary cost. By contrast, when such insurance is not available, the minimisation of secondary costs requires placing the burden on the less risk-averse party,¹³⁸⁵ which raises the question of the allocation of liability.¹³⁸⁶

The deep pocket method is derived from the allocation of liability, which is on the basis of loss spreading.¹³⁸⁷ It represents the 'state of the art' with regard to the manner of allocating resources in the tort area when Calabresi began to build his

¹³⁷⁹ Liu (2013), 74.

¹³⁸⁰ Liu (2013), 99-100.

¹³⁸¹ Shavell (2004), 259.

¹³⁸² Shavell (1982), 120-132; Shavell (1987); Shavell (2000), 166-179.

¹³⁸³ *Ibid.*

¹³⁸⁴ *Ibid.*

¹³⁸⁵ Visscher (2009), 27.

¹³⁸⁶ See *infra* section 2.2.3 of this chapter.

¹³⁸⁷ Calabresi (1961), 499-500.

conceptual structure.¹³⁸⁸ As later discussed in section 2.2.3, this theory deserves special attention in relation to the Chinese offshore oil industry. Although the CNOOC, with substantial financial resources, develops most projects jointly with partnered operators, it normally bears no tort liability. This poses a threat of undercompensation and underdeterrence associated with insolvency, especially when the operator is moderate state financially and thus can barely cover all the damages. As allocation instruments, both loss spreading (insurance) and loss bearing (deep pocket) would surface again in the different guise of compensation, pertaining to the ‘fairness’ and ‘justice’ of the system in relation to the realm of secondary costs.¹³⁸⁹ Notably, secondary cost reduction is similar to the compensation function in the sense that they both concern the allocation of the losses. However, these two concepts are not identical. *Compensation* focuses on making up the losses and redressing the victims with the resources of the liable polluters or others. In comparison, *secondary cost reduction* concentrates on the efficient allocation of losses, where the victims can become cost bearers as long as they are less risk-averse than the polluters.¹³⁹⁰ Obviously, compensation places an emphasis on the victims’ interest, thus containing the notions of ample and timely payment, whereas secondary cost reduction focuses more on efficiency regarding social cost reduction.¹³⁹¹

In terms of offshore oil accidents, discussing the secondary cost reduction only makes sense for personal injuries and economic losses via the environment. Risk spreading and risk shifting may have a limited purpose in the context of marine ecological damage, considering the marine environment is *res communis* that is owned communally and governed by the State.¹³⁹² In that respect, damage to such publicly-owned resources has already been automatically spread.¹³⁹³

C. Tertiary cost reduction

The tertiary cost reduction goal concentrates on reducing ‘the costs of achieving the primary and secondary cost reduction,’ or, to put it simply, reducing administrative costs.¹³⁹⁴ Under strict liability, the decision-makers (and judges) only have to decide

¹³⁸⁸ Pardolesi & Tassone (2007), 22.

¹³⁸⁹ In Calabresi’s view, as already noted, fairness and justice do matter, no less than allocative efficiency. See, for example, Calabresi (1983), 68-85.

¹³⁹⁰ *Ibid.*

¹³⁹¹ Liu (2013), 69.

¹³⁹² Article 9 of the *Constitution* of China.

¹³⁹³ Liu (2013), 69.

¹³⁹⁴ Calabresi (1970), 26-28; Shavell (1987), 273.

the magnitude of the loss to award the corresponding compensation. In comparison, their duty is to find the due care level equal to the optimal level under a negligence rule. To define the due care level, the information about avoidance costs and expected damage is essential, which creates more uncertainty and unpredictability in using the statutory rules than under strict liability. As a result, it is more expensive to make a decision/judgment under the negligence rules. Furthermore, under strict liability, it is less costly for a claimant (plaintiff) to claim the damages, since he does not need to prove the ‘fault’ of the liable polluter (defendant). Nonetheless, this may also lead to a growing number of cases due to the relaxation of the procedural burden of plaintiffs, which will hence lead to increased costs of administrating the legal system.¹³⁹⁵ However, the burdensome costs resulting from too many lawsuits under strict liability could be offset by the difficulties in establishing liability for offshore oil damage.¹³⁹⁶ Furthermore, the application of strict liability can save more administrative costs than negligence, because the potential polluters have better information than judges to find the optimal care level in offshore oil damage cases.

By comparing these three types of costs, as far as the minimisation of the total social costs is concerned, the existing legislation in China basically complies with the general rationale of the economic analysis. Theoretically, it seems that the rules governing offshore oil damage are more efficient under strict liability than under negligence, but on the condition that an insolvency problem does not arise. Otherwise, strict liability will pose a danger of insufficient compensation as well as deterrence associated with insolvency.

According to the total social cost theory, the minimisation of primary accident costs (deterrence), secondary accident costs (optimal risk spreading and risk bearing), and tertiary accident costs (administrative costs) are regarded as the central objectives for ‘optimal’ liability rules. It is argued in economics that taking into account the three factors and leaving aside the insolvency risk, strict liability (with defence) is favourable to tackle offshore oil damage. On the one hand, China does establish a strict liability system with a contributory negligence defence to handle offshore oil damage, which gives incentives to both the polluters and the victims to take care in a bilateral situation. On the other hand, since the operators’ influence on the accident prevails over the influence of victims, the rules are also available to stimulate these

¹³⁹⁵ Schäfer & Muller-Langer (2009), 24.

¹³⁹⁶ Liu (2013), 74.

potential polluters to undertake an efficient activity level. Theoretically, legislation in China provides the available approaches to reduce the primary costs with respect to the care level and activity level. Secondary cost reduction is similar but not identical to the notion of compensation. Compensation emphasises the victims' interest that concerns adequate and timely payment, whereas secondary cost reduction focuses on efficiency. The goal is better addressed through insurance rather than tort law from a law and economics perspective. This can be accomplished in two ways: the deep-pocket method and the risk-spreading method. The second cost reduction factor may make sense for personal injuries and economic losses via the environment, but it plays a minor role in ecological damage, as the marine environment is owned only communally. The tertiary costs fit into the aspect of reducing administrative costs under strict liability, because it requires less information and is generally less costly for judges to deliver a judgment and for victims to claim damages.

2.2.2 Financial caps

An obvious advantage of having no financial caps on liabilities is that this will theoretically allow the victims to obtain full compensation and internalise the external costs of the damage. Given that the exposure to liability has a deterrent effect on the potential polluters, no limitation of the compensation amount can give a relatively high level of care. They will not consider the accident risk as one with a magnitude capped at a limited amount. Instead, they will probably take the care necessary to reduce the total accident costs. The amount of optimal care, reflected in the optimal standard, being the care necessary to reduce the total accident costs efficiently, is supposed to equal the amount that the potential polluter will spend to avoid an accident.¹³⁹⁷ In that respect, a strict liability without financial caps can efficiently incentivise potential polluters to take precautions.¹³⁹⁸

2.2.3 Polluters: attribution of liability

Identifying the liable parties is another essential issue in the establishment of liability for offshore oil damage. As mentioned above, the law and economics approach aims to minimise the total social costs by giving the parties involved in an accident the

¹³⁹⁷ Faure 1995.

¹³⁹⁸ Faure & Van den Bergh (1990), 241; Faure (1995), 29-31; Trebilcock & Winter (1997), 215-243.

optimal incentives to do so. The primary step towards this objective is to decide to whom the incentives should be given.

As noticed above, the liable party is identified as the offshore oil operator and thus, theoretically, the liability is exclusively channelled to the operator, which means the victim no longer has the right to sue the CNOOC. It *de facto* constitutes exclusive channeling. Theoretically, two aspects are considered when judging whether the rules constitute ‘channeling.’ The first is how broadly the liable party is defined; the second is whether victims can claim the damages from other parties and recourse against them is possible.

The legal rule means that liability will effectively be ‘channeled’ to the offshore oil operator and that liability suits on other grounds or against others are excluded.¹³⁹⁹

Assuming that the exposure to liability provides incentives for prevention, this channeling regime could be inefficient from an economic perspective. Literature criticises that channeling leads to the sole liability of the operator, with the exclusion of liability suits against third parties who have contributed to the loss.¹⁴⁰⁰ It can be argued that legislators follow the ‘polluter pays’ principle, because operators ought to be responsible for the damage arising from their activities while exploiting and producing oil. Nevertheless, since the channeling of liability denies the possibility of claiming damages from other parties, particularly the CNOOC, which also affects the accident risk, it is problematic from a deterrence perspective. This other contributing party, exempted from liability, lacks incentives to make optimal preventive efforts.

A channeling of liability could aggravate insolvency in a strict liability setting, leading the victims to receive inadequate compensation. It should not be forgotten that both a major oil company and a small firm could cause harm or a great deal of damage to the entire ecosystem. Even though we have an optimistic attitude towards these large oil corporations that the likelihood of their insolvency remains a matter of little concern,¹⁴⁰¹ there is still a danger of insolvency for those subsidiaries (that remain an independent legal body of their parent companies) and medium and small oilfield service companies. The risk of insolvency is at least a serious issue for any operators with moderate or weak financial capacity, since liability is channeled

¹³⁹⁹ Faure & Wang (2006), 188-190.

¹⁴⁰⁰ Some scholars give a critical economic analysis of the channelling of liability but mainly concentrate on nuclear liability. See Abraham (2014), 8-9; Ameye (2010), 33-35; Borre (1999), 17-18.

¹⁴⁰¹ Cooter & Ulen (1988), 246-247.

exclusively to them.¹⁴⁰² Consequently, the severity of insolvency mostly depends on the liable party's financial position.

The allocation of liability in China, while the liability of the CNOOC who could have influenced the accident risk is excluded, does not seem to be in line with the economic perspective. As a holding party of offshore oil projects, the CNOOC has contributed to the loss and should be exposed to liability so that it has an incentive to take prevention measures. However, the CNOOC is not liable at all under the existing rules due to the channeling.¹⁴⁰³ As far as an offshore oil accident is concerned, a strict liability rule could theoretically expose the one that creates risks to full social costs. It is not clear who exactly the 'risk creator' (or 'risk bearer') is due to the complicated contractual arrangements. Based on the statutory provisions, the CNOOC is completely excluded from liability, and all the duties are shifted to the foreign operator. To the extent that the CNOOC is also involved in the oil exploration, the statutory exclusion of liability of CNOOC does not provide it with sufficient incentives for prevention.

Economic literature equally indicates that strict liability provides incentives for prevention only if the polluter has assets at stake to pay for the damage,¹⁴⁰⁴ meaning that a condition for full internalization is that the potential polluter should be solvent to deal with the offshore oil damage from an accident. Otherwise, a strict liability rule with no financial caps will lead those financially moderate polluters to insolvency and thus create a judgment-proof problem.¹⁴⁰⁵ In the case of insolvency, strict liability may lead to underdeterrence, which arises as soon as the magnitude of the damage is greater than the polluter's wealth.¹⁴⁰⁶ It indicates that this economic advantage of strict liability holds only in the hypotheses of the full solvency of the polluter.

Some literature suggests that the problem should be addressed by means of requiring the polluter to pay punitive damages in those cases where the harm is lower than his assets to correct for the cases where he is judgment proof. After all, this increases his expected liability.¹⁴⁰⁷ Alternatively, the same result can be achieved by having the

¹⁴⁰² See *supra* sections 3.3 and 9.2 of chapter 6.

¹⁴⁰³ Faure & Wang (2006), 188-190.

¹⁴⁰⁴ Faure & Wang (2006), 185-188.

¹⁴⁰⁵ According to Shavell (1986), parties who cause harm to others may sometimes turn out to be 'judgment proof,' that is, unable to pay fully the amount for which they have been found legally liable.' This possibility is an important and realistic one. Certain individuals may readily be imagined to cause personal injury or property damage resulting in judgments that exceed their assets plus any liability insurance coverage, and the same is true of firms.

¹⁴⁰⁶ Landes & Posner (1984), 417-434.

¹⁴⁰⁷ Boyd & Ingberman 1994; Lewis & Sappington 1999.

injurer pay average damages in each case.¹⁴⁰⁸ The advantage in the latter case is to require less information, because only the information about average harm is needed, not about real harm in specific cases.¹⁴⁰⁹ These two arguments, however, may have limited values in case of an offshore oil accident associated with catastrophic consequences. Normally speaking, such an incident has a low probability of occurrence, but the consequence is usually disastrous once it takes place.¹⁴¹⁰ Since it may take years or even decades between two offshore oil accidents, paying average damages on the basis of average harm seems to be an idealistic solution. Furthermore, the total losses from each offshore oil accident could already be so substantial that applying punitive damages can probably also be unrealistic. In China, although the new *Civil Code* introduced the notion of punitive damages to tackle environmental pollution since 2021, the application has not extended to marine oil pollution yet.¹⁴¹¹ A feasible proposal to the judgment-proof problem (insolvency risk) is to consider some guarantee mechanisms, such as insurance. Furthermore, a regulatory solution can be added to take care of the danger of underdeterrence caused by insolvency.¹⁴¹² Sections 4-5 will further discuss these two instruments.

From a law and economics perspective, a joint and several liability rule may be preferable.¹⁴¹³ From a compensation perspective, victims can simply sue any of the available polluters who are all exposed to liability and claim full compensation.¹⁴¹⁴ After all, based on the theory of secondary cost reduction in section 2.2.1, large corporations with ‘deep pockets’ are better able to accommodate the risks stemming from offshore oil activities than the subsidiaries not endowed with wealth.¹⁴¹⁵ The State-owned CNOOC is such a corporation that has actual control over offshore oil projects and is thus in a better position to take preventive measures and minimise damage. It is financially capable of paying compensation for offshore oil damage. The CNOOC will be the ultimate beneficiary of the oil exploitation and should thus bear the consequences thereof.¹⁴¹⁶ From a deterrence perspective, one could also be inclined to call for a situation where all the parties who contributed to the risk, in

¹⁴⁰⁸ Dari-Mattiacci & De Geest 2005.

¹⁴⁰⁹ *Ibid.*

¹⁴¹⁰ Smith *et al.* 2011.

¹⁴¹¹ Article 1232 of the *Civil Code*.

¹⁴¹² Shavell 1986.

¹⁴¹³ Faure & Wang (2006), 190.

¹⁴¹⁴ Faure & Wang (2006), 188-190.

¹⁴¹⁵ Cooter & Ulen (1988), 246-247; Boyd & Ingberman (1997), 232–258.

¹⁴¹⁶ Faure & Wang (2006), 202.

some way, are exposed to liability so that they can receive optimal incentives to reduce the accident risk.¹⁴¹⁷

It is argued that, in strict liability, solvable polluters would receive sub-optimal care incentives under joint and several liability as well as under non-joint liability.¹⁴¹⁸

After all, when each polluter is only confronted with a fraction of the losses, the partial damages can be insufficient to provide the correct incentives. Moreover, victims will not sue more defendants than necessary to receive full compensation in order to save on litigation costs. Polluters who do not expect to pay damages to the victims are only subject to incentives to take care through recourse claims.¹⁴¹⁹

However, this assumption is only limited to unfamiliar polluters who and presumably entities that act independently, whereby they will all take inadequate care and externalise the rest of the losses towards the other liable party.¹⁴²⁰ When polluters who have some type of relationship with one another cooperate, like the CNOOC and its partnered operators, they will probably weigh total care costs against the total losses and take optimal care in a joint and several liability setting.¹⁴²¹

One could also be skeptical about joint and several liability and be in favour of channeling for procedural reasons. It is argued that channeling simplifies the procedures of compensation claims, since victims can only sue the offshore oil operator to which liability is channeled.¹⁴²² It can save the victims costs in investigation and identifying the liable polluters. However, this argument is not very convincing: the potentiality of channeling in saving investigation costs is limited. Even with such an advantage, it is doubtful whether the losses of legal channeling created by reduced incentives could outweigh the gains from a simplified procedure. More precisely, the additional benefit of channeling for the victims (the costs of finding out that it is, e.g., the operator who may be primarily liable, are not that high) is unlikely to offset the disadvantages for them (victims no longer have the possibility to claim their damages from other parties who may have contributed to the loss as well).¹⁴²³ Without channeling, the victims can also claim against other parties who contribute to the damage.¹⁴²⁴

¹⁴¹⁷ Faure & Wang (2006), 188-190.

¹⁴¹⁸ Visscher (2009), 25.

¹⁴¹⁹ *Ibid.*

¹⁴²⁰ Kornhauser & Revesz (2018), 245-298; Kornhauser & Revesz (1990), 637.

¹⁴²¹ Shavell (1987), 164-167.

¹⁴²² Faure & Wang (2006), 188-190.

¹⁴²³ *Ibid.*

¹⁴²⁴ Faure & Wang (2006), 188.

Another argument to defend channeling contends that it makes no difference on which parties the liability is imposed according to the Coase theorem, since the costs can be transferred through contractual arrangements. However, high transaction costs may in practice prohibit the re-allocation of liability, and the transitive process may be interrupted as a result of the insolvency of one of the parties involved.¹⁴²⁵

2.2.4 Victims: a contributory negligence defence

In terms of offshore oil damage, although it is far more critical to control the polluter's activity level than the victim's level to prevent the occurrence of an accident,¹⁴²⁶ victims still take part in damage mitigation of the damage *ex post*. In a pure strict liability setting, victims may lack the incentives to mitigate the damage and take efficient care to alleviate the negative consequences associated with the accident. In that respect, victims should be encouraged to mitigate their losses so that torts damages can be restricted to the optimally mitigated losses plus the mitigation costs.¹⁴²⁷ Therefore, taking the victim's behaviour into consideration is conducive to the prevention of offshore oil pollution.

For the applicable rules in China in case of marine pollution, such as offshore oil pollution, a contributory negligence defence has already been added to strict liability. There is a provision under the *Civil Code* to bar a victim from recovering compensation if the liable polluter can prove that the plaintiff acted negligently and contributed to the accident. As far as the individual victims that sustained injuries or economic losses are concerned, the strict liability equally extends to the compensation awarded, and they have the ability to take appropriate measures to mitigate the damage. In terms of ecological restoration, the abstract victimised State can also be subject to prevention measures, but the burden is *de facto* laid upon its representative, the administrative organs. Therefore, adding a contributory negligence defence could optimally control the victim's care level, which explains why the applicable rules incorporate this into the strict liability system.¹⁴²⁸

Since victims can do nothing to reduce the possibility of an offshore oil accident, they are incapable of contributing to reducing the accident risk *ex ante*, but they can only

¹⁴²⁵ Faure & Wang (2006), 187.

¹⁴²⁶ *Ibid.*

¹⁴²⁷ Wittman 1981; Shavell (2004), 248.

¹⁴²⁸ Faure & Wang (2006), 185.

impact damage mitigation *ex post*. Notably, a contributory negligence defence does not relate to the victim's duty to prove a causal link between his loss and the accident when claiming damages. A proof of causation is necessary, as otherwise there may be a moral hazard, leading to wrongfully compensated cases. After all, victims could be encouraged to claim totally unrelated losses. Individual fishermen near the polluted water areas might allow the fishing vessels, gear, and other tools to get rusted and damaged, even though they could have rescued them from oil spills and safely kept them in the warehouse. Other than moral hazard, there is also an incentive to free ride on the efforts of others to compensate and make less effort themselves. Some restaurant owners could claim that their expected income was drastically reduced because they could not sell seafood from the contaminated water area anymore, but it could turn out that their food ingredients were actually from other untouched fishing areas. A similar example occurred in the Bohai case.¹⁴²⁹

To summarise, the strict liability system with no financial caps in China, leaving aside the insolvency issue, is theoretically favourable to tackle offshore oil damage. The operator is held accountable for compensating the loss and restoring the contaminated marine environment, whereas the CNOOC is not legally mandated to bear any liability due to the channelling. Hence, the joint developer CNOOC is not incentivised to take prevention measures under such a liability system. Moreover, there is a danger of undercompensation and underdeterrence associated with an insolvency risk, as strict liability only provides incentives when the risk creator can pay for the damages. Considering that victims can play a role in mitigating the damage *ex post*, adding a contributory negligence defence to the strict liability system complies with the law and economics theory.

2.3 Liability rules in practice

2.3.1 Polluters: allocating the liability among the operator and the CNOOC

Given that the legal rules governing offshore oil damage follows strict liability with no financial caps, the crucial point is to identify the liable party and require it to undertake the liabilities. According to the current rules, the project operator should be fully accountable for both traditional damage and ecological damage. In the latter

¹⁴²⁹ See *infra* chapter 9.

scenario, however, because of the involvement of the public administration in the claims process, the pattern of tackling ecological restoration is *de facto* abnormal, as the parties within the claims process are probably not independent from each other. Given that this issue is closely linked to the claims process, chapter 9 will further discuss the application of allocating liability in practice.¹⁴³⁰

2.3.2 Victims: taking due care in terms of the contributory negligence defence

In a bilateral liability setting, only the operator side can affect the occurrence of an accident. Nevertheless, the victims, regardless of affected individuals or entities, can still alleviate the negative consequences of offshore oil damage by taking appropriate measures to mitigate the damage. A contributory negligence defence was introduced into the strict liability system, but utilising this principle is necessary to ensure the victims' behaviour before and after the damage can be identified. As addressed in chapter 5, both administrative and judicial compensation approaches require the victims to submit relevant materials while pursuing their awards. Accordingly, when the administrators and the judges in charge take all the relevant factors into consideration while determining the claims, the victims' behaviour concerning offshore oil damage plays a part.

Take the *Clean-up Cost Claim Statement*¹⁴³¹ as an example. Victims who have already taken measures to mitigate damage and paid clean-up costs could require compensation for the clean-up costs in addition to the economic loss, which is *de facto* a signal to encourage victims to undertake damage mitigation. In contrast, if the victims who are reluctant to take safety measures or even deliberately exaggerate the consequences would intend to pursue compensation for their losses, their passive behaviour will be considered when deciding the case. Unlike the *Claim Statement* that purely focuses on claiming compensation, the *Clean-up Statement* reveals whether the expenses from the claimant are necessary for the remedial action and thus should be compensated by the polluter. Furthermore, the *Clean-up Cost Claim Statement* also demonstrates the outcome of the clean-up action so that the authority can evaluate whether the action is considered necessary.¹⁴³² Only 'necessary' removal actions and relevant expenses will be counted, which avoids the case that someone takes

¹⁴³⁰ See *infra* section 2 of chapter 9.

¹⁴³¹ See *supra* section 2.1.1.A of chapter 5.

¹⁴³² Article 23 of the *Offshore Exploitation Regulation*.

advantage of compensation.

The behaviour of claimants regarding ecological damage differs from traditional damage, as the victim is the abstract State, and the claimants turn out to be the public administration. In that respect, marine administrative organs, acting as the representative of the State, bear the duty of taking due care and alleviating the negative consequences to the greatest extent. They also need to fill out a *State Statement* and send it directly to the liable party,¹⁴³³ in which they are entitled to claim four types of damages related to ecological restoration, which includes the (a) clean-up costs; (b) losses in the course of restoration; (b) costs of restoration; (c) cost of evaluation and investigation; and (d) cost of restoration.¹⁴³⁴ It clarifies that marine administrators are obliged to provide relevant proof if they intend to claim clean-up costs or the losses resulting from the accident. Since marine administrative organs simultaneously act as the claimant and the decision-maker, they will check their own *State Statement* and determine whether they have fulfilled the obligation of mitigating ecological damage. This indicates that there lacks an independent party to monitor the decision-making. Nevertheless, if the liable operator objects to this *Statement*, they can terminate the claims process through administrative management and turn to courts as a last resort.

3. The mechanism of pursuing tort damages

After analysing tort liability rules, this section continues to examine tort damages associated with offshore oil pollution. After examining the rules regarding tort damages (section 3.1), section 3.2 analyses the existing compensation patterns based on economic rationale. Section 3.3 discusses the potential concerns while pursuing compensation via applying the rules in practice, whereby the administrative and judicial approaches are examined respectively.

3.1 Rules of tort damages

Recall that offshore oil pollution may lead to three types of damage: personal injuries, economic losses, and ecological damage. A distinction is made between traditional damage (personal injuries and economic losses) and ecological damage when

¹⁴³³ See *supra* section 2.2.1 of chapter 5.

¹⁴³⁴ See *supra* section 3.5.2.4 of chapter 3. Article 3 of the *2014 Measure* makes clear that these four types of damages related to marine ecological damage are recoverable.

discussing the legitimacy of standing and the corresponding claim approaches. The new *Civil Code* stipulates that the *locus standi* for traditional damage is simple: anyone whose rights and interests have been infringed enjoys the right of compensation. Normally speaking, the parties in litigation should have a direct interest at stake. Unlike traditional damage that sticks to a restricted standing requirement, there are in total three entities that have standing for marine ecological damage in China: the public authorities (marine administrative agencies), environmental social organisations (NGOs), and procuratorates are all possible plaintiffs.

Based on the types of loss associated with offshore oil accidents, affected individuals and entities are obliged to choose one of the four means to obtain damages in terms of traditional damage: administrative management, litigation, judicial mediation, and arbitration. Likewise, the administrative representatives can also claim ecological restoration using these four methods, but one major difference is that administrative management is considered a prerequisite for three other methods. Other than that, a typical form of a lawsuit - Environmental Public Interest Litigation (EPIL) - can be initiated by legally mandated NGOs and procuratorates on the premise that offshore oil damage negatively impacts the public interest.

3.2 Economic observations

Accordingly, the following two sub-sections emphasise two crucial points regarding tort damages: identifying the victims or claimants and classifying the recoverable types of damages originating from offshore drilling. A few observations are made based on a law and economics analysis.

3.2.1 Claimants of offshore oil damages

The standing requirements for traditional damage can act as a gatekeeper for initiating lawsuits.¹⁴³⁵ This can be justified from a law and economics perspective so as not to overburden the courts or create overdeterrence of the liable party.¹⁴³⁶ In the case of offshore oil damage, the current legal rules address that only individuals and entities suffering from personal injury or economic loss after an offshore oil accident are

¹⁴³⁵ Van Aaken (2005), 15.

¹⁴³⁶ Liu (2013), 51.

allowed to initiate a claim against the liable party, which conforms to this basic rule for traditional damage. It also indicates that anyone who has no standing is not regarded as a victim, as his injury or loss has no direct interest related to the offshore oil damage.

However, the limited standing requirements are not always adequate, for example, for ecological damage.¹⁴³⁷ By definition, the (marine) environment is a public good, as it has two essential properties: (i) non-rivalrous¹⁴³⁸ and (ii) non-excludable.¹⁴³⁹ A dilemma of a public good is that there is a risk of being under-provided due to the free-rider dilemma, as individuals usually consider private benefits but not public benefits when taking decisions.¹⁴⁴⁰ Hence, a court's decision concerning the marine environment also takes concerns a public good and would involve many stakeholders.¹⁴⁴¹ In this case, a broadened scope of standing can help to overcome the under-supply problem and increase efficiency.¹⁴⁴² This may explain why the *Chinese Constitution* stipulates that both the ocean and marine resources are communally owned and governed by the State. From an economic perspective, this is understandable.¹⁴⁴³

The choice of standing is a trade-off between allowing claims for marine ecological damage and avoiding numerous frivolous and irrelevant cases simultaneously, as the costs for different initiating parties may include information costs, administrative costs, and enforcement costs.¹⁴⁴⁴ An ideal claimant should be someone who has both the willingness and capacity to bring a claim while keeping the incurred costs reasonable.¹⁴⁴⁵ Either initiating a claim through the administrative method or filing a lawsuit places a burden on the aspect of information in terms of detecting and assessing offshore oil damage. The claimant (plaintiff) will be required to prove the causal link between the liable parties' activities and the damage (at least *prima facie*).¹⁴⁴⁶

¹⁴³⁷ Stein 1979.

¹⁴³⁸ The feature of non-rivalry means that public goods fail to exhibit consumption scarcity. Once it has been produced, everyone can benefit from it without diminishing enjoyment by others. For more information about the nature of public goods, see further Buchana (1968); Ostrom & Ostrom (2019), 7-49.

¹⁴³⁹ The feature of non-exclusivity means that once public goods have been created, it will be very difficult or impossible to prevent access to the good. The environment is a typical example of this.

¹⁴⁴⁰ Van Aaken (2005), 15.

¹⁴⁴¹ Hellwig (2003).

¹⁴⁴² Liu (2013), 61-62.

¹⁴⁴³ Article 9 of the *Constitution* of China. See *supra* section 1.2.1 of chapter 2.

¹⁴⁴⁴ Liu (2013), 61-62.

¹⁴⁴⁵ *Ibid.*

¹⁴⁴⁶ See *supra* section 2.2.3 of chapter 3 and section 3 of chapter 5.

Public authorities are in a good position to claim offshore oil damage in view of their capacity in relation to information collection and damage assessment: the detection of marine oil pollution needs effective environmental monitoring, while damage assessment is a time-consuming and costly procedure.¹⁴⁴⁷ Some public authorities (the SOA and its dispatched branches) have the duty to monitor the status of the marine environment, while some other departments (the OOOSO and its branches within the CNOOC) are responsible for establishing databases for offshore oil activities. These public authorities have the advantage of having intellectual and capital resources to proceed with damage assessment, where the information costs for them to litigate are relatively low. When administrators are to file a claim and execute (guide) the restoration, it is easier to keep continuity and reduce the enforcement costs.¹⁴⁴⁸

The advantages in capacity do not always materialise, especially in some developing countries where the lack of capacity in relevant agencies and the overlapping authorities in safety inspection have often been reported.¹⁴⁴⁹ For instance, chapter 7 showed that China has more than one public authority that monitors mobile offshore units (MOUs) in practice yet lacks clear guidance.¹⁴⁵⁰ The *Offshore Oil Operation Safety Office of the State Administration of Work Safety* (OOOSO) is legally authorised to monitor MOUs, while the Maritime Safety Administration (MSA) *de facto* exercises the duty in practice. Such scenarios may pose a threat to the shuffling of responsibility among different authorities, as no clearly defined duties on public authorities are provided by law.¹⁴⁵¹

Sometimes, statutory standards regarding public authorities have been established on paper, but whether the law is well applied in practice and whether regulation gives an incentive to the risk creators for prevention largely depends on implementation. Suppose a clear and definite duty is imposed on the public authority to protect the marine environment, and they can guarantee effective monitoring and enforcement, in that case, marine administrative agencies can be the eligible parties to initiate a claim for marine ecological damage. However, some scholars express their doubt that local

¹⁴⁴⁷ Liu (2013), 62-65.

¹⁴⁴⁸ *Ibid.*

¹⁴⁴⁹ The overlapping competencies of regulatory authorities in China have been discussed before. See *supra* section 5.3 of chapter 7. The insufficient capacity of environmental protection agencies is often reported in western areas. For example, see Schwartz (2003), 50-81; Van Rooij (2003), 36-64.

¹⁴⁵⁰ See *supra* section 5.3 of chapter 7.

¹⁴⁵¹ Liu (2013), 62-65.

authorities may be reluctant to adopt strict measures, because they are ‘often particularly vulnerable to lobbying by industrial interest groups as a consequence of the controlling role the latter often play in the socioeconomic interests of local communities.’¹⁴⁵² Given the special role of the State-owned CNOOC and its close relationships with the public administration in the offshore oil sector, it seems doubtful if the government is always motivated to file a case.

Social organisations that meet the strict requirements to initiate environmental public interest litigation (EPIL) may have a strong incentive to bring a lawsuit for ecological damage, since environmental protection is usually the aim in their articles of association. As non-governmental groups, they seem to be more indifferent to lobby groups such as some offshore oil enterprises.

Furthermore, not all social organisations could engage in such a task because of the burden of litigation costs, information costs, and administrative costs. As mentioned above, the information required in the case of a claim for ecological damage is rather high, including technology, experts, and evaluation methods. Without daily environmental monitoring and data collection, it would be difficult for them to determine the baseline of the marine environment before the damage happens. In addition, even when the damages are awarded successfully, social organisations can hardly use those financial resources to restore the contaminated water areas without the support of marine administrative agencies.¹⁴⁵³ When some qualified social organisations bring cases, there will be additional administrative costs to set up such organisations and serve the purpose of environmental protection and filing a claim.¹⁴⁵⁴ Therefore, when the liable parties or public authorities fail to respond or sloppily take inappropriate clean-up measures, the current legal system provides an alternative: environmental social organisations are granted standing to file a claim, on the condition that they are well-organised, equipped with necessary expertise, and experienced.¹⁴⁵⁵ Given that EPIL is still in its infancy in China, as shown in chapter 5, it will be a long time before these environmental social organisations play a real part in compensating offshore oil damage.

In addition, **procuratorates** are allowed to file an EPIL against the liable polluter (civil EPIL) when neither legally mandated administrative organs nor qualified social

¹⁴⁵² Faure *et al.* (2010), 120.

¹⁴⁵³ See *supra* section 2.2.2 of chapter 5.

¹⁴⁵⁴ Liu (2013), 61-62.

¹⁴⁵⁵ *Ibid.*

organisations have taken such an initiative.¹⁴⁵⁶ In contrast to a civil EPIL case, procuratorates are the only qualified plaintiff initiating an administrative EPIL case.¹⁴⁵⁷ Allowing procuratorates to initiate an administrative EPIL case makes up for social organisations' lack of standing in such cases, where administrative agencies are the defendant.¹⁴⁵⁸ Compared to social organisations, procuratorates have favourable financial and human resources and appropriate political support, which may mitigate against the court's reluctance to accept a case and overcome difficulties in the investigation, providing a higher likelihood of success in EPIL cases.¹⁴⁵⁹ Moreover, since the procuratorate generally acts as a legal supervisor akin to a prosecutor during criminal litigation, they may barely have experts specialised in marine affairs, so the information costs would be relatively high.¹⁴⁶⁰ Therefore, it is doubtful if the standing of procuratorates in the case of offshore oil damage will have much value in practice, which may explain why so far no procuratorates initiated an offshore-related claim.¹⁴⁶¹

3.2.2 Types of damages

Awarding efficient damages is an essential issue for liability rules concerning offshore oil damage. To quantify offshore oil pollution into monetary damages is a technically difficult task.¹⁴⁶² The goal of tort law is not limited to full damage awards for the victims but it is also to provide optimal incentives to minimise total social costs.¹⁴⁶³ In that ideal model, optimal damages should not be capped at the victim's actual losses *ex post*, but should also be based on the expected *ex ante* social costs. Even if not every victim is fairly compensated, a large number of cases together can still provide the polluter with optimal deterrence to internalise the entire social costs that they produce.¹⁴⁶⁴

When it comes to ecological damage in particular, Liu (2013) distinguishes the losses into replaceable goods and irreplaceable goods when examining the nature of ecological damage. Based on Liu's distinction, table 30 below develops her idea and

¹⁴⁵⁶ See *supra* section 1.3.3 of chapter 5.

¹⁴⁵⁷ *Ibid.*

¹⁴⁵⁸ Zhai & Chang (2018), 379.

¹⁴⁵⁹ *Ibid.*

¹⁴⁶⁰ *Ibid.*

¹⁴⁶¹ See *infra* chapter 9.

¹⁴⁶² Liu (2013), 80-84.

¹⁴⁶³ Arlen (2000), 682.

¹⁴⁶⁴ *Ibid.*

generally classifies the types of losses originating from offshore drilling into these two categories. For **replaceable goods**, including most property damage and recoverable injuries, the victims can be adequately compensated or recovered by a payment of the market price of the goods. For example, an offshore employee who fractured his elbow during an accident could in theory get fully compensated from the liable party, including the medical expenses, losses of income due to missed working time, food allowances in hospital, etc. Chapter 4 provided detailed guidance on how to calculate the expenses for all types of indemnities. In contrast, **irreplaceable goods** cannot be substituted with equivalent goods available on the market. A typical example of this are victims who are seriously injured, disabled, or even deceased. It may also refer to some precious items that cannot be substituted.

Table 30 Types of losses caused by offshore drilling and their features¹⁴⁶⁵

Types of losses	Replaceable goods	Irreplaceable goods
Personal injury	Minor injury (that can be fully recovered)	Serious personal injury, permanent disability, death
Economic loss	Property damage, such as facilities that are damaged or contaminated (such as polluted vessels, fishing tools, etc.);	Valuable items cannot be replaced because of their unique and original features (this rarely happens due to oil spills)
Marine ecological damage	Remedial measures that <i>can</i> return the damaged water areas and/or impaired services to the baseline condition	Remedial measures that <i>cannot</i> return the damaged water areas and/or impaired services to the baseline condition

In particular, marine ecological damage is one type of damage suffered by the State (and by the public) which causes the loss of the economic value of the ocean, cultural, and ecological values.¹⁴⁶⁶ In view of its ecological and other values, damage to the marine environment is not a traditional replaceable good nor is it identical to irreplaceable goods, because usually the damaged environment can at least be partially recovered. Accordingly, the compensation for ecological damage can be divided into two parts. To the extent that the marine environment can be restored, it is analogous to replaceable goods. The part that cannot be fully restored and the loss during restoration can be seen as irreplaceable goods.

This restoration approach is followed in China. Recall that chapter 4 indicated that

¹⁴⁶⁵ The table was made by the author.

¹⁴⁶⁶ Liu (2013), 80-84.

four legal instruments could be combined when determining the compensation in terms of marine ecological damage resulting from offshore drilling. Notably, the following four types of damages will be taken into account in practice: (a) clean-up costs and costs of preventive measures; (b) costs of restoration; (c) losses in the period of rehabilitation; and (d) expenses on investigation and assessment.¹⁴⁶⁷ The (a), (b), and (d) categories are ‘remedial measures that *can* return the damaged water areas and impaired services to the baseline condition.’ By taking restoration measures or replacing the polluted ocean areas with one offering the same ecological functions and services when the restoration is impossible, the damaged value of the environment can be largely recovered. This part of the damage can be quantified into monetary awards by assessing the costs of these measures.¹⁴⁶⁸ However, it is also acknowledged that restoration takes time; the services of a marine ecological system are still lost before they are fully restored. The losses, roughly equal to category (c), are costs of ‘remedial measures that *cannot* return the damaged water areas and impaired services to the baseline condition.’ These are more like irreplaceable goods that cannot be compensated through direct quantification.

3.3 Rules regarding tort damages in practice

Section 3.1 addressed a set of rules governing the traditional and ecological damage arising from offshore drilling, while section 3.2 showed that the legitimate claimants and recoverable tort damages are basically in line with the law and economics rationale. The next crucial step is to effectuate these entitled victims’ rights to claim compensation for recoverable damages using the existing approaches.

Traditional damage (i.e., personal injury and economic loss) can be claimed through either an administrative or a judicial approach, which are explained in sections 3.3.1 and 3.3.2.¹⁴⁶⁹ Section 3.3.3 addresses the claims process of administrative management again but aims at ecological restoration. As a particular modality of litigation, section 3.3.4 singles out Environmental Public Interest Litigation (EPIL), as

¹⁴⁶⁷ See *supra* section 3.6 of chapter 3.

¹⁴⁶⁸ Liu (2013), 80-84.

¹⁴⁶⁹ Recall that chapter 5 summarised that both traditional damage (i.e., personal injury and economic loss) and ecological damage can be claimed using four approaches, namely administrative management, litigation, mediation, and arbitration. Both litigation and judicial mediation thus are led by the courts and belong to the judicial approach. Additionally, arbitration is merely theoretically possible and is seldom applied in the case of offshore oil damage. Therefore, this sub-section will classify the compensation approaches in three types: administrative approach, judicial approach (including litigation and mediation), and the EPIL (as a particular judicial approach).

it functions differently from the general litigation process when handling ecological restoration.

Every part first clarifies who the three parties are within the claims process in the current pattern, namely the plaintiff (legitimate claimant), the defendant (liable party), and the decision-maker (adjudicator), followed by a discussion on the possible barriers that may disturb the claims procedure. It will analyse whether victims can pursue compensation and whether the tort damages can be compensated by applying the existing rules. In other words, the purpose is to find out to what extent the theoretical findings match the practical situations as far as the offshore oil damage compensation system is concerned.

3.3.1 Claiming compensation for traditional damage through administrative management

Regardless of whether victims claim compensation for economic loss or marine administrators claim for ecological damage to be restored, administrative management seems to be the primary choice in both cases. However, some problems in the administrative system may limit access to compensation.

After an oil accident at sea, administrators in charge of that contaminated area are engaged with multiple tasks in a short period as prescribed by law, including, but not limited to:

- a. to establish a special team and investigate the accident;
- b. to finish a preliminary assessment report;
- c. to invite professional accreditation bodies to fulfil a technical assessment report;
- d. to determine the liability of the accident based on the technical report;
- e. to approve or disapprove the victims' requests of accessing these reports;
- f. to check victims' compensation claims by examining relevant statement and evidence;
- g. to check polluters' requirement of liability exemption by reviewing the statement and proofs;
- h. to decide compensation amounts to be paid by the liable polluters;
- i. to receive payment and distribute compensation to eligible victims;¹⁴⁷⁰

...¹⁴⁷¹

It is clear that marine administrators play a dominant role in tackling the case.

¹⁴⁷⁰ It should be noted here that oceanic and fishery departments at local levels are in charge of the fishery sector and maritime issues. Concerning the Central Government level, it is the State Fishery Bureau of the Ministry of Agriculture that takes charge of it, while the State Oceanic Administration is responsible for marine issues. For more information, see *supra* section 1.3.1.2 of chapter 5.

¹⁴⁷¹ These duties have been addressed in chapter 5 when discussing the procedural rules.

Collecting evidence of marine oil pollution is an essential yet challenging task for individuals and private companies that sustained damage.¹⁴⁷² Although the existing liability system allows anyone that suffered losses to claim compensation by submitting specific statements,¹⁴⁷³ they have to prove a causal link between the damage and the accident. After all, a statement of claim attached to the materials regarding proof can increase the chances of compensation, but assessing marine pollution and calculating the extent of the loss are unrealistic for people without professional knowledge. In comparison, administrators have an advantage over victims in evidence collection. They take charge of accident investigation and have sufficient information about the accident (i.e., preliminary and technical investigation reports), pushing claimants to request access to these reports. However, administrators can refuse or ignore the requests with the excuse that claimants are not eligible to access administrative documents, which exposes problems of transparency in public administration.

Since individual victims and private entities have to follow the complicated procedures and wait for administrators' decisions, whether victims are fully compensated largely depends on the SOA alone. The claimants may only receive compensation when administrators in charge do not postpone or misinterpret requests within a short period, which brings a high demand for administrators to enforce effectively. However, a powerful administrative agency with multiple tasks is more likely to face inefficiencies.¹⁴⁷⁴ In this regard, marine administrators may not perform adequately when handling compensation claims. Some of their mistakes may even infringe upon claimants' rights and interests.

It is also worthwhile to mention that the three procedural devices against administrative errors, namely administrative litigation, administrative reconsideration and administrative hearing, may have more of a symbolic than pragmatic meaning in tackling offshore-related claims. Although the original intention of these procedural devices is to correct the errors in administrative management, practically, administrative reconsideration and hearings are utilised within its institutional system, while administrative litigation can be easily influenced by judicial dependence. Thus, scholars argue that they all play a very moderate role in removing the barriers to

¹⁴⁷² See *supra* section 3 of chapter 5.

¹⁴⁷³ See *supra* section 2.1 of chapter 5.

¹⁴⁷⁴ He (2013), 20-42.

claiming compensation.¹⁴⁷⁵

Take the **administrative hearing** in the context of claim settlement as an example. Theoretically speaking, a hearing can be regarded as a window allowing the affected victims to acquire more information about the accident while providing the public with a channel to supervise administrators. In particular, a hearing process would be of great value for victims. They could seek solid evidence that proves that their damage is linked to the liable operator while being aware of the progress of their case.¹⁴⁷⁶ However, as legal instruments authorise the SOA and its branches to preside over the hearing, no third independent institutes will be invited.¹⁴⁷⁷ Ideally, an administrative hearing should hold public officials accountable, tackling bureaucratic problems. In practice, however, administrators may be reluctant to initiate a hearing process on account that the dispute is related to the administrators themselves. Without supervision, they may even use it in their favour and create barriers to disturb the hearing process (such as refusing to hold a hearing or holding it in private).¹⁴⁷⁸ Therefore, an administrative hearing procedure, as prescribed by law, will probably play a minimal role in pushing settlement claim forward in practice.

An advantage of administrative decision-making is the high-level specialisation of the administrative agency. In contrast to local courts, marine administrators only handle certain claims related to marine pollution and are thus highly specialised. A simplified and quick procedure could also save on procedural costs. However, such a model does not mean that the transaction costs will be minimised, because the cost reduction can be offset against the error cost resulting from it. For example, no lawyers are involved in case of administrative processing, which implies that a claimant can enjoy a quick claim settlement process and more rapid compensation, on the one hand, while bearing the risk of not being fully aware of his legal rights, on the other. From the perspective of victims, although working with a legal professional takes time and costs money, a lawyer can preserve and identify evidence, identify more relevant facts that the victims thought were irrelevant, and ensure that all the requirements are covered. This is especially important in marine oil pollution, when an accident could be attributed to multiple contributors and various interested parties are involved.

¹⁴⁷⁵ The procedural devices against administrative misconduct refer to administrative litigation, administrative reconsideration, and administrative hearings. See *supra* section 2.1.1.B of chapter 5.

¹⁴⁷⁶ Feng *et al.* (2020), 1334.

¹⁴⁷⁷ Article 42 (1) of the *Administrative Penalty Law*; Article 46 of the *Administrative License Law*.

¹⁴⁷⁸ He (2013), 24-40.

Lacking proper legal assistance can in the end be more expensive, because claimants could not get technical support or ensure the best possible outcome and might lose more money through unfavourable settlements.

Nevertheless, a final judgment on the effectiveness of the decision-making via an administrative organ would need to take into account the results of empirical research.¹⁴⁷⁹ Therefore, chapter 9 will discuss the process of decision-making via administrators in the Bohai case to tackle offshore oil damage.

3.3.2 Claiming compensation for traditional damage through the judicial system

3.3.2.1 Litigation

As far as individual victims are concerned, civil litigation may not be regarded as a primary choice for most victims due to its time-consuming and costly legal proceedings. However, in cases where victims fail to receive a satisfactory result from administrators, they may turn to the courts as an alternative. It is also possible for them to sue for their compensation in the first place. In comparison to ordinary courts, claims processing via an administrative agency may have the disadvantage of the lack of transparency. Precisely considering government intervention and the fact that the decision-maker is also an administrative agency, victims might doubt whether the public administration will fully serve their interests. Nevertheless, it should be noted that civil courts in China would not necessarily be more independent than the administrative agency.¹⁴⁸⁰ Moreover, courts always have the possibility to close the door upon the victims and refuse to accept the case, even though they have jurisdiction over the dispute.¹⁴⁸¹

In general, there are two reasons to refuse a case related to the compensation of the offshore oil damage. The *first* is that claimants may fail to meet the requirements to sue after a procedural examination.¹⁴⁸² By way of illustration, when a claimant intends to file a lawsuit against the polluters, the court will check four procedural

¹⁴⁷⁹ Section 3.1.1 of chapter 9 presents a specific case study of the Bohai case, whereby many victims resorted to administrative processing.

¹⁴⁸⁰ He (2013), 24. In China, the judiciary is not separate from the government in the traditional separation of powers model. Instead, it is one of the distinct governmental organs for several different political entities, such as the National People's Congress (NPC), the local government, and the Communist party. See Finder 1993.

¹⁴⁸¹ See *supra* section 2.1.2 of chapter 5.

¹⁴⁸² Article 119 of the CPL states that '*an action to be instituted must meet all of the following conditions: (1) the plaintiff is a citizen, legal person, or any other organisation directly interested in the case; (2) there is a clear defendant; (3) there are specific claims, facts, and reasons; (4) the case is within the scope of civil actions accepted by the people's courts and under the jurisdiction of the people's court in which the action is instituted.*'

factors under the *Civil Procedural Law* (CPL): (i) whether the claimant is an interested party in the dispute; (ii) whether the accused operator is specific; (iii) whether the claimant has relevant evidence; and (iv) whether the court has jurisdiction over the case.¹⁴⁸³ The court should avoid digging into substantive details in the initial stage, such as if the evidence is sufficient to prove a causal link between the loss of victims and the act of polluters.¹⁴⁸⁴ In practice, however, local courts may refuse the claims, not merely because the case itself fails to satisfy these requirements, but also due to the fact that they use this rule as an excuse to stay away from some ‘*sensitive*’ disputes,¹⁴⁸⁵ which constitutes the *second* reason to reject a case. In the context of China, politically sensitive cases are claims or disputes that have a negative influence on the government or bring administrators into disrepute. Given that administrative agencies play a leading role in handling offshore oil damage cases, courts are likely to consider administrators involved in claim settlement. It is unlikely for courts to decide a case without considering local governments’ attitudes. They may be reluctant to accept or support a claim that administrators have already rejected, which leads to the problem of judicial independence in China.¹⁴⁸⁶

Unlike a *trias politica* model in many western countries, whose authority is divided into three branches - a legislature, an executive, and a judiciary - so that the powers of one branch are independent from those of the other branches,¹⁴⁸⁷ China proceeds under a different authoritarian regime.¹⁴⁸⁸ According to the *Constitution* of China, the court system is ‘empowered’ to exercise judicial power independently and free of interference from any administrative organs, public organisations, and individuals.¹⁴⁸⁹ However, the Chinese judiciary is not a separate, coequal branch of government within the Chinese legal system, but rather one of many ‘arms’ of the Central Government, lacking the independence, power, and prestige often associated with other court systems.¹⁴⁹⁰

As far as the institutional setting is concerned, courts are dependent on administrative

¹⁴⁸³ *Ibid.*

¹⁴⁸⁴ Huang 2016.

¹⁴⁸⁵ Cohen 2014; Liebman 2007.

¹⁴⁸⁶ Shen 2013.

¹⁴⁸⁷ For a discussion about separation of powers, see Jacobs (2019), 378; Banks (1984), 715.

¹⁴⁸⁸ In China, the judiciary is not separate from the government in the traditional separation of powers model.

Instead, it is one of the distinct governmental organs serving several different political entities, such as the National People's Congress (NPC), the local government, and the Communist party. See Finder (1993), 148-150.

¹⁴⁸⁹ Article 131 of the *Constitution* of China (2018) states that ‘*the people's courts shall, in accordance with the law, exercise judicial power independently and are not subject to interference by administrative organs, public organisations, or individuals.*’

¹⁴⁹⁰ Finder (1993), 145-148.

organs in personnel management, financial allocation, and even judicial decisions. On the one hand, the judicial budget for revenues and expenditures is within the entire government budget.¹⁴⁹¹ Judicial salaries and fees are set by the administrative organs, indicating that administrators *de facto* have control of the court's pocketbook.¹⁴⁹² Court funding remains mostly controlled by the local government (at provincial, municipal, and county levels).¹⁴⁹³ As a result, courts are financially dependent upon administrative organs even though they are nominally independent of other regulatory bodies.¹⁴⁹⁴ Given the high costs associated with establishing, maintaining, and accessing litigation, most government budgets in local areas are too limited to provide formal justice for all. Inevitably, formal justice will be rationed and, consequently, there will be insufficient judicial resources to deal with the community's demand for redress.¹⁴⁹⁵ Furthermore, the *Political and Legal Affairs Commission* (hereinafter *Poli-Legal Commission*)¹⁴⁹⁶ directly controls the court system, making it a powerful organ in judicial decisions.¹⁴⁹⁷ Some scholars point out that the *Poli-Legal Commission* can even replace the courts to determine the cases if the *Poli-Legal Commission* intends to make the decision on its own.¹⁴⁹⁸ It seems that hierarchical control is natural in China's authoritarian setting.¹⁴⁹⁹

The problem of judicial independence is reflected in the administrative interference rooted in the Chinese legal system. A few judges in less developed local areas still regard civil litigation as often arbitrary and unpredictable, having little confidence in the results.¹⁵⁰⁰ There are a variety of factors contributing to this view, including

¹⁴⁹¹ He (2013), 25.

¹⁴⁹² Li 2017b.

¹⁴⁹³ Articles 22-24, 35 of the *Organic Law of the People's Courts of the People's Republic of China* (《中华人民共和国人民法院组织法》). In practice, in line with the principle of CPC assuming the responsibility for a cadres' affairs, the members of all levels of the local judicial body should consult with the corresponding CPC committee or be approved after the appraisal of the organizing department of the CPC committee. The members will then submit it to the People's Congress or its standing committee for an appointment. See Tan (2004), 16.

¹⁴⁹⁴ He (2013), 25.

¹⁴⁹⁵ *Ibid.*

¹⁴⁹⁶ Macfarlane *et al.* (2003), 104.

¹⁴⁹⁷ The Central Political and Legal Affairs Commission of the Communist Party of China (in Chinese: 中共中央政法委员会, literally 'Central Poli-Legal Commission'), is the organisation under the Party's Central Committee responsible for political and legal affairs. Under China's political system, political and legal work involves all the work related to China's legal enforcement system, including the police force, the procuratorates, the ministry of justice, the judicial branch, the State security agency, and other relevant departments. Therefore, the Central Poli-Legal Commission is authorised to oversee all the organs. Moreover, all the Party committees of provinces, municipalities, counties, and autonomous regions formulate respective politics and law commissions, supervising the organs at local levels.

¹⁴⁹⁷ Wayne & Xiong (2011), [ii]-[i].

¹⁴⁹⁸ Ji 2013.

¹⁴⁹⁹ Nathan 2003.

¹⁵⁰⁰ Colatrella 1999.

corruption among judges¹⁵⁰¹ and the lack of an organised, published, and accessible digest of applicable laws to support a claim.¹⁵⁰²

In terms of offshore oil damage, the procedures for claiming compensation are usually entangled with the government. Claimants, especially those individual victims and private companies that sustained personal injuries and economic losses, can be rejected by courts due to politically sensitivity concerns. The negative influence on ecological restoration may not be the same as that on compensating economic loss, since the claimant of marine ecological damage is the administrator itself.

3.3.2.2 Judicial mediation

In recent years, China has engaged in promoting mediation as a means to divert disputes from the overburdened judicial system, ensuring that the courts can operate more effectively.¹⁵⁰³ However, from the victims' viewpoint, there will be no right of appeal (and therefore no examination by superior courts) if they settle the disputes through mediation. Given that the result will remain confidential between the interested parties, it cannot be used as a reference for other similar cases.

As mentioned in chapter 5, the design of China's civil justice system is not simply driven by the need to deliver efficient and independent dispute resolution to individual disputants.¹⁵⁰⁴ The Supreme People's Court (SPC) has implemented a judicial cadre performance assessment system to strengthen its control over the lower courts,¹⁵⁰⁵ where mediation is used as a benchmark. Judges have to respond to central-level mediation incentives by enhancing their overall mediation rate.¹⁵⁰⁶ Scholars warn that the strong growth of mediation rates indicates a new level of political interference in basic court processes,¹⁵⁰⁷ where China's judges have a strong incentive to coax the

¹⁵⁰¹ Corruption by officials in China is another serious concern that extends to the judiciary. It is difficult to assess the magnitude of the problem. It can range from stretching procedural rules for friends and neighbours to more severe transgressions of accepting bribes to affect the dispute's outcome. See Li (2010a); Clarke (1991), 259-260; Cohen (1997), 801.

¹⁵⁰² Clarke (1991), 258-264.

¹⁵⁰³ The Supreme People's Court sought to strengthen judicial mediation by issuing the *Opinion on Further Increasing the Positive Role of Mediation (in Litigation) in Constructing Socialism and a Harmonious Society* (hereinafter *the SPC Opinion on Mediation*, in Chinese: 《关于进一步发挥诉讼调解在构建社会主义和谐社会中积极作用的若干意见》) on March 7, 2007, where it urges local courts to increase the number of proceedings resolved by mediation.

¹⁵⁰⁴ Perkovich (1996), 318.

¹⁵⁰⁵ Articles 4-5,12,20,24 of the *SPC Opinion on Mediation* delivers a strong message that the failure to increase judicial mediation will result in adverse career consequences for the judiciary, because mediation is included within the scope of judicial performance appraisal.

¹⁵⁰⁶ Li *et al.* 2018.

¹⁵⁰⁷ Su & He 2010; Fu & Cullen 2011; Liebman (2011), 165–200.

parties to settle and prevent their disputes from escalating. Deductions are made from judicial salaries when cases are not resolved within time limits stipulated by the CPL.¹⁵⁰⁸ Sanctions apply if individual judges and courts fail to meet performance targets that encompass case closure ratios and mediation rates.¹⁵⁰⁹ As a consequence, even though choosing mediation is alleged to be voluntary, judges may employ subtle and sometimes more forceful pressures to encourage the parties to mediate disputes.¹⁵¹⁰ Hence, there is also a danger that some judges may force the plaintiff to choose judicial mediation, because, otherwise, their salaries, chances of promotion, and other personal interests can be negatively impacted according to the cadre performance assessment system. This distracting factor in the institutional judicial system may bring the victims into a dilemma.

3.3.3 Claiming ecological restoration through administrative management

As mentioned in section 3.2.1, the public administration, referring to the marine administrative organs in contaminated water areas, simultaneously serves as the claimant in relation to the State's interests and the decision-maker subordinate to the Ministry of Natural Resources. Moreover, the CNOOC is a central State-owned enterprise focusing on offshore drilling in China. Theoretically, it is not affiliated with or financially linked to the administrators in theory, as these different entities related do not share the same interests and desires as prescribed by law.¹⁵¹¹ Nevertheless, marine administrative agencies and the CNOOC both regularly receive financial budgets from the State Council,¹⁵¹² which could cast doubt on whether that would lead to biases in the decision making related to the claims. Even though, according to law, the CNOOC is not subject to tort liabilities for offshore oil damage, it is still on the opposite side of the plaintiff, together with its partnered operator who is held liable.

¹⁵⁰⁸ He (2009), 444-445.

¹⁵⁰⁹ Minzner (2009), 63-67.

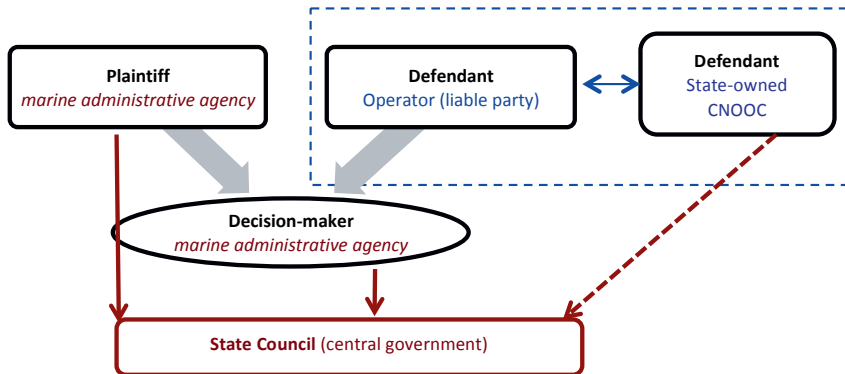
¹⁵¹⁰ Interview with Zhu Zeng Jin, Visiting Scholar, New York University School of Law, in New York, N.Y. (March 10, 1999). See, also, Interview with Jie Jie, Research Fellow, Institute of China Studies at New York University School of Law, in New York, N.Y. (March 10, 1999). Both standpoints were cited from Colatrella (1999), 391-424.

¹⁵¹⁰ According to the particular government system in China explained in chapter 2, in theory, the administrative bodies and the SOEs are independent from each other.

¹⁵¹¹ *Ibid.*

¹⁵¹² See *supra* section 2.3.3 of chapter 2.

Figure 15 Four interested parties when claiming marine ecological damage¹⁵¹³



As indicated in figure 15, the plaintiff, the decision-maker, and one defendant are all linked to the Central Government. The former two roles are both undertaken by marine administrative organs (*as shown in italics*). The CNOOC is also a Central State-owned enterprise that is closely linked to the government, but it is put aside as the legislation excludes its liability in this case. The liable operator (*in blue font*) - usually foreign offshore oil companies - is the only party with no such governmental background. Even if the marine administrative agencies are supposed to be independent departments that obey the law and give impartial decisions, there is no supervisory organ to guarantee that outcome. Incentives of the government to act against polluters may be limited considering the State-owned CNOOC and the operator jointly exploit offshore oil projects.¹⁵¹⁴

Because of the special dual role of the marine administrative organs in the case of marine ecological damage, it is reasonable for the public to question the consequences of such complicated relationships among the plaintiff, the defendant (s), and the decision-maker, as these three parties should be independent subjects. The question arises - *inter alia* - whether the administrative handling of the entire procedure, not only on paper but also in practice, is efficient or problematic, which could determine the effectiveness of applying the current liability system in offshore oil damage cases. An optimistic estimate is that the CNOOC is linked to the administrative organ and *de facto* makes little difference in the claim settlement because it is the operator that is fully accountable for ecological restoration according to the applicable rules.

¹⁵¹³ The figure was made by the author based on relevant rules under the *MEPL, 2014 Measure* and *2018 SPC Interpretation*.

¹⁵¹⁴ Liu (2013), 51.

Regardless of possible advantages for the CNOOC of its State-owned feature, it will walk away from the liabilities. Moreover, the marine administrative organ in charge will probably not create barriers for itself, as it simultaneously serves as the claimant. In that respect, the administrative organ might have an incentive to strive for the restoration of marine ecological damage.

However, because the dual role of marine administrative organs in the claims process leads to uncertainty, this assumption is not solid. In fact, regardless of whether allocating the liability or proving a contributory negligence defence in terms of ecological restoration, the fact is that an independent party is lacking in the pattern which cannot properly guarantee the application of liability rules in actual cases. Regarding the judicial approach to ecological restoration, section 3.3.2 addressed that the public administration also can interfere with the lawsuits. Since there is no independent party in the claims process for ecological restoration, a proper application of liability rules may not be ensured.

Therefore, some empirical study can be of great value before jumping to any conclusions regarding the influence of government intervention on ecological restoration. Therefore, chapter 9 will use the Bohai case as a ‘testing environment’ to further examine the outcome of using the administrative management pattern to claim compensation.

3.3.4 Claiming ecological restoration through EPIL

EPIL is singled out for special attention, as this type of litigation emphasises ‘public interest’ and thus the legally mandated requirements differ from the general litigation process. Regarding marine ecological damage arising from offshore drilling, marine administrative organs, representing the State’s interest, are granted standing to resort to courts and initiate a lawsuit if the administrative processing comes to a dead end. By contrast, the legitimate standing of EPIL is restricted to certain environmental social organisations and procuratorates under specific cases. Even though they are allowed to initiate an EPIL case on behalf of the ‘public interest’, this approach may not be as expected in actual cases regarding offshore oil damage. First and foremost, claimants, whose interests are not directly impaired by the accident, are required to prove that marine oil pollution has adversely affected the public interest, while the public interest can be too abstract to estimate or materialise. Without detailed and

concrete legal guidance, courts are *de facto* allowed much discretion to determine such issues, and judges may turn down such 'sensitive cases' based on the pressure from outside. Recall that chapter 5 mentioned that the Chinese government might currently not consider EPIL a cure but a placebo to handle environmental pollution, indicating that such a restricted EPIL may play a minimal role in claiming compensation for marine ecological damage.

In addition, section 3.2.1 mentioned that social organisations seem to be more indifferent to lobby groups because of their non-governmental background. However, this argument may not hold in China, because Chinese NGOs can be under tremendous pressure from the public administration, especially for cases that may cause political sensitivity, in which NGOs are more likely to be discouraged or even muted if they intend to file a lawsuit.¹⁵¹⁵

Given that EPIL is still in its infancy in China, it seems worthwhile to discuss whether EPIL would have been necessary in this particular case, as it is normally applied to solve the collective action problem. Ecological damage is a typical example of widespread damage for which an individual victim is not allowed or is incapable of filing a claim. Public interest litigation is advocated to solve such problems, since a single individual is unlikely to have a sufficient incentive to bring a lawsuit as it may suffer from a rational disinterest. In the case of marine pollution arising from offshore drilling, the contaminated water areas are deemed as the damage to the State in the first place, so the public administration in charge (marine administrative agency) acts as the primary claimant to claim ecological restoration (via administrative management). EPIL could have a real added value when the government does not effectively claim ecological restoration and thus EPIL can become an alternative method of claiming restoration in the name of collective interests. From this standpoint, it is of equal importance to consider EPIL, in this particular case, because there are underlying problems rooted in administrative processing that may hinder or delay the settlement.

To summarise, table 31 below illustrates all the compensation approaches to traditional and ecological damage arising from offshore drilling, where it lists three interested parties involved in the claims process (plaintiff, defendant, and decision-maker). It briefly summarises the practical concerns and estimates the

¹⁵¹⁵ See *supra* sections 1.3.2 and 2.2.2 of chapter 5.

frequency of use of each approach in practice.

Table 31 Tort damages resulting from offshore drilling and their respective claims processes in practice

Type of damage	Compensation approach	Interested parties			Major concern (s) in practice	Frequency of use
		Plaintiff	Defendant	Decision-maker		
Traditional damage	Administrative management	Affected individuals and entities Marine administrative organs	Liable operator	Marine administrative organs	Dominating role of administrative organs	Primary, but not a prerequisite for other methods
	Litigation				Judicial dependence	Optional
	Mediation				No right of appeal; Link to the judge's rating system	Optional during the legal process
Ecological restoration	Administrative management	Marine administrative agencies		Marine administrative agencies	Dual role of marine administrative agencies; three parties are all linked to the government	Predominate (and a prerequisite before other methods)
	Litigation or mediation			Courts	Judicial dependence	Theoretically workable, but hardly used in the case of offshore oil damage, and never succeeded in actual cases.
	EPIL	NGOs and procuratorates			Strict requirements of standing, difficult requirements of proof, few precedents in practice	

4. Financial guarantees

The liability system is indeed an important instrument to compensate damage and deter potential injurers from causing offshore oil damage. However, the inadequacies of liability rules in fully realising these goals make an additional compensation mechanism necessary. The mechanisms may either complement liability rules to promote their function of deterrence and compensation or even replace liability rules.¹⁵¹⁶ Instead of repeatedly examining each financial tool employed in the Chinese offshore oil sector,¹⁵¹⁷ this section pays attention to three highly related

¹⁵¹⁶ Liu (2013), 146.

¹⁵¹⁷ See *supra* chapter 6.

issues related to financial guarantees. After an overview of the financial security of offshore drilling (section 4.1), section 4.2 analyses if the existing financial tools are aligned with economic analysis. A discussion about the practical issues of applying these tools is provided in section 4.3.

4.1 Insurance for offshore oil damage

The Chinese offshore oil industry employs a voluntary scheme under the *Environmental Protection Law* (EPL). The government is thus not responsible for setting a ceiling for the financial requirement. Instead, its role is to promote the predictability of environmental liability by improving monitoring, establishing databases, exchanging information, and making assessment guidance for offshore drilling.¹⁵¹⁸ In the past ten years, China showed interest in the mandatory mechanism, started to initiate pilot programmes in local areas, and drafted a legislative proposal (the *2017 Draft*) regarding compulsory liability insurance in environmentally sensitive sectors.¹⁵¹⁹ However, chapter 6 also addressed that the time to introduce financial responsibility to the Chinese offshore oil industry is yet to come.

Since the operators are under no obligation to have financial guarantees, a predictable liability system with efficient enforcement would be even more essential to financial security and insurability.

In addition to offshore oil operators, the CNOOC is an oil major company with considerable assets and a very high credit rating (A+). Instead of counting on third-party insurance, it has set up the CNOOC Insurance Limited (CIL), which has full information about its parent company and provides financial security for future losses with few additional costs. This major oil company exposes itself to risks by means of captives and thus also has incentives for prevention. Currently there are no legal criteria for self-insurance (whether in the form of reserves or captives).

4.2 Economic observations

Sections 4.2.1-4.2.2 respectively will analyse liability insurance and self-insurance based on economic remarks. Then, section 4.2.3 takes one step further to discuss the necessity and feasibility of imposing financial guarantees as an obligation for offshore

¹⁵¹⁸ Liu (2013), 183.

¹⁵¹⁹ See *supra* section 6.2.3 of chapter 6.

oil companies.

4.2.1 Liability insurance

As discussed in section 2.2, a strict liability rule can be considered efficient only if there is no insolvency risk, and insolvency may pose a problem of underdeterrence. Thus, a liability system alone may not provide sufficient compensation. Taking insurance into consideration can be an alternative to alleviate the risks, especially for offshore oil operators that may be financially incapable of covering all the tort damages arising from an accident. If these operators purchase liability insurance in advance, they will have an additional financial guarantee to deal with potential risks. However, one problem is that if the expected damage considerably exceeds the operator's assets, s/he will only have incentives to purchase insurance up to the amount of his assets. The operator is only exposed to the risk of losing his assets in a liability suit.¹⁵²⁰ The judgment-proof problem may still lead to underdeterrence and undercompensation.

Jost (1996) and Skogh (2000) suggest that compulsory insurance might provide an optimal outcome in case of insolvency, saving transaction costs.¹⁵²¹ By introducing a duty to purchase insurance coverage for the amount of the expected loss, better results will be obtained than with insolvency, whereby the magnitude of the loss exceeds the polluter's assets.¹⁵²² When an operator does not purchase any insurance, the potential polluter will only consider the risk as one in which he could at most lose his assets and will set the standard of care accordingly. By contrast, when s/he is, under a duty to insure, exposed to full liability, the insurer will have incentives to control the insured's behaviour (the operators that purchase insurance). Another significant reason that is advanced as a justification for the introduction of compulsory insurance is victim compensation. From an economic perspective, compulsory insurance is an important instrument against the possibility of underdeterrence associated with insolvency.¹⁵²³ Therefore, the introduction of a duty on the liable operator to seek financial coverage to meet his obligations fits into the economic framework.¹⁵²⁴

Section 3.3 has shown that victims might face barriers to obtaining compensation

¹⁵²⁰ *Ibid.*

¹⁵²¹ See Jost 1996. A similar argument has recently been formulated by Polborn (1998) and Skogh (2000).

¹⁵²² Kunreuther & Freeman (2001), 316.

¹⁵²³ Faure & Wang (2006), 217-218.

¹⁵²⁴ *Ibid.*

when following the claims procedure for their losses in practice. It indicates that the underlying problems in law enforcement could impair the effectiveness of the liability system. In that respect, insurance, as a means of financial guarantee, may have more added values to cover the offshore oil damage and prevent offshore-related risks. However, compulsory insurance is only efficient in a developed insurance market, provided that at least four criteria are satisfied: if it is provided to operators seeking liability insurance; if moral hazard is controlled; if risk-based premiums are used; and if a competitive market exists.¹⁵²⁵ Section 4.3 will further discuss the application of offshore-related insurance in practice.

4.2.2 Offshore captive insurance company

Offshore captive insurance, as a form of self-insurance, is an acceptable security mechanism available in China, such as the CNOOC and its captive company CIL. A captive insurance company is an enterprise that the companies it insures typically own and control, and thus its primary purpose is to insure the risk of its owners while allowing them to benefit from the underwriting profits. Laymen may refer to this arrangement as self-insurance or alternative insurance, but it is *de facto* a misnomer.¹⁵²⁶ This instrument cannot be considered insurance in the traditional sense, as there is no risk-spreading or risk distribution involved and thus no loss-spreading when damage happens.¹⁵²⁷ In addition, the captive does not equal self-insurance, but it is one form of it, as self-insurance is a risk retention mechanism in which the company itself sets aside money to fund future losses. In a captive insurance setting, however, the insured creates a more formal arrangement for insuring against its unique business risks by creating its own insurance company and providing additional incentives and risk management.¹⁵²⁸

By resorting to captive insurance, the potentially liable party (usually offshore oil companies) should submit a statement providing evidence of a satisfactory financial status to satisfy its financial responsibility.¹⁵²⁹ To establish a valid self-insurance policy, a company should pass a financial test required by regulatory authorities. For example, rules may require that a company's capital and net worth are greater than the

¹⁵²⁵ Bruggeman (2010), 222.

¹⁵²⁶ Liu (2013),156.

¹⁵²⁷ Faure (2004), 457-458.

¹⁵²⁸ Outreville 1998.

¹⁵²⁹ Bocken (2009), 160.

coverage requirement or a bonding rate test.¹⁵³⁰ Those tests ensure that only companies with relatively deep pockets can satisfy their financial responsibility by demonstrating sufficient financial strength.¹⁵³¹ Otherwise, the risk would also exist in the case of insolvency, and thus no money could be available to compensate victims.¹⁵³²

From the perspective of prevention, captive insurance is also desirable, considering its function to control the moral hazard of its parent company that sets up the captive. Financial tools, regardless whether it is commercial insurance or captive insurance, are not merely instruments of compensation *ex post*, but also for prevention *ex ante*, as it at least theoretically provides incentives to take effective measures. As the ultimate contributor behind the captive company, offshore oil enterprises prefer tackling offshore oil risks by spending a certain amount of captive premiums to compensate considerable tort damages. Furthermore, a captive can be used for the retention of risks: many potentially responsible parties choose to self-insure certain risks and only purchase ‘excess’ coverage from the insurance market.

However, passing the financial test at the beginning of an operation does not necessarily mean the assets are still available when risks materialise.¹⁵³³ Even if the reserve is still available, the question will arise whether the amount will be used to cover the specific losses or is accessible to all creditors. Without any regulation of the ultimate goal of these reserves through self-insurance, the reserves will be considered one of the companies’ assets and will be subject to execution by all creditors.¹⁵³⁴

4.2.3 Financial security

As presented above, neither liability insurance nor self-insurance is compulsorily required in the Chinese offshore oil industry. Various scholars propose the imposition of financial requirements on specific environmentally harmful enterprises,¹⁵³⁵ as they

¹⁵³⁰ Boyd (2002), 434.

¹⁵³¹ *Ibid.*

¹⁵³² Faure (2017), 237-242.

¹⁵³³ Liu (2013), 159.

¹⁵³⁴ Faure (2004), 459.

¹⁵³⁵ Many other scholars are in favour of a system with financial responsibility, although they may differ in the concrete design of regimes. For example, (i) Kehne (1986) mentioned the advantages of a financial responsibility system with respect to both deterrence and compensation. He also identified the conflicts between these goals and tried to develop a system (mainly insurance policies) that can balance those goals. (ii) Feess & Hege (2000) suggested a financial responsibility system consisting of both insurance and lender guarantees rather than pure strict liability and extending liability. (iii) Boyer & Porrini (2008) focused on proposing a model with efficient interactions and liability sharing between governments, firms, and insurance companies. (iv) Kambia-Chopin (2010) analysed financial responsibility from the perspective to solve the judgment-proof problem. Instead of the

point out that financial responsibility plays a pivotal role in strengthening the deterrent effects of liability rules, supplementing regulatory standards,¹⁵³⁶ and saving administrative costs.¹⁵³⁷

An offshore oil accident is often followed by a high number of claims from victims and expensive restoration, greatly reducing a firm's wealth. Given this reality, firms must demonstrate the availability of assets to cover potential liability to alleviate insolvency risks.¹⁵³⁸ Although law and economics literature supports the use of some instruments, such as extended liability, to resolve insolvency problems,¹⁵³⁹ some scholars argue that financial responsibility is preferable to extended liability, since the latter does not guarantee cost internalisation and can distort production decisions,¹⁵⁴⁰ which constitutes the first advantage of financial responsibility.

Second, companies are more likely to monitor offshore oil activities and encourage efficient care with financial responsibility. It can establish a principal-agent relationship between the assurance providers and the companies engaged in environmentally risky activities, such as offshore drilling.¹⁵⁴¹ In return, the principal (the insurer) is paid a fee by the offshore oil companies and wholly or partially bears the risk of offshore oil damage.¹⁵⁴²

Third, financial responsibility induces private party involvement and encourages firms to seek additional information about their hazardous activities. If some environmental risks associated with offshore drilling are long-term, there is an added incentive for the intervention of insurers and other assurance providers. They have sufficient incentives to accurately assess risks and operate the process more efficiently and profitably than regulators, who are more likely to be influenced by powerful political constituencies.¹⁵⁴³

Last, financial security can also promote timely and low-cost public access to compensation.¹⁵⁴⁴ The reduction of insolvency risks provides a certain level of guarantee for the availability of assets in case of tort damages. Insurance may also

traditional insurance policies, he favoured a particular form of contract which is close to an alternative risk transfer product.

¹⁵³⁶ Kehne (1986), 403.

¹⁵³⁷ Boyer & Porrini (2008), 344.

¹⁵³⁸ Kambia-Chopin (2010), 78.

¹⁵³⁹ *Ibid.*

¹⁵⁴⁰ Boyd (2002), 424-425; Feess & Hege (2000), 222.

¹⁵⁴¹ Kehne (1986), 408.

¹⁵⁴² Shavell (1979b), 55.

¹⁵⁴³ Kehne (1986), 410-411.

¹⁵⁴⁴ Boyd (2002), 423-424.

save administrative costs. After all, the delay associated with bureaucracy and strict information requirements of rule-making procedures are obstacles to the specificity and adaptability of regulatory standards.¹⁵⁴⁵ In comparison, insurance providers in the competitive market have strong incentives to control administrative costs and amend the policy conditions more quickly and cheaply.¹⁵⁴⁶

Given the potentially limited possibilities regarding financial guarantees in China, in addition to liability insurance and self-insurance, some other financial tools, such as an environmental fund, may also support financial responsibility. A fund can be adopted as an additional instrument to offer adequate compensation to victims and to relieve the additional financial burdens imposed on the offshore oil operators under the unlimited (strict) liability.¹⁵⁴⁷ Nevertheless, assessing the impact of such a fund is purely hypothetical and theoretical, as there is not yet a fund dealing with offshore oil pollution in China at present. Even when such typical funds were to be established, it would not be fully realised unless there would be an oil spill on a large enough scale to bring it into play.

4.3 Rules regarding financial guarantees in practice

4.3.1 Voluntary or mandatory liability insurance

As far as the insurance market in China is concerned, offshore oil operators are not obliged to maintain insurance or other financial security for their pollution damage liability provided in for the existing legal system, with the exception of marine oil pollution caused by sea-going vessels.¹⁵⁴⁸ Financially modest companies that have a greater insolvency risk may still be reluctant to allocate extra payments for financial alternatives since it is not mandatory.¹⁵⁴⁹ Thus, prevention incentives given by insurance may only be possible for a limited number of operators who have voluntarily purchased insurance. When an offshore oil accident happens, these companies can incur the cost of compensation and internalise the externality with the assistance of insurers. In contrast, other companies that hesitate to spend money on insurance in advance have to bear the risks themselves.

¹⁵⁴⁵ See *supra* section 3.3 of this chapter.

¹⁵⁴⁶ Kehne (1986), 411-412.

¹⁵⁴⁷ Faure & Wang (2006), 219-220.

¹⁵⁴⁸ See *supra* section 6.2 of chapter 6.

¹⁵⁴⁹ *Ibid.*

The SMEs and subsidiary companies without sufficient financial guarantees will possibly be confronted with insolvency problems. Presumably, if an affected party were to secure a legal judgment against an insolvent liable operator in terms of damage compensation, the liable party's lack of funds would make the implementation of the judgment difficult to secure. This so-called judgment-proof problem may, on the one hand, leave the victims uncompensated and the damaged environment unrestored, and, on the other hand, lead to underdeterrence. The judgment-proof problem could be eased when the operator has insurance aiming at offshore oil damage in advance, since if the expected damage associated with an accident was to exceed the operator's assets, his insurer would take care of compensating tort damages. However, the problem of underdeterrence may remain, as the liable operator would only have incentives to purchase insurance up to the amount of his assets in a liability suit. It would externalise the partial social costs to the insurers instead of the risk creators, dampen the insurer's interest in investing in offshore-related risks, and ultimately make the insurance market less developed in China.¹⁵⁵⁰

The current insurance market covering offshore oil pollution in China provides various choices in relation to the development of offshore drilling, including all-risk offshore insurance, well control insurance, general liability insurance for employees, specific environmental pollution liability insurance, and so on. Personal injury and property damage caused by offshore oil incidents are generally covered.¹⁵⁵¹ Necessary clean-up and pollution control costs may also be covered to the extent that they can prevent further personal injury and property damage. Some insurance policies try to cover remediation costs on and from the insured sites.¹⁵⁵²

However, there are gaps: insurers usually refuse to insure accumulated environmental pollution or pure ecological damage associated with the incident, so the restoration costs are usually not covered.¹⁵⁵³ The premiums today in China are still high and

¹⁵⁵⁰ Liu (2013), 369.

¹⁵⁵¹ See *supra* chapter 6.

¹⁵⁵² There are limited insurance products that cover restoration costs caused by environmental pollution provided by Huatai Insurance Group, Chubb China, and Samsung Property. See, for example, (a) Huatai Insurance Group, Environmental pollution liability insurance, <http://pc.ehuatai.com/detail/3485.html> (accessed on April 20, 2022); see also, (b) Chubb, Environmental pollution liability insurance, <https://www.chubb.com.cn/cn-cn/business/premises-pollution-liability-insurance.html> (accessed on April 20, 2022). (c) Samsung Property, Environmental pollution liability insurance, <https://www.samsunganycar.com/cn/gsjsgkxxpl/zerenbaoxian/%E5%9C%BA%E6%89%80%E6%B1%A1%E6%9F%93%E8%B4%A3%E4%BB%BB%E4%BF%9D%E9%99%A9%E6%9D%A1%E6%AC%BE.pdf> (accessed on April 20, 2022).

¹⁵⁵³ See *supra* section 6.3 of chapter 6.

adverse selection is a serious challenge facing the insurers.¹⁵⁵⁴ It should not come as a surprise that a lack of mandatory financial mechanisms reduces potential polluters' incentives to seek insurance coverage. As far as operators are concerned, the fact that offshore oil damage usually has a low probability of occurrence does not constitute an urgent and serious threat.

A mandatory financial security system may be able to overcome some drawbacks of voluntary liability insurance, as it can incentivise operators to seek insurance and remedy the problem of insolvency.¹⁵⁵⁵ Offshore oil operators will be obliged to guarantee a certain amount insured, depending on the potentially expected damage arising from their operations. The obligations would forbid operators from proceeding with insurance at a cost that is below their actual level of risks, nor would they externalise the losses to their insurers with an excuse of limited financial capabilities.

4.3.2 No legal criteria for self-insurance

In comparison to small and medium enterprises (SMEs) that prefer liability insurance, oil majors who count on their own assets are likely to prefer self-insurance to third-party insurance.¹⁵⁵⁶ After all, insurance may make little difference if large corporations with adequate assets are apt at handling the losses through self-insurance.

In China, the very first point related to using self-insurance is that there is a lack of stringent criteria to determine whether a company is allowed to use reserves or captives to be self-insured, as it can be a risky option since no protection is provided from claims of creditors.¹⁵⁵⁷ Introducing self-insurance into a mandatory financial security system seems to be an alternative to remedy this problem. The legislation should establish a regular approval process and restrictions on retention limits and security requirements. In order to become a qualified self-insurer, oil majors or their captive companies, for example the CNOOC and its captive CIL, will be required to meet the minimum financial and size criteria, approved by the competent authority, and be qualified to use self-insurance as their solvency guarantee for offshore-related damage compensation.

¹⁵⁵⁴ The rate of pollution insurance on the market ranges from 2.2% to 8% in China, which is much higher than that of general liability insurance (usually one in a thousand). See *supra* section 6.3 of chapter 6.

¹⁵⁵⁵ Wagner (2009), 397-398; Faure & Grimeaud (2003), 181-182.

¹⁵⁵⁶ See *supra* section 9.2 of chapter 6.

¹⁵⁵⁷ *Ibid.*

Second, except for guarantees provided by a parent corporation, these instruments are usually only available for large companies but not for SMEs. Assuming that financial criteria exist, SMEs can hardly meet the requirements by providing sufficient unencumbered assets or cash assurance, nor can they seek a guarantee from financial institutions by showing good financial status and credit rating.¹⁵⁵⁸ It probably indicates that a dividing line exists between the companies with diverse financial situations in terms of providing financial security, where oil majors prefer self-insurance and SMEs count on third-party insurers.

Suppose we intend to establish a mandatory financial responsibility system in the offshore oil industry, certain criteria for self-insurance should be simultaneously formulated. Due to the features of the offshore oil business, companies engaged in this sector would all be required to provide certain type(s) of financial guarantees, but not limited to liability insurance. Oil majors should be allowed to be self-insured through captives or reserves as long as they meet certain criteria and thus can offer sufficient financial security.

4.3.3 A proposal regarding a compensation fund for offshore oil damage

Although there is currently no compensation fund aiming at compensating damage resulting from offshore drilling in China, marine specialists and the SOA officers once suggested establishing a national emergency fund that particularly aimed at marine pollution.¹⁵⁵⁹ However, such a proposal came to a dead end as various parties related to the offshore oil industry have diverse interests, indicating that they cannot coordinate or share common interests in terms of the compensation fund.¹⁵⁶⁰

In fact, marine oil pollution is not only a huge threat to victimised individuals and entities but also a major headache for the public administration. In the face of an offshore oil accident, local administrative departments in charge of emergency responses, such as agencies for safety inspection, accident investigation, clean-up actions, have to spend a fortune on pollution prevention issues to complete their assignments in time. Although the expenses were supposed to be repaid later by the actual polluters, a certain portion of the payment would be finally borne by local agencies if the liable polluter was insolvent. They might even encounter cash flow

¹⁵⁵⁸ Liu (2013), 169.

¹⁵⁵⁹ See, for example, Jin 2021 & Xinhua 2011c.

¹⁵⁶⁰ *Ibid.*

difficulties under extreme circumstances, which in return would slow down the rescue operation.¹⁵⁶¹

In 1999, the MEPL aimed to set up a fund for marine oil pollution, but only in the sphere of vessel-induced oil pollution.¹⁵⁶² Even so, such a compensation fund specialised in vessel-induced oil pollution was practically unfeasible until 2015, when the compensation committee was finally established and the claims process was initiated.¹⁵⁶³ Although this is not even a fund aiming at offshore oil pollution, it somehow implies the long process and the potential difficulties of establishing a similar fund aiming at offshore oil damage.

Moreover, the proposal for establishing a compensation fund aiming at offshore oil damage came to a dead end because relevant authorities, as addressed below, could not reach an agreement on this issue. In the view of the SOA, all the administrative branches related to marine protection, agriculture, fishery, and maritime transportation, *de facto* support the idea of establishing a compensation fund aiming at oil pollution.¹⁵⁶⁴ These administrative organs are at the side of affected victims, and some of them even directly represent the State's interest in claiming ecological restoration. Naturally, they expect some regular financial tools that could effectively spare the risks and handle the tort damages associated with oil pollution rather than prepaying the clean-up costs and other expenses on their own. In comparison, the branches related to oil production usually react negatively to such financial tools, because some stakeholders, such as the CNOOC, are reluctant to pay a large amount of contributions to the fund. Chapter 9 will show that an ecological compensation

¹⁵⁶¹ *Ibid.*

¹⁵⁶² Article 66 of the MEPL states that '*the State shall perfect and put into practice the civil liability system of compensation for vessel-reduced oil pollution and shall establish a fund system for vessel-induced oil pollution insurance and oil pollution compensation based on the principle of the vessel owner jointly undertaking the risks of any vessel-induced oil pollution compensation liability. Specific measures for the implementation of the vessel-induced oil pollution insurance and oil pollution compensation fund system shall be formulated by the State Council.*' This provision remained the same in the following MEPL as of 2013, 2016, and 2017 (latest version). Furthermore, the specific legal instrument refers to the *Measures of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-induced Oil Pollution Damage* (in Chinese: 《中华人民共和国船舶油污损害民事责任保险实施办法》), which was first issued in 2010 and then amended in 2013. This legal instrument is formulated in accordance with the MEPL. It aims at improving the compensation mechanism for vessel-induced pollution incidents and establishing a civil liability insurance system for vessel-induced oil pollution damage.

¹⁵⁶³ The official name of the fund is 'Chinese ship-source oil pollution compensation fund' (中国船舶油污损害赔偿基金) the Ministry of Finance and Ministry of Transportation jointly issued the *Administrative Measure Regarding the Implementation of the Compensation Fund for Vessel-induced Oil Pollution* (in Chinese: 《船舶油污损害赔偿基金征收使用管理办法》) on May 18, 2012 and enforced it on July 1, 2012. However, until three years later, on June 18, 2015, the official committee of this fund was founded in Beijing, meaning this compensation fund started to be in operation. More information about the fund is available at <https://www.sh.msa.gov.cn/copcfund/jjjs/203.jhtml> (accessed on April 10, 2022).

¹⁵⁶⁴ *Ibid.*

fund was formed after the Bohai case. Unlike a regular fund established in advance, that one-shot fund is worth discussing.

5. Safety regulation regarding damage prevention

In addition to the *ex post* compensation mechanism for offshore oil damage, chapter 7 addressed safety regulations for preventing offshore-related risks *ex ante*, which is addressed in comparison to liability rules.¹⁵⁶⁵ After sketching the safety regulations in section 5.1, section 5.2 uses law and economics to analyse the importance of introducing regulation to deal with offshore oil damage, where the analysis of Shavell (1984) regarding the interplay between liability and regulation of safety will be used.¹⁵⁶⁶ On the one hand, regulation is considered preferable to liability rules to deter pollution and to incentivise potential polluters to take preventive measures. On the other hand, a complementary relationship between regulation and tort law indicates that combining these two instruments merits special attention. Considering that the effectiveness of regulation greatly depends on the legal implementation in a specific environment, section 5.3 examines the practical problems in China that may hinder safety rules from functioning properly.

5.1 Rules of safety regulation

There are legal instruments stipulating a set of safety rules to prevent accidents *ex ante* and to handle offshore oil pollution *ex post*. *Based on the different phases of offshore oil operations, operators are obliged to obtain a safety production license for entering the industry to satisfy safety requirements during daily operations. Moreover, operators are required to provide appropriate post-accident responses in case of an accident, whereby accident reporting and accident investigation are two crucial parts of accident response procedures.* The OOOSO and its branches take charge of inspecting their safety operations regularly, while the SOA and its branches intervene when they believe the marine environment is also contaminated in the incident. Meanwhile, offshore oil companies have established internal compliance mechanisms to comply with the regulation, which may imply the companies' active attitudes towards safety regulation. However, it is merely a company strategy so that offshore

¹⁵⁶⁵ Faure & Wang (2006), 201.

¹⁵⁶⁶ Shavell 1984a.

oil operators may obey or disobey these internal safety rules without further legal consequences.

Despite the fact that statutory rules and internal standards have been established to regulate offshore oil operations, they mostly provide strategic guidance on paper. The problem does not lie in the availability of written rules but rests with the fact that it is unknown if the current system can evaluate the performance of operators or the actual compliance status in daily operations. Cohen (2000) suggests that performance measures in environmental deterrence research generally fall into one of two categories: (i) compliance status and (ii) actual levels of pollution.¹⁵⁶⁷ However, the excellent safety record from both international and domestic sources addressed in chapter 7 may not be regarded as proof of great safety performance of offshore oil companies, as there is no independent third party to supervise or verify the self-reported data. Given that we cannot confirm to what extent the data reflects the actual performance of offshore oil operators in reality, it remains challenging whether the existing safety regulations incentivise operators to prevent and contribute to an overall good safety record.

5.2 Economic observations

5.2.1 A preventive instrument to deter offshore oil pollution

So far, this chapter has addressed liability rules and compensation mechanisms for oil pollution damage from an economic perspective, whereby the notion is stressed that imposing a duty on the offshore oil operators who cause the damage will hopefully have a deterrent effect.

As far as environmental risks are concerned, some economic literature indicates that regulation can be a more appropriate instrument than liability rules.¹⁵⁶⁸ According to Shavell (1984), four criteria are used to compare the desirability of liability and regulation: (a) the difference in knowledge about risky activities between private parties and regulation authorities; (b) the possibility of private parties being incapable of paying for the full magnitude of the harm; (c) the threat of a suit for the harm; and (d) the administrative costs incurred by private parties and by the public.¹⁵⁶⁹ These

¹⁵⁶⁷ Cohen 2000.

¹⁵⁶⁸ *Ibid.*

¹⁵⁶⁹ Shavell (1984a), 357-374.

four determinants can apply in the case of offshore oil pollution as well.¹⁵⁷⁰

With regard to the first determinant, information on risky activities (i.e., optimal safety devices) acquired through the government can be better than through private operators. Dangerous exploitation activities or daily operations can cause offshore oil pollution. It involves various highly technical issues; the operators of large enterprises can possess better information about risks and advanced technologies to mitigate risks. However, oil majors may be reluctant to carry out intensive research if the results are automatically available to other competitors on the market, which leads to a free-rider problem. Smaller companies, in contrast, may lack the incentives and resources to invest in research to determine the optimal care level, since assessing the risks of a particular activity often requires expert knowledge and judgments.¹⁵⁷¹ Compared to offshore oil companies, the government is superior in collecting information and researching the optimal technology.¹⁵⁷² Theoretically, it could be more efficient for regulatory authorities to acquire information on the optimal safety standards than for an individual firm.¹⁵⁷³ Chapter 7 addressed that China has developed a set of safety standards for offshore drilling to prevent the occurrence of oil spills. Advanced technological designs are also introduced to reduce the likelihood of an accident.¹⁵⁷⁴

The second determinant concerns the insolvency risk. It should not be forgotten that even a small firm could cause harm to a large number of individuals or to entire marine ecosystems. The amount of damage caused by this pollution can vastly exceed the individual assets of those financially moderate companies.¹⁵⁷⁵ When liability rules alone cannot suffice to prevent offshore oil pollution, publicly imposed instruments can be supplemented to reach the goal.¹⁵⁷⁶

As the third criterion, owing to the difficulties in determining *locus standi*, causation, and the burden of proof,¹⁵⁷⁷ the chances of a liability suit being brought for the damage caused by offshore drilling are naturally low.¹⁵⁷⁸ Offshore oil damage is generally spread over many individuals and stakeholders, who will have problems in organizing themselves to bring a lawsuit. The source of offshore oil pollution may

¹⁵⁷⁰ Faure & Wang (2006), 194-196.

¹⁵⁷¹ *Ibid.*

¹⁵⁷² Liu (2013), 48-49.

¹⁵⁷³ *Ibid.*

¹⁵⁷⁴ See *supra* sections 3-4 chapter 7.

¹⁵⁷⁵ *Ibid.*

¹⁵⁷⁶ *Ibid.*

¹⁵⁷⁷ Liu (2013), 48-49.

¹⁵⁷⁸ *Ibid.*

also be complicated, which can trigger proof of causation and latency problems, making it difficult for a claim to be brought against the polluter.

With regard to the fourth determinant, liability rules seem to be superior to regulation as far as administrative costs are concerned. The costs of a liability system only arise when the suit is litigated. In contrast, the expenses of monitoring and enforcement associated with regulation are always there, regardless of whether offshore oil operators abide by it or not.¹⁵⁷⁹

5.2.2 Combining regulation with liability rules

Many may argue that prevention should primarily be achieved through regulations, e.g., aiming to improve safety compliance, develop advanced technologies in offshore drilling, and phase out outdated offshore oil rigs. Still, the supplementary deterrent function of liability rules may not be underestimated, also in the context of offshore oil incidents.

Although there is a solid argument to control offshore-related risk through *ex ante* regulation in individual cases, offshore drilling can still pose a threat to the marine environment. As a result, tort rules will still play a crucial role. The complementary relationship between tort law and regulation has been examined in the literature, where regulation influences the liability system and *vice versa*.¹⁵⁸⁰

In short, neither regulation nor liability leads offshore oil operators to exercise the socially desirable levels of care alone, due to the deficiencies of both instruments. The prevention of oil pollution incidents is largely dependent upon regulation aiming at optimal safety standards and measures (for example, oil rig design, certain safety equipment, workplace safety standard, and worker safety awareness, etc.) to prevent oil spill risks. Liability rules therefore have an additional deterrent effect to back up regulation. The fact that financially modest operators may create underdeterrence can affect this additional incentive effect of the liability regime, it but should not necessarily lead to an increase in pollution incidents. This will depend upon the effectiveness of the regulatory system and the extent to which liability rules thus have to provide supplementary incentives.¹⁵⁸¹ Instead of competing with each other,

¹⁵⁷⁹ *Ibid.*

¹⁵⁸⁰ For literature about the relationship between the liability and regulation regarding environmental pollution, see Rose-Ackerman 1996; Faure & Ruegg 1994; Kolstad et al. 1990; Arcuri (2001), 39-40; Burrows 1999.

¹⁵⁸¹ Faure & Wang (2006), 213.

Shavell (1984) considers that it is socially advantageous to jointly employ these two means of controlling risks, in which offshore oil operators should be required to satisfy a regulatory standard and also to possibly face tort liability.¹⁵⁸² In such a model, regulation can complement liability rules by giving potential polluters enough incentives to prevent damage; meanwhile, regulatory authorities can use the knowledge about risky activities to determine the optimal level of care. Thus, a combination of regulation and liability rules could provide efficient incentives for prevention, which is of paramount importance to establish a system that aims to prevent offshore oil damage.¹⁵⁸³ Since there are already safety regulations governing offshore oil operations and liability rules regarding offshore oil damage, a combination of regulation and tort law has become theoretically available. However, it is difficult to conclude whether they function properly in practice to provide operators with sufficient incentives for prevention.

5.3 Safety regulation in practice

Economic analysis shows that regulation and liability can be used together to create efficient preventive incentives for potential polluters. In other words, neither regulation nor liability rules alone can provide optimal deterrence due to some crucial factors, such as information asymmetry, the insolvency risk, the availability of legal action, and the expenses of administrative costs.¹⁵⁸⁴ This is also true in China.¹⁵⁸⁵ Although China has made considerable improvements in establishing its legal framework on marine oil pollution¹⁵⁸⁶ and strengthening the enforcement,¹⁵⁸⁷ it is still subject to formidable enforcement challenges in recent years.¹⁵⁸⁸ In this case, liability rules seem necessary to fill the regulation and enforcement gaps. This sub-section examines the practical issues that may set barriers to achieving safety performance during offshore oil operations.

Safety regulation in the offshore oil industry may not always make things better due to its inherent weaknesses. As a set of legal standards, safety regulations in specific cases are not sufficiently dynamic to adjust themselves. More importantly, the

¹⁵⁸² Shavell 1984b.

¹⁵⁸³ Liu (2013), 48-49.

¹⁵⁸⁴ Shavell (1984a), 359-364.

¹⁵⁸⁵ Liu (2013), 367.

¹⁵⁸⁶ Wang (2006a), 202-203.

¹⁵⁸⁷ Van Rooij (2006), 57-74.

¹⁵⁸⁸ McAllister *et al.* 2010.

effectiveness of safety regulation is highly dependent upon specific circumstances and enforcement can be weak. As far as the Chinese offshore oil industry is concerned, the following paragraphs will show that some problematic issues in the institutional setting can adversely affect the implementation of safety regulations.

First, statutory standards regarding safety operations have been established on paper, but whether the law is well applied in practice and whether regulation incentivises the risk creators in prevention largely depends on implementation. The effectiveness of regulation is, to a large extent, subject to the underlying institutional environment.¹⁵⁸⁹ Some scholars even argue that it is a difficult, if not impossible, task to create and maintain an effective regulatory regime in developing countries.¹⁵⁹⁰ In China, political and legal institutions designed to check the abuse of power are weak under some circumstances, and the State is susceptible to capture by powerful elites, thus easily becoming a grabbing hand rather than a helping hand.¹⁵⁹¹

Chapter 7 stated that it is relatively difficult to evaluate the effectiveness of safety regulation because of the limited data. The workplace safety data indicates that China maintains relatively low fatalities and injury rates. However, an excellent safety record on paper may not spontaneously lead to a great *de facto* safety performance of offshore oil companies. Therefore, it is too early to conclude that the existing safety rules provide proper incentives for prevention. Whether the existing regulations positively contribute to safe operations is open to discussion. Because of lacking empirical evidence, it is currently impossible to provide hard data on the effectiveness of liability rules in supplementing safety regulation governing offshore drilling activities. Chapter 9 will use the Bohai case as an example to examine the operators' actual performance in improving prevention compliance through incentives.

Second, some problematic issues in the institutional setting in terms of offshore drilling adversely affect safety inspection. In some cases, more than one regulator takes charge of safety inspection, creating an administrative overlap. Consider mobile offshore units (MOUs) as an example. Two administrative organs - the OOOSO¹⁵⁹² (and its branch placed within the CNOOC) as well as the MSA¹⁵⁹³ (and its maritime

¹⁵⁸⁹ *Ibid.*

¹⁵⁹⁰ Faure & Xu (2013), 19-20.

¹⁵⁹¹ Shleifer & Vishny 1998.

¹⁵⁹² The OOOSO is short for the *Offshore Oil Operation Safety Office of the State Administration of Work Safety*. For more information, see *supra* section 2.1 of chapter 7.

¹⁵⁹³ The MSA is short for the *Maritime Safety Administration*. For more information, see *supra* section 5.3 of chapter 7.

bureaus in charge of shipping safety) - both conduct inspections on offshore oil operations. Furthermore, the OOOSO has its regulatory branch within the company that they regulate, the CNOOC, casting doubts on the relationships between the regulators and regulated companies. By comparison, although the MSA and maritime bureaus are independent from offshore oil companies, they are only authorised by law to manage 'shipping safety,' indicating they are not clearly authorised for such duties. After all, whether the MOUs can be regarded as 'ships' remains unresolved. In the absence of more legal guidance, two administrative agencies with overlapping authorities may create confusion in implementation.

Third, some interested groups in the offshore oil industry may impact the actions, decisions, and policies of government officials regarding offshore regulation through lobbying, which further affects the effectiveness of regulation. The impact of interest groups (lobbying groups) in China on regulation can touch upon various aspects, especially in policy-making and implementation.¹⁵⁹⁴ For instance, the OOOSO (in charge of safety operations) has a regulatory branch inside the regulated company - the CNOOC - to supervise daily operations.¹⁵⁹⁵ Although the branch is legally subordinate to the OOOSO, it is difficult to understand why a regulatory organ in charge of safety inspection is set up within the regulated enterprise. Even though decision-makers may hold the view that such an arrangement is convenient for the competent authority to manage offshore oil activities, the argument is not convincing enough to persuade the public. The OOOSO branch is seen as a regulatory agency that may be dominated by the interested party it regulates and not by the public interest. There is a danger that this regulatory agency instead acts in ways that benefit the interests of the parties it is supposed to be regulating.

Stigler (1971) uses the term 'regulatory capture' to describe such a situation, where regulated industries maintain a keen and immediate interest in influencing regulators, in that they devote a significant budget to influencing regulators. In contrast, individuals are less motivated to advocate for their rights and unlikely to lobby to the degree that regulated industries do, even though the regulations, such as pollution standards, would affect ordinary citizens collectively.¹⁵⁹⁶ This institutional setting of

¹⁵⁹⁴ For more information about the governance and lobbying of China, see Jing 2011; Saich 2010; Kennedy 2009.

¹⁵⁹⁵ See section 2.1 of chapter 7.

¹⁵⁹⁶ This is an extension of the concept of concentrated profits and diffuse costs of regulation, public policy, and collective action in general, developed by economist Olson (1965). His central argument is that concentrated interests will be over-represented while diffuse majority interests are trumped due to a free-rider problem that is stronger when a group or corporation becomes larger.

a regulatory branch set within the CNOOC reflects the regulatory loopholes that exist in implementing safety rules. In some cases, regulatory capture can even result in deregulation of the behaviour of the subjects of the regulation themselves (offshore oil companies) while maintaining regulations that benefit them.

6. Conclusion

This chapter provides a critical analysis of the existing legal system and the way it is applied in practice. It uses the traditional economic analysis of accident law to analyse the legal regime with respect to offshore oil pollution. Notably, the compensation and prevention of offshore oil damage are set as a policy goal. The study finds that the existing regime follows the predictions from the economic model to a large extent, but with a few exceptions.

First and foremost, a strict liability regime applies. In this bilateral accident case, strict liability is imposed on the offshore oil operators with no financial caps, while a contributory negligence defence is added due to the role of the victim in damage mitigation. The major deviation found is that the liability is channeled to the offshore oil operator, excluding the holding party CNOOC who could have contributed to the accident risk as well.

Second, traditional damage and marine ecological damage arising from offshore drilling are recoverable, provided that the created costs of compensation and restoration are reasonable. Legitimate claimants in litigation should have a direct interest at stake in terms of traditional damage. Although individual victims are entitled to claim compensation for their injuries and economic loss, access to justice can be blocked due to some issues deeply rooted in the administrative and judicial systems. The public administration plays a dominating role in determining the claim settlement in administrative management; moreover, it may also affect judicial litigation and mediation due to a lack of judicial independence. Although three procedural devices against administrative errors are designed to supervise the public administration, those institutional designs do not seem to be as feasible as expected.

A broadened scope of standing applies for marine ecological damage, whereby legally mandated administrative organs, eligible social organisations, and procuratorates are all obliged to become claimants. Although three groups of parties are obliged to claim restoration for marine ecological damage theoretically, the primary method in practice

is to through the public administration through administrative management, resulting in the decision-makers and the claimants being exactly the same entity. Furthermore, environmental public interest litigation is in its infancy, meaning that social organisations and procuratorates play a minimal role in ecological restoration.

Third, offshore oil companies can purchase commercial insurance in advance or count on their assets to deal with the potential risks under a voluntary scheme. Oil majors may use self-insurance, but no criteria have been developed to evaluate whether an enterprise is financially qualified to use this type of financial tool. Since the strict liability of the offshore oil operator is not capped at a statutory amount, there could be an insolvency risk in case of catastrophic damage, especially for those financially moderate SMEs. Financial responsibility may be used to overcome the drawbacks, but it will require a relatively mature insurance market on the one hand and impose a heavy burden for operators on the other. A compensation fund is another option in addition to liability insurance and self-insurance, but currently no attempt has been made to create such a fund in the field of offshore drilling.

Fourth, China provides a series of safety standards to offshore oil operators in legislation and an internal compliance mechanism within the companies. However, as the self-reported safety statistics may not be a reliable proof of compliance by offshore oil operators, the available information may not give a complete picture to examine whether the regulation adequately provides prevention incentives to operators. Since the effectiveness of regulation is largely dependent upon its enforcement, some concerns that existed in the institutional structure of safety inspection, such as overlapping authority and regulatory capture, might impair its effectiveness. Shavell's four criteria on the desirability of liability or regulation indicate that both instruments have strong and weak points, as regulation could deter offshore-related risks, while liability rules also have an additional deterrent effect to back up regulations. Therefore, neither regulation nor liability leads offshore oil operators to exercise the socially desirable levels of care alone. Combining these two instruments could achieve the optimal effect of deterring offshore oil pollution, and it may also dilute the negative impact of interested groups and of government intervention.

A tentative finding is that the legal framework to compensate and prevent offshore oil damage has been established in China: some aspects align with the law and economics literature, while some are more difficult to reconcile. In the meantime, it

should not be overlooked that this theoretical framework can only be fulfilled through effective law enforcement. Some distinctive characteristics rooted in China's administrative, judicial, and regulatory systems may fundamentally influence the application of laws in practice.

Some empirical research is required to further examine to what extent the current rules of compensating and preventing offshore oil damage are effectively functional or *vice versa* in actual cases. Therefore, the next chapter will take a closer look at a major accident that happened in 2011 - the *Bohai Bay Oil Spill* - to examine whether these findings were applied in a concrete case.

Chapter 9 The case study on the *Bohai Bay Oil Spill*

This chapter addresses a series of oil spills in the Bohai area as of 2011 (hereinafter the Bohai case) and uses it as a typical example to test if the findings in chapter 8 can be confirmed in actual cases. Some features in the Bohai case may precisely underscore the study's findings; there are probably some deviations or new issues in the case that have not been addressed in the previous analysis.

Section 1 introduces the basic facts of the Bohai case. Section 2 examines the allocation of liability after the accident. Section 3 addresses the perceived barriers in the claims process that prevent claimants from pursuing compensation for economic losses and ecological pollution. Section 4 turns to financial tools used to tackle offshore-related risks and losses, such as tort damages and ecological pollution. Attention is paid to safety regulation in section 5, whereby it discusses whether the offshore oil operator (dis)obeyed safety standards and whether the regulation incentivised the risk creator to prevention. Section 6 concludes.

1. Introduction to the Bohai case

The 2011 *Bohai Bay Oil Spill* consisted of a series of oil spills that began on June 4, 2011 in Bohai Bay. The second and third oil spills took place on June 17 and July 12.¹⁵⁹⁷ Although no casualties were reported, in total the leaks contaminated a total of at least 5,500 square kilometres. In addition to the costs incurred by clean-up activities, serious economic losses were experienced by industries and individuals dependent on coastal resources, among which the fisheries and tourism sectors were where the greatest impacts were felt.

The oil field was 51 percent owned by China National Offshore Oil Corporation (CNOOC), and 49 percent owned by the ConocoPhillips China, United States company ConocoPhillips, a wholly-owned subsidiary of ConocoPhillips undertaking oil and gas exploration and production operations in China through cooperation with Chinese and international partners.¹⁵⁹⁸

¹⁵⁹⁷ Maritime Executive 2011.

¹⁵⁹⁸ More information about the COPC is available at <https://www.conocophillips.com.cn/> (accessed on April 10, 2022).

The oil spill was not publicly reported until one month after on July 5, 2011.¹⁵⁹⁹ In an official statement released by the government, the ConocoPhillips China (hereinafter COPC) that managed the platform was held fully responsible for the incident, whereas the CNOOC was free from any tort liability, as the project had not been completed by the operator COPC and was not yet transferred to the CNOOC.¹⁶⁰⁰

One year later (in 2012), the COPC paid CNY 1,000 million to the Ministry of Agriculture (MOA), covering the fishery loss. Meanwhile, the COPC paid a sum of CNY 1,090 million to the SOA to compensate ecological damage to the marine environment.¹⁶⁰¹ On the SOA's request, the COPC and CNOOC agreed to set up a fund to clean and restore the contaminated water areas.¹⁶⁰² The COPC put up CNY 113 million and the CNOOC financed CNY 480 million.¹⁶⁰³ It showed that administrative management was the primary approach to settle the compensation issues associated with the Bohai case.

2. Testing the strict liability system

The Bohai case happened at the Penglai 19-3 oilfield. The project was jointly developed by State-owned CNOOC and the foreign operator COPC in a 51:49 business partnership. However, according to the *Offshore Cooperation Regulation*, the COPC was fully accountable for the damage, because it was in charge of the ongoing project when the accident happened. Since no offshore employees or individuals were injured or killed during the accident, the COPC was accused of two types of harm: economic loss to the third parties and ecological damage to the Bohai area. The damage to the operator itself was set aside in the sense of liability compensation.¹⁶⁰⁴

As mentioned above, the liability was channelled to the operator COPC alone based on the petroleum contract. The CNOOC was completely excluded from liability, and all the duties were shifted to the foreign operator. Given that the CNOOC is a holding party of the project and has also contributed to the loss, it should be exposed to

¹⁵⁹⁹ SOA 2011, 2012; He 2009.

¹⁶⁰⁰ SOA 2011.

¹⁶⁰¹ SOA 2011, 2012; COPC 2012; Offshore Technology 2014.

¹⁶⁰² SOA 2011, 2012.

¹⁶⁰³ The exchange rate for the EUR/CNY was 0.12 in March and April 2012 (when the money was paid).

¹⁶⁰⁴ The damage to the offshore oil operators themselves is different from that to the third parties. The liable party has to pay the price on their own or purchase first-party insurance to cover the damage in the former scenario. By comparison, the liable party is required to bear the liability and compensate the damage caused to the third party through several methods (such as tort claims and liability insurance). See *supra* sections 1.2-1.3 of chapter 6.

liability for prevention incentives. Excluding the CNOOC, which could have influenced the accident risk, therefore does not seem to be in line with economic insights, as the statutory exclusion of the liability of the CNOOC would not provide sufficient incentives to take prevention.

The conclusion, however, can be different in real-life cases, as this formal statutory exclusion did not mean that the CNOOC did not pay in practice. On the contrary, it paid a substantial amount for ecological restoration in the Bohai case, but it did so in the name of ‘social consideration’ rather than ‘statutory liability,’ indicating that the payment by the CNOOC was exceptional and thus could not be counted as a matter of law.¹⁶⁰⁵ The nature of this payment thus remained dubious. The money spent by this State-owned enterprise could be a hidden subsidy that limited the exposure of the real (foreign) operator from being exposed to the full social costs. The CNOOC would be regarded as a government entity. Alternatively, the money paid by the CNOOC could also be considered a compensation amount provided by an entity jointly engaged in the operations with the foreign operator. Since the CNOOC did take care of (partial) compensation in real-life cases, it seemed to apply a kind of shared liability between the CNOOC and the offshore oil operator. This could, in theory, provide incentives for prevention to both of them. Nevertheless, the compensation settlement in the Bohai case was an *ad hoc* solution instead of a functional one, meaning the CNOOC is not obliged to have any liability to compensate at all.

As far as offshore oil damage is concerned, strict liability in China could theoretically expose the party that creates the risks to the full social costs, yet the problem lies in the uncertainty (or flexibility) when applying the rules. As shown in the Bohai case, the operator COPC was fully accountable for all the economic losses of the affected individuals and entities, and the insolvency concern did not occur. However, in terms of ecological damage, on the one hand, the CNOOC was excluded from the pollution liability based on the statutory rules but practically paid a fortune for ecological damage, on the other. Therefore, it was not clear whether the risk creator was fully incentivised to prevent the risks under the existing liability system, because the implementation was out of line with the written law, indicating that the system in practice is not optimal.

The result was not based on statutory rules and thus could not be used as a precedent

¹⁶⁰⁵ SOA 2011, 2012.

in other cases. In other words, even though the CNOOC and the operator COPC jointly contributed to the expenses for ecological restoration, the CNOOC was *de facto* not incentivised by law to take prevention measures, and thus the ‘blameless’ SOE paid compensation as an answer to social responsibility. Instead of attributing legal liability to the CNOOC, the government took another route in handling the liability allocation in the Bohai case. The liability allocation in terms of ecological damage might work differently from that of economic loss. Although the operator COPC was by law alleged to be the only liable party in both scenarios, the other party, the CNOOC, *de facto* financially contributed to compensating the ecological damage. However, whether the accident was also attributable to the CNOOC depended on the administrative decision taken by the authority rather than a statutory rule that had to be followed. Given the channeling of liability, it is still difficult for liability rules to have their desired preventive effect in the current legal context.

Another issue was to distinguish the victims’ duty of taking due care and the victims’ duty to prove the causal link between their losses and the accident. Whether victims have taken due care or not can be evaluated by checking the relevant materials they provided in the claims process. As mentioned in chapter 5 (section 2.1.1.B), the *Clean-up Statement* shows to what extent the victims take appropriate prevention measures related to the accident. Affected individuals and entities in the Bohai case were required to follow the strict procedure of submitting the claim requests regarding the economic losses as well as the removal costs.

The application of this rule is different in the case of claiming for ecological restoration. Because marine administrative organs are only obliged to provide the *State Statement* to the polluter in order to make an agreement on ecological restoration, they did not submit any evidence of taking precautionary measures in the Bohai case. Since marine administrative organs also act as the decision-maker, no independent supervisory party was involved in the claims process. Thus, whether they took due care was even more difficult to evaluate.

3. Testing the claims process

3.1 The claims process of pursuing traditional damage

Since no injuries or casualties were reported in the Bohai case, most victims were

individual fishermen, fishery companies, and tourist providers that sustained economic losses from the accident. These claimants were indeed allowed to claim compensation, where four approaches were all applied or at least tried by them. Individual fishermen and fishery companies that sustained economic loss considered administrative management as their primary option. They were also allowed to file a lawsuit against the polluters after being excluded by administrators. Some victims, including some fishermen and tourism providers, were persuaded to conclude an agreement with polluters via judicial mediation. Additionally, a limited number of victims even made an attempt at arbitration, but it ended up in failure.¹⁶⁰⁶ The following sub-sections respectively examine these claim approaches in the Bohai case and the obstacles that victims encountered when claiming compensation.

3.1.1 Powerful administrative controls in the administrative management

There were a number of victims that obtained compensation through administrative management. Figure 16 demonstrates how damages were claimed and compensated through administrative management. The left column represents the statutory procedures of claim settlement, whereas the right column presents the actual steps in the Bohai case. Although the operator COPC had agreed to spend CNY 1,000 million on the fishery loss, it finally reduced this amount to CNY 731 million for unknown reasons. The payment covered 4,500 affected fishermen in two affected provinces¹⁶⁰⁷ and each victim would on average receive CNY 162,440. It was unusual that the indemnities were not paid to the victims but to the administrative organ in charge of the fishing industry, namely the State Fishery Bureau (SFB) of the Ministry of Agriculture (MOA).¹⁶⁰⁸ The steps highlighted in red illustrate that the practical steps differed from the procedural rules: the MOA first received money from the operator, COPC, in a lump sum and then distributed it to local departments in charge of the

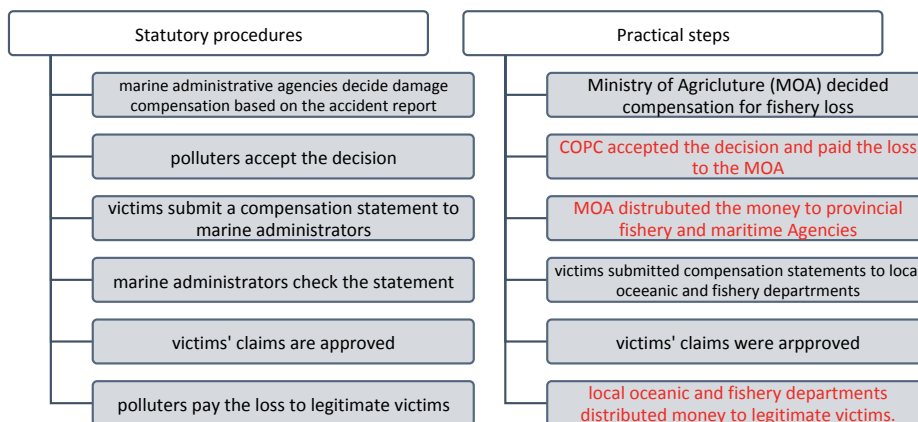
¹⁶⁰⁶ Wang 2017c.

¹⁶⁰⁷ A sum of CNY 731.5 million (approx. 87.78 million, the exchange rate for the EUR/CNY was 0.12 in March and April 2012) was used to make up for fishermen's losses in the seven most contaminated places in Hebei Province and Liaoning Province, which are Leting, Changli, Funing, Suizhong, Haigang, Shanhaiguan Beidaihe counties. The MOA first received the payment from the liable party and then gave it to these two provinces. Local administrators of these two provinces took charge of distributing the money to affected fishermen and fish farmers, depending on specific criteria. According to the official report, most affected fishermen (4,500) in Hebei and Liaoning provinces agreed to settle the issue via such an administrative method. They were supposed to receive compensation at the end of 2012. Other individuals and entities that sustained losses from the accident, including fishermen in Shandong Province and Tianjin City and tourism providers, were utterly excluded from the fund and received little compensation through this administrative method. See, Li (2015b).

¹⁶⁰⁸ *Ibid.*

fishing sector, namely the provincial oceanic and fishery departments.¹⁶⁰⁹ Affected fishermen could only obtain compensation from local bureaus on the condition that their compensation statements were approved by the local oceanic and fishery departments.¹⁶¹⁰ The administrators bypassed the victims and agreed with the liable COPC directly.¹⁶¹¹ They determined liability distribution, compensation amounts, and the qualified victims.

Figure 16 Procedures for claiming economic loss through administrative management¹⁶¹²



Now that administrators first received payment from the COPC and took charge of the distribution, they were expected to distribute the money to victims properly and in a timely manner.¹⁶¹³ However, some victims complained about the inefficiency of the public administration, as some local administrative agencies postponed allocating damages even though they had already received compensation from the COPC.¹⁶¹⁴ Some scholars criticised that the public administration (the MOA and SOA) facilitated this compensation package plan, leaving many individuals out.¹⁶¹⁵ As far as the fishery loss was concerned, although the MOA declared that it represented individuals to make a compensation agreement with the COPC, victims that sustained economic losses were not heard in the negotiations.

Another problem concerned the difficulty of affected victims in collecting evidence.

¹⁶⁰⁹ For more information on the administrative structure of marine and fishery issues in China, see *supra* section 1.3.1 of chapter 5.

¹⁶¹⁰ Xia 2011.

¹⁶¹¹ Zhang 2012a.

¹⁶¹² The figure was made by the author. The left column of the figure is based on the Offshore Exploitation Regulation while the right column is summarised from the Bohai case.

¹⁶¹³ Yin 2013.

¹⁶¹⁴ *Ibid.*

¹⁶¹⁵ Du (2013), 11-13.

When victims intended to submit a compensation claim to administrators, raise an objection through administrative reconsideration or litigation, or file a lawsuit against the polluters, they were all required to provide solid evidence, proving that their economic loss was closely linked to the accident. However, assessing marine oil pollution and providing a valid accreditation document are technically difficult for ordinary people with no official support. Rather, they should request access to the accident report, as long as marine administrators approved. The problem was that marine administrators might refuse their requests, meaning that victims could hardly collect evidence. In other words, the basic step of claiming compensation would be a challenging task for victims to overcome unless administrators were willing to cooperate.

There were also victims who found that claiming compensation through the administrative method was not a pleasant experience. As will be addressed later, some victims alleged that the authority deferred or dismissed their claims, forcing them to seek redress from another two procedural devices: administrative reconsideration and administrative litigation. To raise a claim via administrative reconsideration against regional marine administrators (which is Bohai&Yellow Sea Branch), it would be the superior - SOA - acts as the reviewing agency. Due to a particular institutional setting, even though the SOA itself was accused of making mistakes, the reviewing agency would still be the same - the SOA. That was, regardless of whether the administrative organ being challenged and investigated was the SOA or its local branches,¹⁶¹⁶ the SOA would always be in charge. Obviously, administrative reconsideration would make little sense for the supervision of marine administrators. For example, some fishermen argued that marine administrators infringed upon their rights by wrongfully rejecting compensation claims. The SOA, which is competent to determine the compensation claims, may dismiss the fishermen's claims because they could not prove the causal link between their losses and the accident. On the one hand, given that the proof that could show causation - the investigation reports - was in the hands of marine administrators, victims were unlikely to get sufficient evidence without their support. On the other hand, the SOA seemed to be unwilling to overturn the decisions that is made or that were taken by its subordinates.

When victims were not satisfied with some actions of the administration, the second

¹⁶¹⁶ Article 14 of the *Administrative Reconsideration Law*. Articles 8-10 of the *Maritime Reconsideration Measure*.

attempt was to take certain administrative agencies to court via administrative litigation. However, it was possible that the SOA interfered with the judicial system before it even started. In 2013, after receiving the cases initiated by some aquaculture companies from the Shandong province, the Beijing First Intermediate People's Court left them aside because it was a 'politically sensitive' issue. Reportedly, judges informed the accused SOA in private,¹⁶¹⁷ so that the SOA ordered its subsidiary - *Shandong Provincial Oceanic and Fishery Department* - to pressure those claimants until they were forced to withdraw the case against the SOA.¹⁶¹⁸

Nonetheless, we should not rule out the possibility that some compensation claims might be based on a free riding attempt by victims. For instance, one claimant from Liaoning Province argued that he should have received money from the administrators, but it turned out that the so-called claimant had already transferred the fishing sea area to a third party one year before the Bohai case. Therefore, judges in the administrative litigation dismissed the claim due to lack of standing. The third party who took over the fishing waters and suffered from the accident was the appropriate claimant to receive compensation.¹⁶¹⁹

Although administrative management may quickly settle a number of claims, hundreds of victims had to make extra efforts to obtain compensation, and some of the claims could be postponed or even left aside. Because administrators played a dominant role in claim settlement, it seemed that they largely determined to which extent victims got compensated.

3.1.2 Litigation as an important alternative

Apart from the administrative approach, victims were also entitled to initiate a lawsuit before the court directly. Generally, most victims did not choose to do so in the first place. Alternatively, victims who were rejected by administrators or unsatisfied with the decisions could also resort to courts. It would be theoretically possible for courts to review and modify administrators' earlier decisions. Compared to the administrative approach, litigation was more time-consuming and costly for ordinary

¹⁶¹⁷ Yin 2013.

¹⁶¹⁸ *Ibid.*

¹⁶¹⁹ The Administrative Judgment of the Second Instance Regarding *Cao Hongsheng v. Suizhong Government of Environmental Pollution Settlement* given by the Liaoning High Court (《曹洪升诉绥中县人民政府二审行政判决书》) (2016) 辽行终 978 号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=e7f5ae2115ca4537bd4aab3b002590e0> (accessed on April 14, 2022).

people, especially when the victims urgently needed money to restore their activities. Due to such concerns, after being excluded by administrators, a great number of fishermen and SMEs dared not to try other approaches with extra expenses but just carried their own losses.¹⁶²⁰ Nevertheless, a few victims, whose compensation claims had been turned down by administrators due to a lack of standing or evidence, pursued compensation through the courts.

There were a few victims whose compensation claims were supported by the court. For instance, the Tianjin Maritime Court required the COPC to compensate CNY 1.68 million to twenty-one affected fish farmers from Hebei Province.¹⁶²¹ The payment ranged from CNY 189,000 (for the claimant whose contaminated fishing area was 233,450 m²) to CNY 22,150 (for the claimant whose polluted area was 27,347m²). Roughly speaking, the liable COPC had to compensate CNY 0.8 for every square meter of the polluted fishing water areas.¹⁶²²

Moreover, four aquaculture farmers from Liaoning Province, whose claims had already been confirmed by administrators, turned to the courts later because they were tired of waiting. Their lawsuits against the COPC were supported by the judges with a sum of CNY 634,172.¹⁶²³ Meanwhile, they also received compensation distributed by administrators. In the case of double compensation, these four farmers could only keep the compensation afforded through the court judgment and had to return the payment distributed by administrators.¹⁶²⁴ If we make a rough comparison, the payment given to an affected fisherman through a lawsuit was around CNY 80,000,¹⁶²⁵ which was half as much as the average compensation amount through administrative management procedure (the average amount was CNY 162,440).¹⁶²⁶

¹⁶²⁰ Yan 2011.

¹⁶²¹ See the Civil Judgment of *Luan Shuhai, Liu Mingwei, et al. v. COPC and the CNOOC on the dispute of compensating marine pollution* (《栾树海、刘明炜等与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷民事判决书》) (hereinafter *Luan & Liu et al. v. COPC & CNOOC*) (October 29, 2015), available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=9535657ee23540299ad91b59805f1ca8> (accessed on April 14, 2022).

¹⁶²² *Ibid.*

¹⁶²³ The Administrative Judgment of the Second Instance Regarding *Wang Changhong v. Suizhong Government of Environmental Pollution Settlement* given by Liaoning High Court (《王长红、绥中县人民政府环境保护行政管理(环保)二审行政判决书》) (2017) 辽行终 1279 号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=9e8ff2f10d3a4ec4ac62aa4f0021dba2> (accessed on April 14, 2022).

¹⁶²⁴ *Ibid.*

¹⁶²⁵ For instance, the average amount paid to each victim was around CNY 80,000 (approx. EUR 9,600). This amount is estimated based on the case of *Luan Shuhai, Liu Mingwei, et al. v. COPC and the CNOOC on the dispute of compensating marine pollution*.

¹⁶²⁶ As indicated above, if we suppose the total amount of compensation was CNY 731 million for 4,500 fishermen, the average payment to each fisherman would be around CNY 160,000 (approx. EUR 19,200). For

Although these victims appealed their claims, the Tianjin Supreme Court affirmed the lower court's judgment, bringing an end to the case.¹⁶²⁷ However, the difference between the compensation amounts did not mean the judges were less generous than the administrators regarding the awards they decided. After all, the extent of the damage for each victim varied a lot. If victims had adequate evidence of their losses, they would be inclined to pursue damage awards through administrative management instead of litigation. Compared to a complex and expensive lawsuit, victims would prefer to simply write and submit a *Claim Statement* or a *Clean-up Statement* to the competent authority. As long as the compensation claim was clear and specific, marine administrative organs in charge were also likely to support the claims. Normally, victims would regard litigation as their last resort and turn to judges only when their claims had been turned down through administrative management procedures, which indicated that these victims would already face an unfavourable situation before claiming compensation through the court.

Notably, when courts refused the cases due to lack of standing or evidence,¹⁶²⁸ the press, based on the information available to the public, might not give the whole picture. For instance, the Qingdao Maritime Court dismissed the compensation claims from 263 affected fishermen in 2017, declaring that the evidence they provided was too weak to initiate a further investigation.¹⁶²⁹ Fishermen complained to the media

more information on the Bohai case, see Li (2015b).

¹⁶²⁷ Civil Judgment of Second Instance of *Luan Shuhai, Liu Mingwei, et al. v. COPC and the CNOOC on the dispute of compensating marine pollution* (《栾树海、刘明炜等与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷二审民事判决书》)(2016)津民终69号, (October 7, 2016), <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=84f7013733468fa0b4f264d53ab8f4> (accessed on April 14, 2022).

¹⁶²⁸ See, for instance, (i) individual fishermen of Hebei: The Civil Judgment of the Second Instance Regarding *Zhang Guodong et al. v. COPC of the Losses Arising from Marine Pollution* given by the Tianjin High People's Court (《张国东、康菲石油中国有限公司海上、通海水域污染损害责任纠纷二审民事判决书》), (2018)津民终176号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=357d56adbe6b466795b8a966017c3d10> (accessed on April 14, 2022); (ii) private companies of Hebei: The Civil Judgment of the Second Instance Regarding *Yifa Ecological Company of Caofeidian, Tangshan v. COPC of the Losses Arising from Marine Pollution* given by the Tianjin High People's Court (《唐山曹妃甸区益发农业生态园有限公司、康菲石油中国有限公司海上、通海水域污染损害责任纠纷二审民事判决书》), (2018)津民终177号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=c69746e65acd410bab4fa966017c40e3> (accessed on April 14, 2022); (iii) individual fishermen of Shandong: The Civil Judgment of the First Instance Regarding *Zhao Lecheng et al. v. COPC and CNOOC of the Losses Arising from Marine Pollution* given by the Qingdao Maritime Court (《赵乐成与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案一审民事判决书》), (2015)青海法海事初字第283号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=f0cb83593e344d98b438a863017c6711> (accessed on April 14, 2022).

¹⁶²⁹ The Civil Judgment of the First Instance Regarding *He Yecai et al. v. COPC and the CNOOC of marine pollution settlement* given by the Qingdao Maritime Court (《贺业才与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案一审民事判决书》)(2015)青海法海事初字第199号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=29040daac0e443a9aefda86>

that they lost the case because they failed to get the crucial evidence on the accident investigation report, which was in the hands of the SOA and Bohai & Yellow Sea Branch. However, according to the court's official judgment, the report was available to both sides at the court's request. Given the factual issues written in that report, the alleged losses were still not linked to the accident. The court played an active role in helping the victims to get crucial evidence. It would also be fairly reasonable for the court to rebut these kinds of compensation claims with sufficient legal grounds.¹⁶³⁰ Another example in the Bohai case was that a claimant claimed damages for his so-called polluted aquatic waters, but the judge later found that this plaintiff had left the aquaculture business before the accident and transferred the right of management of that area to someone else.¹⁶³¹ Obviously, this false victim intended to benefit from the accident by making a false claim.

The performance of the courts in claims handling in the Bohai case provides a mixed picture. Although victims could file a lawsuit as an alternative, a judicial approach with a longer procedure usually took more time and effort. Compared to marine administrators, judges may not have sufficient information on these compensation claims. More importantly, they were not necessarily more independent than administrators in China.¹⁶³² Nevertheless, many victims that administrators had refused received satisfactory compensation through the courts. Given that marine oil pollution normally required technical investigation and complicated procedures, courts settled most claims within a reasonable short period (several years after the accident). If claimants were still not satisfied with the result and appealed, the outcome was usually that the higher court upheld the original judgment.

^{2017d69a0} (accessed on April 14, 2022). For a relevant news report, see Yan (2017).

¹⁶³⁰ The Civil Judgment of the First Instance Regarding *Zhang Huiqing v. COPC and the CNOOC of Marine Pollution Settlement* given by the Qingdao Maritime Court, (《张慧庆与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案民事判决书》), (2015)青海法海事初字第 264 号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=0522adcc62734c178af4a862017d6d68> (accessed on April 14, 2022).

¹⁶³¹ Articles 22-23 of the *Offshore Exploitation Regulation* provide legal grounds for this requirement, which states that victims are required to submit a statement to claim the property damage or the clean-up costs stemming from the oil pollution. In the Bohai case, individual fishermen, aquatic companies, and tourism providers that suffered from the accident were all obliged to prove that their loss was linked to oil spills. Marine administrators and local courts refused the claims in some cases due to a lack of evidence. For instance, the Qingdao Maritime Court dismissed the compensation claims from 263 affected fishermen in 2017, declaring that the evidence they provided was too weak to initiate further investigation. The Civil Judgment of the First Instance Regarding *He Yecai et al. v. COPC and the CNOOC of marine pollution settlement* given by the Qingdao Maritime Court, (《贺业才与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案民事判决书》) (2015) 青海法海事初字第 199 号, available at <https://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=29040daac0e443a9aefda862017d69a0> (accessed on April 14, 2022).

¹⁶³² He (2013), 24.

3.1.3 Limited impact of judicial mediation and arbitration

A small group of victims chose the *third* alternative, judicial mediation, after the SOA rejected their claims. Twenty tourism providers claimed a sum of CNY 26.2 million against the COPC.¹⁶³³ After initiating a series of lawsuits in 2012, it took another six years to have the outcome of their requests.¹⁶³⁴ The COPC agreed to compensate the loss of their expected income through an agreement on the condition that the final amount remained confidential. The outcome of mediation could not be used as an example for similar claimants. Other affected tourism providers who were hesitant to file a lawsuit would never know if the final payment was up to CNY 26.2 million.¹⁶³⁵ Seemingly, it was not as bad as expected that many victims were forced to choose mediation to increase their mediation rates.¹⁶³⁶ Nevertheless, because the information was not accessible, it was uncertain if tourism providers were under pressure while they waited six years in the legal proceedings.

Arbitration was also an option to obtain compensation. In 2013, a small number of fishermen, whose claims were first turned down by administrators and then rejected by courts, made another attempt at arbitration before giving in. Although the China Maritime Arbitration Commission (CMAC) accepted their requests at the outset, arbitration turned out to be a dead-end because the other side, the COPC, gave no response.¹⁶³⁷ Unsurprisingly, the COPC reacted evasively to their offer because administrators and judges had already expressed negative attitudes towards their compensation claims. It would be unlikely for the COPC to reconsider their payment demands on a voluntary basis. Given that arbitration is a form of alternative dispute resolution more for commercial issues, it would probably play a very modest role in settling compensation cases as a result of marine pollution, which was proven in the Bohai case.

¹⁶³³ For more information about the case between the tourist providers and the COPC, see Feng 2018a, 2018b.

¹⁶³⁴ These claimants were from the Tangshan Bay International Tourism Island Company (大连唐山湾国际旅游岛).

¹⁶³⁵ Feng 2018a, 2018b.

¹⁶³⁶ See *supra* section 2.1.3 of chapter 5.

¹⁶³⁷ In September 2013, forty-three fishermen from Tianjin sought assistance from the Tianjin sub-commission of the China Maritime Arbitration Commission (CMAC, in Chinese: 中国海事仲裁委员会), expecting to negotiate with the liable COPC about the compensation issues. However, these fishermen failed again as the COPC did not respond to such an offer within the time limits. See, Wang 2017c.

3.2 The claims process of pursuing ecological restoration

3.2.1 Administrative management as a primary choice

The claimants, which were marine administrators in this case, required compensation for ecological damage primarily through administrative management. The payment was divided into two parts. The COPC first paid an amount of CNY 1,090 million to the SOA, but it was inadequate to cover the clean-up cost and ecological restoration. Afterwards, the COPC and CNOOC made contributions to creating a specialised fund for ecological restoration, with a sum of CNY 593 million in total. Notably, this fund was merely an administrative approach in the form of a temporary fund that was utterly different from a limitation fund. The latter is a regular financial instrument usually formulated by risk creators and offering a fixed sum to the members when they suffer from certain losses. It was confusing that both the claimant of marine ecological damage and the authority in charge were the same party: the SOA and its branches.

Although the CNOOC shared a governmental background, its business partner - the COPC - was formally liable for all the liabilities. Seemingly, there were no clues that this institutional arrangement adversely affected ecological restoration in the Bohai case. Instead, because marine administrators were simultaneously allowed to claim damages and empowered to take charge, they were unlikely to create barriers in this case. In fact, whether the CNOOC has close relationships with the competent authority makes little difference in claim settlement. The Bohai case also showed that the CNOOC finally spent nearly half a billion Chinese yuan to restore the ecosystem, which reinstated that the CNOOC did not undertake any tort liabilities but made a contribution for the sake of social responsibility.

However, victims of offshore oil damage cannot claim ecological restoration from the CNOOC by referring to this case, as they can only claim compensation from the liable operator. In other words, as long as the SOA does not 'request' the CNOOC to jointly pay for the ecological restoration in the name of social consideration, the liable operator will be the sole party to bear all the costs of restoration, which could undoubtedly put a heavy burden on the operator and which demands a strict requirement concerning the operators' financial capabilities. Moreover, without a supervisory system, the complicated relationship among the parties in the

administrative management will only create more uncertainty in the allocation of liability. On what basis and to what extent the liable operator and the CNOOC undertake the liability and compensate ecological damage are unpredictable. Consequently, even though there are clear liability rules on paper, the absence of regularity and certainty during the claims process can be problematic to handle ecological damage in practice, leading to an unnecessary increase in administrative costs.

3.2.2 Environmental Public Interest Litigation ended in a failure

Theoretically speaking, environmental social organisations may resort to courts and file an EPIL (Environmental Public Interest Litigation) case for the sake of the public interest. However, it failed in the Bohai case. To be specific, the *All-China Environment Federation* (hereinafter *ACEF*), a social organisation specialising in environmental protection, was one of the few pioneers who intended to participate in the case. ACEF did not choose to file an EPIL case against the operator COPC on behalf of the public interest. Instead, it sued the SOA in the Beijing First Intermediate People's Court, accusing it of administrative misconduct in the claim settlement.¹⁶³⁸ Hence, it turned to become an EPIL case against the public administration rather than against private parties, which was not allowed under the existing rules. No wonder the court refused the claim on the ground of lacking standing.¹⁶³⁹ Some reports criticised that China's judicial independence was so fragile that the ACEF was forced by its superior, the Ministry of Environment, to drop the lawsuit to avoid any trouble.¹⁶⁴⁰ Nevertheless, the public should avoid confusing the fact that the court dismissed the case properly, because the ACEF lacked legal grounds to file against the SOA.

¹⁶³⁸ At first, the ACEF requested the SOA to disclose more details of the accident investigation to the public. The SOA responded to it with two documents: the Reply considering the reproduction of 19-3 Penglai Oilfield and the confirmation of modifying the environmental impact of the project and an environmental impact report. However, ACEF pointed out that the reproduction of the 19-3 oilfield project in the report violated due process, as the SOA did not hold an administrative hearing as required. The ACEF challenged the SOA through administrative reconsideration but received no response, which drove the ACEF to file against the SOA. See, Beijing DHH Legal Firm (August 2, 2013), Two lawyers of the DHH sued the SOA representing the ACEF, available at http://www.deheheng.com/Archives/IndexArchives/index/a_id/1936.html (accessed on April 14, 2022).

¹⁶³⁹ For more information on 'administrative EPIL,' see *supra* section 3.4.3.2 of chapter 5. According to the current legal regime in China, only the People's Procuratorate is allowed to initiate an administrative EPIL case. In contrast, social organisations can only file regular (non-EPIL) administrative lawsuits based on their direct interests.

¹⁶⁴⁰ Although the All-China Environment Federation (ACEF, in Chinese: 中华环保联合会) is a leading social organisation specialised in environmental protection, it is subordinate to the Ministry of Ecology and Environment (生态环境部). It was reported that the Ministry warned the ACEF not to be against the SOA. More information about the ACEF is provided in its website, available at <http://www.acef.com.cn/index.html> (accessed on April 14, 2022).

Although it is unknown why it chose to initiate a lawsuit against the wrongful target, the failure in the Bohai case implied that EPIL was still in its infancy.

Given that this disastrous accident resulted in a series of claims covering a wide range of types of damage, table 32 demonstrates that all the approaches applied to pursue compensation and restoration in the Bohai case. Recall that table 31 listed the compensation approaches based on theoretical assumptions, while the claim settlement in the Bohai case as shown below (table 32) is largely in line with the features summarised in table 31. On the one hand, it conforms with the statutory rules and procedures: the offshore oil damage is categorised into traditional and ecological damage; individual victims are allowed to claim damages using four approaches; marine administrative organs represent the State's interest and claim ecological restoration; administration management was the primary method for compensating both types of damage; judicial litigation and mediation came in the second and third places in terms of pursuing damages for economic loss. On the other hand, this case also confirmed several assumptions in practice: administrative management was the only successful method to claim ecological restoration; the result of judicial mediation remained secret so that it could not be referred to in similar cases; arbitration was not feasible in the case of tort liability; the attempt of the EPIL was initiated by social organisations but came to a dead end; procuratorates were not involved. In addition to these findings, table 32 additionally presents the specific compensation amounts of each approach in the Bohai case, which gives a closer look into the realistic situation of compensating offshore oil damage in China.

Table 32 Access to damage compensation in the Bohai case (Unit: CNY)¹⁶⁴¹

Types of damage	Victim	Claimant	Approach to compensation	Liable/contributing party	Outcome	Compensation amounts	
Injury					N.A.		
Economic loss	Fishermen, fishery/aquaculture companies		Administrative management	COPC	4,500 victims were compensated.	(allegedly: 1 billion 731 million)	162,440 per person

¹⁶⁴¹ The table was made by the author.

\			Litigation		Some claims were supported.	80,000 per person		
			Arbitration		No result			
\	Tourism providers		Judicial mediation	COPC	Agreement (via judges)	Required amount: 26.2 million; Final amount: confidential		
Ecological damage	State's interest	SOA	Administrative management	COPC	Agreement (via administrators)	1.09 billion	1.683 billion	
				CNOOC		113 million		
				480 million				
	Public interest	ACEF (NGO)	Civil EPIL	-	Not applied		-	
			Administrative EPIL	-	Lacking standing		-	
	Procuratorates	Not involved						

As shown above, the current liability system aiming at tort damages has been employed to cope with economic loss and ecological damage from the Bohai case, where marine administrators play a leading role in claim settlement. Administrative agencies are supposed to be open, transparent, and efficient in performing their duty. Otherwise, victims would have difficulty in receiving satisfactory compensation. Although litigation was an important alternative, victims may also be treated unequally due to the judicial independence at issue. Judicial mediation and arbitration are two options rarely used in practice. As far as ecological restoration is concerned, the administrative method was the only choice to successfully claim and obtain ecological restoration, whereas all other attempts failed. Some existing problems rooted in China's administrative and judicial systems indeed adversely affected claim settlement. Accordingly, the Bohai case largely confirms the hypotheses presented in previous sections related to the liability and compensation mechanisms.

4. Testing the financial guarantees

4.1 Financial tools

As no casualties were reported, whether occupational injury insurance and employers' liability insurance took part in tackling physical injuries remains unanswered in the Bohai case. For fishery losses, because fishery mutual insurance (FMI) concentrates

on natural disasters and extreme weather conditions, human-made incidents, such as oil spills, are excluded from its coverage. Unsurprisingly, affected fishermen could not use this risk-sharing agreement to make up for their fishery losses resulting from this accident.

Instead of purchasing insurance, generally offshore oil companies would look for appropriate insurance products for each programme (and even in each phase) and settle it in the contract.¹⁶⁴² Under a voluntary scheme in China, insurance products aiming at offshore drilling, such as all-risk offshore insurance, well control insurance, and environmental liability insurance were available on the market. Offshore oil operators, including the operator COPC in the Bohai case, were not mandated to provide any financial guarantees in advance. Nevertheless, the CNOOC has its financial requirement of choosing a partner to develop an offshore oil project jointly. Thus, operators have to provide certain financial responsibilities so as to win the bidding and become a partner with the CNOOC, but more specific information in terms of financial requirements is unavailable to the public. Since it was not a statutory duty but the terms of the agreement in the petroleum contract, a breach of financial responsibility does not lead to tort liability but merely affects the fulfilment of the civil contract. Specifically, an operator being accused of lacking financial responsibility might lose the opportunity for joint oil exploitation or be required to pay the penalty for breach of contract. However, such consequences were on the basis of contract law rather than liability law.

4.2 A temporary fund for ecological restoration

Reportedly, two primary types of harm arising from the accident - economic loss (in the form of fishery loss) and ecological pollution - were both primarily settled through administrative management procedures. The operator COPC was solely liable for the fishery loss. At the request of the SOA, the *ad hoc* compensation fund aiming at ecological restoration was financed by the CNOOC and the COPC together.

For ecological restoration, in particular, the public administration declared that the clean-up costs and other costs of restoration were covered by means of a specific 'compensation fund.' The operator COPC and CNOOC jointly financed this

¹⁶⁴² This opinion was based on an interview with Ms. Song, a senior legal counsel of the CNOOC on April 23, 2021.

temporary fund after the accident.

One assumption of the arrangement was that the legitimate claimant of ecological damage was the marine administrative organ, which was also the decision-maker in charge of ecological restoration in the claim settlement. In that respect, whether the compensation payment was paid to the claimant directly or financed the fund that operated by the government made little difference. Because marine administrative organs wore many hats simultaneously and played a leading role in both scenarios, establishing a specific compensation fund for ecological restoration could even better optimise public resources, removing the pollutants from the affected water areas, and reconstructing the marine ecosystems if possible. After all, compared to private companies, the public administration was in a better position to fix oil spills because of their capacity to acquire information, deploy manual labour, and formulate a strategic plan.

Compared to litigation, this administrative method is preferable, as it usually costs less, saves more time, and delivers decisions more quickly by legally mandated administrative organs. This might explain why the government required the COPC and CNOOC to set up a fund aiming at compensation shortly after the accident. However, settling the claims via administrative management procedures largely depended on the competent authority's efficiency and attitude towards the case. In other words, the government can either handle the compensation claims efficiently or opts to delay the decision-making arbitrarily. Without third-party supervisory organs, legally mandated administrators could be biased, especially in politically sensitive cases.

The ecological fund in the Bohai case was *de facto* an *ad hoc* remedy after the incident rather than a regular fund set up in advance. Typically speaking, a compensation fund is often established by the potential polluters or other groups to compensate the victims, which usually operates to promote the welfare of victims.¹⁶⁴³ When talking about environmental funds, one may easily think of the financial arrangements, which are funded through contributions by a group of potential polluters or other relevant groups. However, sometimes the term fund is also used to refer to a certain amount of money provided by the injurer to settle the claims in a certain tort. The limitation fund is such an example,¹⁶⁴⁴ whereby the liable polluter,

¹⁶⁴³ Diller (2013), 719.

¹⁶⁴⁴ Faure & Grimeaud (2003), 236-237.

who is also one of the fund contributors, agrees to a settlement with the victims and limits the liability to the amount brought into the fund, provided that the liable risk bearer can offer a fixed sum to all the victims in a final agreement for the damage caused by a specific tort.¹⁶⁴⁵ In this case, the risk is not spread among other potential operators, since the fund was financed only by the liable parties.

Seemingly, the ecological fund in the Bohai case was similar to the limitation fund, as the liable parties also offered a certain sum of money to compensate the victims' losses caused by a specific tort. However, at least two factors of the limitation fund are inconsistent with the fund in the Bohai case. *First*, a limitation fund is created *ex ante* to alleviate the risks. Where it is feared that an activity might cause harm in the future, at the start of the operation, the operator involved in the activity would be asked to pay a substantial amount *ex ante* which would become available in the event of damage to the environment. If damage occurs, the liability would be limited to the amount that was paid into the fund.¹⁶⁴⁶ In contrast, the fund in the Bohai case was formulated by the COPC and CNOOC after the accident. *Second*, the advantage of the limitation fund for operators holds true only when there is a statutory limit to the liability, so the liable operator will know the amount to be paid.¹⁶⁴⁷ In contrast, when an enterprise is subjected to unlimited liability, the amount reserved for compensating the damage is unpredictable, which was precisely the case in the Bohai case. The operator COPC was held fully accountable for the damage under strict liability without financial caps. Therefore, it is obvious that the limitation fund was not similar to the 'fund' created in the Bohai case.

So far, China currently does not have a classic compensation fund regarding offshore oil damage, so it is *de facto* unknown if some theoretical principles can be followed. The 'fund' established in the Bohai case was negotiated between the liable polluter and administrative agencies (the Ministry of Agriculture & the State Oceanic Administration) after the accident, which was completely different from the classic compensation fund. Thus, some critical questions like whether the contributions to the compensation fund are laid on the actual risk creator(s), in what proportion operators create the risk, and in what proportion the CNOOC creates the risk are currently unanswerable.

¹⁶⁴⁵ Faure & Hartlief (1996), 321-322.

¹⁶⁴⁶ *Ibid.*

¹⁶⁴⁷ *Ibid.*

5. Testing the safety regulations

According to the accident investigation report issued by the SOA,¹⁶⁴⁸ the fact that the operator COPC violated safety rules ultimately led to a series of oil spills and well kick in the Bohai area.¹⁶⁴⁹ This part takes a closer look at how the accident was largely attributable to poor safety operations and ineffective supervision.

5.1 Safety performance of operators and their incentives for prevention

Technically speaking, the Bohai incident of June 2011 consisted of two major oil spills in the B23 and C25 platforms. As far as the oil spills in the B23 platform is concerned, the COPC ignored the cross-flow¹⁶⁵⁰ factors of ‘separate zone’ water injection that had been confirmed in the *Overall Oilfield Development Scheme* (hereinafter the *Scheme*).¹⁶⁵¹ Instead, the operator temporarily decided to use ‘general’ water injection. On June 2, the water injection rate had already been unusually augmented, but no one on duty noticed a threat was imminent and thus no alert was triggered, which ultimately resulted in oil spills on June 4. The leakage site was identified by the COPC no earlier than June 8, indicating a delayed accident response. Almost at the same time, the C25 platform was also in danger due to a series of wrongful operations. According to the *Scheme*, this platform was supposed to adopt an advanced drilling technique called ‘cuttings re-injection.’¹⁶⁵² However, the drilling

¹⁶⁴⁸ SOA 2011, 2012.

¹⁶⁴⁹ After the COPC and CNOOC jointly found the Penglai 19-3 Oilfield area in May 1999, they agreed to operate this oilfield together. The whole oil project started in December 2002, and the COPC was the operator.

Considering the features of the oil reserves in this area (where the layers were thick), the COPC adopted a water injection technique to exploit oil. ‘Water injection’ involved drilling injection wells into a reservoir and introducing water into that reservoir to encourage oil production, which could be used in onshore and offshore projects. While the injected water contributed to increasing depleted pressure within the reservoir, it also helped to locate the oil in place. For more information about the techniques of oil exploitation, see Ma *et al.* 2019a.

¹⁶⁵⁰ During fluid injection into a multi-layered reservoir, a different pressure gradient is generated across of each permeable layer. This pressure gradient generates driving forces in the wellbore during well shut-in, causing the injected fluid to move from higher-pressure layers to lower pressure layers. Such a phenomenon is known as inter-well cross-flow. Cross-flow behaviour depends on the initial pressure in the permeable layers. It may refer to natural cross-flow (identical or natural initial pressures) and forced cross-flow (different initial pressures because of exploitation). Cross-flow may induce sand production and liquefaction in the higher pressure layers as well as formation damage. It may also lead to filter cake build-up and permeability reduction in the lower pressure layers. Thus, understanding cross-flow during well shut-in is important from a production and reservoir engineering perspective, particularly in unconsolidated or poorly consolidated sandstone reservoirs.

¹⁶⁵¹ See Article 11 of the Offshore Safety Provision. For more information about the ‘Overall Oilfield Development Scheme’ (《油田总体开发方案》), see the Guide to Programming Overall Development Programme for Oilfields (SY/T 10011-2006) (《油田总体开发方案编制指南》). It is a nation-wide recommended standard jointly written by the CNOOC, Sinopec, and CNPC, and published by the National Development and Reform Commission (国家发展改革委员会) in 2006.

¹⁶⁵² Cuttings re-injection (known as CRI), has long been recognised as the best solution for managing drilling waste in remote and environmentally sensitive areas, including jungles, the Arctic, and many offshore fields. It is perfect for places where traditional disposal techniques are not viable.

machine's length was not sufficient to proceed with the original plan, as a result of the wrong parameters recorded in the preliminary research. The COPC chose to temporarily change the original plan, using a substandard machine to re-inject into an unsuitable formation. Unfortunately, the relocated site deviated from the original place and caused the reservoir pressure to increase to a threatening level. What was worse, the project leader of the C25 made a random decision to dig another water injection well (C20) to enhance oil recovery, which violated the *Marine Environmental Impact Statement* (hereinafter the *Statement*). Unexpectedly, the casing used to lower the formation pressure was shortened to 225 rather than 350 meters as specified, which caused crude oil, rock cuttings, and drilling mud to pour out suddenly. On June 17, another serious well kick occurred when an operating process mistakenly perforated a high-pressure area of C25, causing a large quantity of oil to spill.¹⁶⁵³ It was later known that the damaged C25 kept polluting the ocean for another two months, and the total contaminated areas were around 5,500 to 6,200 km² instead of an initial estimate of 200 km². Oil spills in the two sites were not under control until several months later.¹⁶⁵⁴ The whole production of this project was even suspended because the investigation team later found that twenty-nine wells of the COPC were 'at risk.'¹⁶⁵⁵

It was evident that the Bohai case was primarily attributable to a series of wrongful operations and arbitrary decisions in the project:¹⁶⁵⁶ (a) project leaders altered the *Scheme* and the *Statement* randomly; (b) technicians miscalculated significant parameters in their preliminary research; (c) platform employees failed to maintain safety standards in daily operations; (d) workers on duty did not follow emergency plans nor give any alerts when the operation was at risk. As a result, the Bohai case was an accident resulting from human failure rather than an unforeseen event, while the COPC was liable for offshore oil damage.

Unlike the compliance strategy described in chapter 7, the operators frequently violated safety rules, while workers performed poorly in daily operations. It may to some extent confirm that the prefect OSHA statistics of workplace safety performance in the Chinese offshore oil industry are too good to be true.¹⁶⁵⁷ According to China's

¹⁶⁵³ Xinhua 2011a.

¹⁶⁵⁴ Reuters 2011.

¹⁶⁵⁵ Xinhua 2011b. The SOA allowed the COPC to reproduce its oil projects in February 2013.

¹⁶⁵⁶ *Ibid.*

¹⁶⁵⁷ See *supra* section 4 of chapter 7.

safety indicators in the last years (2015-2019), one single accident that happened ten years ago (the *Bohai Bay Oil Spill*) might not accurately display the whole picture. However, this Bohai case revealed that there is always a great danger arising from offshore drilling. The risks could pose an imminent threat to workplace safety and can even cause a disastrous accident if operators do not obey the safety regulations strictly. The case showed that the existing regulatory system, consisting of safety regulations and internal standards, did not provide sufficient incentives for prevention in offshore oil operations; at least this was the case in the Bohai case, given that the accident was caused by a series of reckless decisions and careless behaviours that could have been avoided.

5.2 Post-accident response of public administration

After receiving the accident report from the COPC and CNOOC, the SOA, and its Bohai & Yellow Sea Branch announced the accident one month later.¹⁶⁵⁸ Both domestic and foreign media criticised that a series of bureaucratic responses might aggravate the negative consequences associated with the accident.¹⁶⁵⁹ According to marine administrators, they never intended to conceal the accident. On the contrary, they planned to announce the accident together with the survey result after they concluded the accident investigation. However, such an argument was not convincing enough to persuade the public. After all, releasing the accident immediately and issuing the investigation findings sometime later were not in conflict.¹⁶⁶⁰ Apart from being questioned about the delayed response, marine administrators were also accused of failing to ensure transparency in the Bohai case, so that the public could not have access to information.¹⁶⁶¹ It is worthwhile to mention that the SOA initially asserted that the contaminated marine areas could be around no more than 200 km² after a one-month of investigations¹⁶⁶² and the liable operator COPC would probably be imposed an administrative fine up to CNY 200,000 (EUR 24,200).¹⁶⁶³ The actual

¹⁶⁵⁸ Beijing News 2011.

¹⁶⁵⁹ He 2011; Hook 2011; Korea Times 2011.

¹⁶⁶⁰ Wen 2011.

¹⁶⁶¹ Ma 2011.

¹⁶⁶² The administrative fine was according to Article 73 of the MEPL. See Hook (2011). In fact, there was a wide debate in China about the amount of administrative fines after the 2011 Bohai case. However, the revised MEPL in 2017 did not accept this proposal, so that the upper limit of administrative fines remained to be CNY 200,000 (approx. EUR 30,000, the currency exchange rate is 0.15 in April 2022). See, Liu & Zhang (2016).

¹⁶⁶³ According to Article 84 of the MEPL, 'in case of any activities in the offshore oil exploration and exploitation that violate the MEPL, if such activities cause damage to the marine environment, the State oceanic administrative department shall give a warning and impose a fine not less than CNY 20,000 but not more than CNY 200,000.' See

polluted areas were *de facto* thirty times larger than the official estimate,¹⁶⁶⁴ which might also imply that marine administrators were less rigorous in performing their duties properly.

Whatever their intentions, a series of unprofessional behaviours by administrators undermined trust in the government in the Bohai case,¹⁶⁶⁵ as the public expected administrators to be more open, transparent, and efficient.¹⁶⁶⁶ Marine administrators, who were supposed to supervise safety operations *ex ante* and to tackle marine oil pollution *ex post*, did not fulfil their duties. Instead, some of their reactions, as mentioned above, even made the situation worse. In that sense, as an important element of the safety system, the public administration did not perform its legal duty properly, which confirmed the assumption that the effectiveness of safety regulation could be impaired because of the enforcement gap.

6. Conclusion

This chapter provides a case study on the Bohai case that applied the existing rules in actual cases, whereby the liability rules, claims process, financial tools, and safety regulations were all touched upon. It confirmed that most features shown in the Bohai case were in line with the findings discussed in chapter 8, but a few exceptions deviated from the hypotheses.

First, the operator COPC was formally held liable for both economic losses and ecological pollution under the unlimited strict liability, while no insolvency occurred. In terms of ecological restoration, although the CNOOC was free from liability as prescribed by law, it spent a great deal of money to recover the contaminated marine areas together with the operator COPC. It therefore remains unclear if the CNOOC was incentivised to take prevention measures by such administrative processing. What could be sure was that this settlement had no legal ground and could not be used as a precedent to require restoration from the CNOOC in other similar cases. Hence, it implies that the channelling of liability in the existing legal system still creates a risk of undercompensation and underdeterrence in practice.

Second, affected fishermen, fishery companies, and affected tourism providers could

SOA 2011, 2012.

¹⁶⁶⁴ Ma 2011.

¹⁶⁶⁵ He 2011; Hook 2011; Korea Times 2011.

¹⁶⁶⁶ Feng *et al.* (2020), 1334.

make up for their economic losses using four approaches, but some emerging problems in the claims process set barriers to obtaining compensation. Administrative management was the first option for most victims, but they were not directly in contact with the operator but represented by the Ministry of Agriculture. The result of pursuing tort damages was basically dependent on the administrators' attitude because of its dominating role in the claims process, which indicated that only effective public administration could be likely to guarantee compensation. Otherwise, victims would hardly receive proper and timely compensation if the public administration was inefficient or irresponsible. As assumed, procedural devices that are meant to remedy administrative errors did not function well to supervise the public administration. In addition to administrative management, the judicial method took second place, as both litigation and mediation could become alternatives for claimants when they were unsatisfied with the result given by the administrative organs in charge. However, due to the concerns of judicial dependence, the courts in China might not necessarily be more independent than the administration, especially for politically sensitive cases related to the State's interest. Additionally, arbitration proved not to be feasible in terms of claiming offshore oil damage.

At the request of the government, the liable operator COPC and the CNOOC jointly established a compensation fund aiming at compensating marine ecological damage. The SOA used a one-shot solution *ex post* instead of following a statutory rule, leaving this method full of uncertainty and unpredictability. Other than this administrative method, marine administrative organs in the Bohai case did not attempt to use one of the other three choices. An environmental social organisation failed to initiate an EPIL case against the public administration due to lack of standing, while no procuratorates stood out to require ecological restoration, suggesting that the EPIL currently plays a minimal role in handling ecological restoration.

Third, although offshore oil companies were not obliged to have financial guarantees, it was known that the operator COPC had insurance to meet the financial requirements of jointly developing offshore oil projects with the CNOOC. Meanwhile, the CNOOC probably used its captive CIL to manage the potential risks. The ecological restoration was basically settled via an *ad hoc* ecological fund financed by the CNOOC and COPC, but it was more of an administrative-driven method than a financial tool.

Fourth, according to the investigation report, the Bohai case was an accident caused

by human failure. It could have been avoided if the project leaders did not make arbitrary decisions or offshore workers had not violated safety rules. A series of inadequate performance went against the good safety statistics addressed in chapter 7, which to some extent undermined the credibility of the self-reported data. Therefore, we could not regard the available safety data as a reliable proof of compliance by offshore oil operators. Although legislators have formulated a set of safety regulations and offshore oil companies have established internal compliance mechanisms, the existing safety rules might not provide sufficient prevention incentives to operators, at least to the operator COPC in the Bohai case. Furthermore, even if no evidence of regulatory capture was shown in the Bohai case, marine administrative organs who were in charge of the Bohai area (the SOA and its Bo-Huang branch) were accused of not fulfilling their duty appropriately and efficiently. It was not merely because the official delayed announcing the oil spill but also due to some bureaucratic reactions in the accident management. Although one accident resulting from human failure might not provide evidence of the failure of the current safety system, it at least indicates that the current safety regulation did not properly function to prevent the accident and alleviate the loss.

A relatively balanced conclusion would be that the existing legal system regarding offshore drilling has its pluses and minuses; more concerns seem to arise when implementing the rules in practice. Therefore, the tentative answer in response to the research question is: China has established a system to remedy offshore oil damage, yet the system is not yet adequate to settle the compensation efficiently and adequately. Operators are incentivised to take prevention measures, but seemingly the existing liability rules and safety regulations are inadequate to provide optimal incentives.

Undoubtedly, there will probably be severe traditional and ecological damage associated with an offshore oil accident, which should raise the alarm about any jurisdictions specialising in this environmentally dangerous industrial sector. For China in particular, (a) the special allocation of liability between the operators and the CNOOC is not only built upon the petroleum contract but, more importantly, derived from a joint-development pattern for decades. (b) Regardless of different types of damage, the overwhelming position of the marine administrative organs in the claims process features an administrative-dominated tendency in China. (c) Financial tools have become a significant tool to control the offshore-related risks in recent years, but

currently it has many restrictions due to its voluntary feature. (d) Apart from damage compensation, the incentive of prevention is the other issue that is of equal importance. The fact that the oil spills were virtually caused by human error and the public administration poorly performed in the Bohai case exposed that the safety rules were inadequately enforced.

As far as the legal system governing offshore oil pollution in China is concerned, the analysis reveals the need to modify the law on paper and the importance of improving the implementation of the law in practice. The next chapter will follow a problem-oriented approach in light of the major concerns with the existing legal system. It will give insights into some other jurisdictions that have ample experience in tackling offshore oil damage and will develop particular mechanisms for compensation and prevention. Undoubtedly, it is always of great importance to take the typical features of China's legal system into account when considering policy recommendations.

Chapter 10 Policy recommendations for the Chinese legal system regarding offshore oil damage based on a comparative study

1. Introduction

The previous chapters showed that China has established a legal framework to compensate and prevent offshore oil damage, and most of the applicable rules are in line with economic analysis. As some limitations in the written rules and in practice can negatively impact compensation and prevention, the result is a mixed picture.

- Tort liability: the strict liability system with no financial caps in China, leaving aside the insolvency concern, is theoretically favourable from a compensation and prevention perspective. However, the fact that victims can only sue one party (the operator) under the channelling of liability and because of the lack of compulsory liability insurance, this may pose a threat to the insolvency risk of operators, and the joint developer (the CNOOC) is not incentivised for prevention by law.
- Financial security: No obligation to provide financial security is imposed on operators. Operators may prefer not to have a financial guarantee and to use their assets to resolve the potential damage. This particularly poses a threat to financially modest companies, increasing the risk of under-compensation and underdeterrence.
- Claims settlement: Legislation provides victims with specific procedures to pursue compensation for personal injury, property damage, and marine ecological damage. Notably, administrative management is the primary claims process to pursue all types of damage, whereby the public administration plays a dominant role. For the claims regarding ecological restoration, in particular, there lacks a party, independent from plaintiffs and defendants, that can apply the law and decide the case in a neutral way without bias or interest in a particular outcome in a case.

Overall, a compensation system regarding offshore oil damage has been established in China, so there is no need to reformulate a new one or fundamentally change the existing mechanism. Nevertheless, in terms of providing effective compensation and

incentives for prevention, China still has room for improvement both from the perspectives of substantive law and procedural law. This chapter takes the limitations in China mentioned above as the starting points, as these main issues are of great significance for the effectiveness of compensation and prevention of offshore oil damage. It selects several oil-producing countries and areas with sufficient experience in offshore oil damage, examining whether some of their legal instruments could offer potential solutions to China through a functional comparative approach. It is equally important to consider whether the instruments in other systems could be feasibly attempted and adopted in the Chinese context.

- The *US* was chosen for the comparative study since it has witnessed several major offshore incidents, which triggered momentous changes in its legal regime and brought the world's attention to offshore oil pollution. The *Deepwater Horizon Oil Spill*, considered to be the largest marine oil spill in the history of the petroleum industry in the twenty-first century, provides instructive lessons not only for the US but for other nations such as China that are actively involved in oil drilling. The Oil Pollution Act 1990 (OPA90) streamlined and strengthened the possibilities in the US to prevent and respond to catastrophic oil spills,¹⁶⁶⁷ which could be an instructive example for China to take into account. In particular, the practice in the *Deepwater Horizon Oil Spill* settlement as of 2011 in the US provides an experience for China to develop their claims procedures.

- The *UK* is a major offshore oil-producing country with a wealth of experience in handling offshore oil accidents. A mechanism that plays an important role in the UK is the Offshore Pollution Liability Association Limited (referred to as OPOL),¹⁶⁶⁸ as its membership in the UK is mandatory. It provides a systematic means for the expeditious settlement of offshore-related claims and liaises with the regulator to provide reassurance that members' financial security obligations are being met.

- The *international regime for vessel-induced pollution* will be sketched as well. As there is no worldwide legal mechanism for offshore oil pollution, the stipulations and applications aiming at marine oil pollution caused by vessels may give some insights into the compensation and prevention for offshore oil damage. Given that China has acceded to the CLC and transposed international rules into national law, examining the system regarding vessel-induced pollution in China provides guidance

¹⁶⁶⁷ 33 U.S.C. §2701 et seq. (1990).

¹⁶⁶⁸ Faure & Wang 2015.

on how to build up a legal mechanism regarding offshore oil damage that fits in the Chinese typical context.

This chapter does not aim at a detailed comparison between the legal regimes regarding offshore oil damage in China and in other jurisdictions. Instead, it explores the legal arrangements in selected countries based on a problem-oriented approach. In order to stay focused on the research topic, attention is particularly paid to three major problems found in the Chinese legal system regarding offshore oil damage, namely attribution of liability (section 2), financial security to offshore oil companies (section 3), and independent dispute resolutions aiming at offshore-related cases (section 4). Section 5 concludes with a few suggestions based on a comparative study.

2. Attribution of liability

China has chosen the channelling of liability to govern the damage arising from offshore drilling, as only the operators face liability. In addition to operators, the CNOOC also participates in offshore oil projects, yet it bears no liability. Hence, the CNOOC is not incentivised for prevention by liability law.

In most oil-producing countries, liability for offshore pollution damage is imposed on the ‘licensee’ or ‘operator.’¹⁶⁶⁹ If multiple parties are involved in causing the damage, unlike the channelling applied in China, joint and several liability is the general rule in most jurisdictions, as legislators in these countries consider this to be better suited to compensation and prevention regarding offshore drilling. For instance, this principle is mentioned in section 10-9 of the *Norwegian Petroleum Activities Act*,¹⁶⁷⁰ section 35 of the *Danish Subsoil Act*,¹⁶⁷¹ section 775D of the *Australian Petroleum Act*,¹⁶⁷² section 26 (1) of the *Canadian Oil and Gas Operation Act*,¹⁶⁷³ preamble (11) of the *Directive 2013/30/EU*,¹⁶⁷⁴ and Article 1 (2), Schedule 2 of the *UK Petroleum (Current Model Clauses) Order 1999*.¹⁶⁷⁵ In the US, joint and several liability also applies, both in the *Oil Pollution Act* and in some states that have been affected by the *Deepwater Horizon Oil Spill*, like Texas, Louisiana, and Florida.¹⁶⁷⁶

¹⁶⁶⁹ Faure *et al.* (2015).

¹⁶⁷⁰ Norwegian Petroleum Activities Act (1996), sections 10-8, 10-9 of Article 29.

¹⁶⁷¹ Danish Subsoil Act (2019), Article 35 (1)- (2).

¹⁶⁷² Australia Petroleum Act (2006), Article 775D.

¹⁶⁷³ Canada Oil and Gas Operations Act (2020), Article 26 (1).

¹⁶⁷⁴ Directive 2013/30/EU.

¹⁶⁷⁵ UK Petroleum Order (1999), Article 1(2), Schedule 2.

¹⁶⁷⁶ 33 U.S.C. (2012) § 2702(a); F.S. (2021) § 403.727; L.A. Rev Stat (2011) § 30:2275; TCAS (2005) § 361.276. See also, Foley (2010), 515.

In order to take a closer look at the application of joint and several liability in practice, section 2.1 takes joint and several liability in the US as an example to show how it applied in the *Deepwater Horizon Oil Spill*. In comparison, section 2.2 examines the adoption of the channelling of liability in practice. To some extent the analysis of liability for offshore-related risks resembles the analysis of liability for environmental risks and more particularly for vessel-based marine pollution.¹⁶⁷⁷ It studies the ‘channelling provision’ under the CLC that applied to shipowners. Attention is paid to the Cour de Cassation decision in the Erika case, as it provoked a heated debate on the problem caused by channelling. Section 2.3 provides a summary.

2.1 The US: Joint and several liability applies

The *Oil Pollution Act* (OPA) imposes strict liability on the ‘responsible party’¹⁶⁷⁸ for offshore activities in the US. It provides that the responsible party for an offshore facility from which oil is discharged or which poses a substantial threat of a discharge of oil shall be held strictly liable for the removal costs and damages. Basically, the one who is permitted to explore the area and thus benefits from the facility is the responsible party.¹⁶⁷⁹

Oil companies may enter into a joint venture or partnership with other firms for the purpose of applying for a license to explore for and develop oil and gas tracts on the seabed.¹⁶⁸⁰ In a case in which a project is jointly developed by multiple responsible parties, joint and several liability applies. This means that each responsible party is liable for the entire amount of removal costs and damages resulting from a spill.¹⁶⁸¹

Apart from the positive feedback based on a theoretical study, it is of equal importance to verify the effectiveness of joint and several liability in practice. The *Deepwater Horizon Oil Spill* is an example of applying this liability rule. OPA enabled the operator British Petroleum (BP), together with its co-investors, to be held potentially liable in connection with the oil spill caused by the explosion of the

¹⁶⁷⁷ Faure *et al.* (2013), 291.

¹⁶⁷⁸ The ‘responsible party’ for an offshore facility is defined to be ‘the lessee or permittee of the area in which the facility is located or the holder of a right of use and easement granted under applicable State law or the Outer Continental Shelf Lands Act (43 U.S.C. 1301-1356) for the area in which the facility is located (if the holder is a different person than the lessee or permittee), except a Federal agency, State, municipality, commission, or political subdivision of a State, or any interstate body, which as owner transfers possession and right to use the property to another person by lease, assignment, or permit.’

¹⁶⁷⁹ Faure *et al.* (2013), 121.

¹⁶⁸⁰ King (2010), 6.

¹⁶⁸¹ Faure *et al.* (2013), 123.

Deepwater Horizon rig.¹⁶⁸² Although BP is most obviously a responsible party and has paid most of the compensation, many other parties also faced legal claims.¹⁶⁸³ Specifically, the *Deepwater Horizon* was a semi-submersible drilling rig owned by Transocean and was chartered to BP.¹⁶⁸⁴ The well is situated in the Macondo Prospect¹⁶⁸⁵ of the Gulf of Mexico. BP was the operator and principal developer of the Macondo Prospect with a 65 percent share, while Anadarko Petroleum owned 25 percent,¹⁶⁸⁶ and MOEX Offshore 2007, a unit of Mitsui, had 10 percent.¹⁶⁸⁷ Other oilfield service companies included Cameron International that provided blowout-prevention equipment and Halliburton Energy Services also involved in cementing the well.¹⁶⁸⁸

In the decision of US District Judge *Carl Barbier* in New Orleans, BP was primarily held responsible for the oil spill as a result of its deliberate misconduct and gross negligence.¹⁶⁸⁹ However, it was not the only party held accountable. Anadarko was also directly engaged in the enterprise that caused the spill.¹⁶⁹⁰ They were both liable under the *Clean Water Act* for oil discharged beneath the water surface, because they owned a respective 65 percent and 25 percent of the Macondo well that blew out.¹⁶⁹¹ Moreover, they were also liable under the OPA for oil removal costs and damages, indicating their liabilities under both laws are ‘joint and several.’¹⁶⁹²

Another interested party involved in the case was the drilling rig owner Transocean. The court ruled that Transocean was not liable for compensatory damages sought by third parties in the oil spill,¹⁶⁹³ as it was not grossly negligent.¹⁶⁹⁴ Hence, BP’s contractual agreement to indemnify Transocean for compensatory damages was valid and enforceable.¹⁶⁹⁵

¹⁶⁸² Hagerty 2010.

¹⁶⁸³ Hausman & Foggan (2011), 100.

¹⁶⁸⁴ It was chartered to BP from March 2008 to September 2013. See RMI Maritime Administrator 2011.

¹⁶⁸⁵ The Macondo Prospect (Mississippi Canyon Block 252, abbreviated MC252) is an oil and gas prospect in the United States Exclusive Economic Zone of the Gulf of Mexico, off the coast of Louisiana. The prospect was the site of the *Deepwater Horizon Oil Spill* in April 2010 that led to a major oil spill in the region.

¹⁶⁸⁶ In October 2011, Anadarko Petroleum transferred its stake to BP as a part of a wider settlement between the companies. Since then, BP is the operator and principal developer of the oil field with 90% of interest (65%+25%), the final 10% by MOEX Offshore 2007. See Bawden 2011.

¹⁶⁸⁷ AP 2012.

¹⁶⁸⁸ Bloomberg 2010.

¹⁶⁸⁹ Fisk *et al.* 2014.

¹⁶⁹⁰ Stempel, 2012.

¹⁶⁹¹ *Ibid.*

¹⁶⁹² *Ibid.*

¹⁶⁹³ Kuo 2012.

¹⁶⁹⁴ Almeida 2014.

¹⁶⁹⁵ *Ibid.*

Reportedly, over 130 lawsuits have been filed relating to the spill¹⁶⁹⁶ against one or more of BP, Anadarko, Transocean, Cameron International Corporation, and Halliburton Energy Services,¹⁶⁹⁷ including group cases with potentially thousands of plaintiffs, claiming environmental damage and personal injuries caused by the oil spill in the Gulf of Mexico.¹⁶⁹⁸ The states affected by the Gulf Coast disaster, Texas,¹⁶⁹⁹ Louisiana,¹⁷⁰⁰ and Florida,¹⁷⁰¹ have laws imposing strict, joint, and several liability, subject to applicable limitations.

Adopting joint and several liability on the one hand exposed all the operating parties related to the *Deepwater Horizon Oil Spill* to the risks they created, providing sufficient incentives for prevention to all the parties involved. On the other hand, it allowed victims to claim damages from any joint-operating parties, rather than merely counting on the BP that was primarily responsible for the accident, which apparently favoured efficient compensation.

2.2 The CLC: Channelling of liability

The current international regime concerning civil liability and compensation for vessel-sourced oil pollution consists of the *Civil Liability International Convention on Oil Pollution Damage* (hereinafter CLC) imposing strict liability on the shipowner, a *1992 Fund* contributed by the oil cargo owners, and an additional *Supplementary Fund* contributed by the oil industry from the countries which ratify it.¹⁷⁰² The CLC set up strict liability for the owner of a tanker that caused the pollution.¹⁷⁰³ Notably,

¹⁶⁹⁶ Pagnamenta 2010.

¹⁶⁹⁷ In September 2014, Halliburton agreed to settle a large percentage of legal claims against it over the Deepwater spill by paying USD 1.1 billion into a trust by way of three instalments over two years. See Reuters 2014; Bloomberg 2010.

¹⁶⁹⁸ *Ibid.*

¹⁶⁹⁹ TCAS (2005), § 361.276 (Apportionment of Liability), available at

<https://codes.findlaw.com/tx/health-and-safety-code/health-safety-sect-361-276.html> (accessed on April 9, 2022).

¹⁷⁰⁰ L.A. Rev Stat (2011), § 30:2275 (Title 30 — Minerals, oil, and gas and environmental quality RS 30:2275 - Demand by secretary; remedial action), available at

<https://law.justia.com/codes/louisiana/2011/rs/title30/rs30-2275/> (accessed on April 9, 2022).

¹⁷⁰¹ F.S. (2021), §403.727 (Violations; defences, penalties, and remedies), available at

http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0400-0499/0403/Sections/0403.727.html (accessed on April 9, 2022).

¹⁷⁰² Compared to the 1969 CLC Convention and the 1971 Fund Convention, the new international system has two revisions. First, the 1992 Fund Convention removed the function of the Fund to alleviate the burden of liability from shipowners and the only function of the 1992 Fund is to provide additional protection to the victims of oil pollution. Second, the 1992 Fund removes the requirement of the considerable initial contributions, so it is solely financed by annual contributions, the calculation of which is also based on the amount of oil received. See, Faure *et al.* (2013), 189.

¹⁷⁰³ Article III.1 of the CLC states that 'the owner of a ship at the time of an incident, or, where the incident consists of a series of occurrences, at the time of the first such occurrence, shall be liable for any pollution damage caused by the ship as a result of the incident.' It applies strict liability.

the liability is ‘channelled’ to the shipowner.¹⁷⁰⁴ his liability excludes the potential liability of any other actor involved in the oil spill.¹⁷⁰⁵

Serious criticism has been expressed on legal channelling concerning the regime for vessel-based marine pollution in recent years.¹⁷⁰⁶ For instance, the European Commission issued a Communication (COM/2002/0681) after the Prestige accident, in which it criticised the channelling of liability.¹⁷⁰⁷ The European Commission pleaded in favour of ‘*removing the de facto immunity of other key players, in particular the charterer, operator or manager of the ship from compensation claims (other than from recourse claims by the registered owner).*’¹⁷⁰⁸

In practice, incidents with oil tankers, such as Erika (1999)¹⁷⁰⁹ and the Prestige (2002),¹⁷¹⁰ showed that the channelling of liability as laid down in the CLC was insufficient from both a compensation and a prevention perspective. As not all the risk creators were found to be liable for the expected damage that originated from their wrongful conduct, this mechanism could not achieve optimal deterrence by providing incentives for prevention, nor could it ensure that victims were adequately compensated. The solution adopted by the Cour de Cassation (French Supreme Court)

¹⁷⁰⁴ Article III.4 of the CLC (also known as ‘channelling provision’) stipulates that ‘*no claim for compensation for pollution damage may be made against the owner otherwise than in accordance with this Convention. No claim for compensation for pollution damage under this Convention or otherwise may be made against... (c) any charterer (howsoever described, including a bareboat charterer), manager or operator of the ship... unless the damage resulted from their personal act or omission, committed with the intent to cause such damage, or recklessly and with knowledge that such damage would probably result.*’ Article III.5 continues to address that ‘*nothing in this Convention shall prejudice any right of recourse of the owner against third parties.*’ This is the ‘channelled provision’ under the CLC, where the shipowner is the only party to face liability, whereas charterers are excluded from liability.

¹⁷⁰⁵ Faure & Wang (2006), 189.

¹⁷⁰⁶ Faure *et al.* (2013), 292-293.

¹⁷⁰⁷ COM/2002/0681.

¹⁷⁰⁸ *Ibid.*, 10.

¹⁷⁰⁹ In 1999 the Maltese-flagged Erika broke in two during a storm off the west coast of France and 10,000 tons of fuel oil spread to, and severely polluted, the French coastline. The vessel was owned by Tevere Shipping and, under voyage charter to Total Transport Corporation (TTC), a subsidiary of TOTAL SA, the French oil giant. Three years before the spill, France had adopted the 1992 Protocol to the *International Convention on Civil Liability for Oil Pollution Damage* (CLC 92), which provides for strict liability of the registered owner for spills of persistent oil and requires mandatory insurance to the limitation of liability, which is based on tonnage. France had also adopted the convention establishing the *International Oil Pollution Compensation Fund* that pays for pollution claims beyond the CLC limitation.

¹⁷¹⁰ The Prestige oil spill occurred off the coast of Galicia, Spain, caused by the sinking of the 26-year-old structurally deficient oil tanker MV Prestige in November 2002, carrying 77,000 tonnes of heavy fuel oil. In 2007 the Southern District of New York dismissed a 2003 lawsuit by the Kingdom of Spain against the American Bureau of Shipping (ABS), the international classification society which had certified the Prestige as in compliance with rules and laws, because ABS was a ‘person’ per the CLC and exempt from direct liability for pollution damage. The 2012 trial of the Galicia regional High Court did not find the merchant shipping company, nor the insurer, the London P&I Club nor any Spanish government official, but only the Captain of the ship guilty and gave him a nine-month suspended sentence for disobedience. In January 2016 the Spanish Supreme Court held the London P&I Club liable in damages up to the amount of its overall cover for the shipowner for pollution of USD 1 billion. The Spanish judgment is unlikely to be enforceable due to a UK judgment requiring any claims to be determined via arbitration under UK law.

in the Erika case was partly surprising in view of the text of the CLC,¹⁷¹¹ which called for the redrafting of this convention to meet the needs for compensation resulting from oil spills.

The central question in much of the litigation that began in 2007 in the trial court, and ended with the French Supreme Court decision in 2012, was whether the various key defendants could benefit from the channelling provision under CLC.¹⁷¹² The CLC settles the imputation of civil liability differently, depending on whether the defendant is the owner of the ship or a person having performed services for the ship. Article III.4 of the CLC (also known as ‘channelling provision’) provides that all the other oil transportation players are normally exonerated from civil liability. As an exception, the victims may act against these various players only whenever *‘the damage resulted from their personal act of omission, committed with the intent to cause such damage, or recklessly and with knowledge that such damage would probably result.’* In the Erika case, the judges agreed that Mr. Savarese (the shipowner), Mr. Pollara (the handler), and RINA¹⁷¹³ (the shipping manager) were liable based on such rules.¹⁷¹⁴ However, it was debated whether Total should be exonerated from all civil liability. Previously, the Paris Court of Appeal regarded Total as a charterer and therefore entitled to benefit from the channelling provision. It was because the CLC held a charterer liable only if ‘recklessness’ was proved and not presumed. After a lengthy process, the French Supreme Court held that Total acted ‘recklessly’ within the meaning of Article III.4 of the CLC and hence incurred liability based on the CLC. Reversing the appeal court decision, the Supreme Court held Total liable for civil damages without the benefit of channelling under CLC.¹⁷¹⁵

The Erika case shows that the CLC is inadequate in that it channels strict liability to the shipowner alone, and exonerates the other oil transportation players from any liability, except in the case of wilful negligence to cause damage or in case of ‘recklessness’.¹⁷¹⁶ For this reason, the French Supreme Court had to get around it in order to issue a decision that was politically acceptable for the population (by making Total liable for the compensation) and since the absence of precise provisions

¹⁷¹¹ Rebeyrol (2013), 35.

¹⁷¹² Gard 2013.

¹⁷¹³ Registro Navale Italiano (which became the RINA company in August 1999) was the shipping manager of the Erika. RINA delivered a provisional certificate allowing Erika to sail. The certificate was renewed several times by this classification society.

¹⁷¹⁴ Rebeyrol (2013), 36.

¹⁷¹⁵ Gard 2013.

¹⁷¹⁶ Rebeyrol (2013), 37.

concerning environmental harm led to unsatisfactory compensation for this specific loss.¹⁷¹⁷

2.3 Summary

To summarise, chapter 8 pointed out that the channelling of liability in the Chinese legal system is in conflict with economic theory, as the joint developer CNOOC, who should have been exposed to the risks it contributed to, is exempted from liability. Likewise, the inadequacy as a result of applying the ‘channelling provision’ of the CLC in the Erika case gives a negative example. The harsh criticism on this provision and the judgment of the French Supreme Court reiterated that this kind of allocation of liability does not comply with the economic analysis of compensation for oil pollution damage. In contrast, the application of joint and several liability in the *Deepwater Horizon Oil Spill* case showed that the weaknesses mentioned above could largely be avoided, as all the parties that contributed to risks were exposed to liability and were thus in theory incentivised for prevention. Victims were also in favour of joint and several liability, as they were entitled to pursue compensation from any operating party.

3. Financial security

Unlike in China, where the obligation to ensure financial security has not been implemented for offshore oil activities, many oil-producing countries require operators to provide financial security.¹⁷¹⁸ In Norway, the *Petroleum Activities Act* requires the licensee to prove financial security according to the license being granted.¹⁷¹⁹ In Denmark, the model license requires the licensee to seek insurance coverage for its liability under the *Danish Subsoil Act*.¹⁷²⁰ Australia mandates that licensees have insurance,¹⁷²¹ while Canada allows more flexibility in proving financial capacity.¹⁷²² In the UK, the operator must maintain its financial capacity to

¹⁷¹⁷ Rebeyrol (2013), 43.

¹⁷¹⁸ Faure *et al.* (2015), 383-384.

¹⁷¹⁹ Norwegian Petroleum Activities Act (1996), Section 10-7 of the Article 29. However, it does not specify the type of financial security or other details, such as how to decide on the amount of financial security. The Petroleum Activities Regulations mandate insurance for licensees producing petroleum, but they are silent on exploration activities.

¹⁷²⁰ Danish Subsoil Act (2019), Article 30 (1)-(3). The model license leaves the amount of insurance up to the Danish Energy Agency’s discretion.

¹⁷²¹ Australia Petroleum Act (2006), Article 571.

¹⁷²² Canada Oil and Gas Operations Act (2020), Article 27(1).

meet claims that arise under OPOL.¹⁷²³ Similar financial obligations are also stipulated in the US.¹⁷²⁴

3.1 The US: financial responsibility under the OPA

In the US, OPA provides that the financial responsibility for offshore facilities is USD 35 million for those located seaward of the State's territorial sea and USD 10 million for those located landward.¹⁷²⁵ This amount can be set higher when necessary and justified, but it should not exceed USD 150 million.¹⁷²⁶ The regulations further provide that the amount of financial responsibility shall be decided based on a worst-case scenario discharge volume.¹⁷²⁷

Regarding the methods of financial responsibility, OPA provides that it can be in the form of evidence of insurance, surety bond, guarantee, letter of credit, qualification as a self-insurer, or other evidence of financial responsibility.¹⁷²⁸ For self-insurance, the party has to annually pass either a net worth test or an unencumbered net asset test.¹⁷²⁹ For evidence of insurance, operators may use only insurance certificates issued by insurers that have achieved a 'secure' rating related to the ability to pay claims in their latest review by certain rating service institutes.¹⁷³⁰

Furthermore, the OPA stipulates revocation and penalties when failing to provide financial responsibility, indicating that it becomes a condition to obtain offshore licensing. Without proper financial security, operators are no longer eligible to be the designated applicant for a covered offshore facility (COF). If operators have begun offshore activities, they are liable to pay a civil penalty of up to USD 25,000 per COF per day¹⁷³¹ or a suspension of the operation of a COF.¹⁷³²

3.2 The UK: Incorporating financial security through OPOL

In the UK, there is no statutory obligation to take out pollution liability insurance

¹⁷²³ OPOL Agreement.

¹⁷²⁴ 30 C.F.R. § 253.13 (2011).

¹⁷²⁵ 33 U.S.C. § 2716(c)(1)(B) (2012).

¹⁷²⁶ 33 U.S.C. § 2716 (c) (1) (C). The President may determine a higher amount when it is justified by the relative operational, environmental, human health, and other risks posed by the quantity and quality of oil.

¹⁷²⁷ 30 C.F.R. § 253.13 (2011).

¹⁷²⁸ 30 C.F.R. § 553.31-32.

¹⁷²⁹ 30 C.F.R. § 553.21 (a). The financial test procedures for the net worth test are provided in 30 CFR 553.25 and the financial test procedures for unencumbered assets are provided in 30 CFR 553.28.

¹⁷³⁰ These selected rating services should be acceptable by the Bureau of Ocean Energy Management (BOEM), such as A. M. Best's Insurance Reports, Standard & Poor's Insurance Rating Services.

¹⁷³¹ It means each day a COF is operated without acceptable evidence of OSFR.

¹⁷³² 33 U.S.C. § 2716a.

under the *Petroleum Act 1998* for the licensing requirements, but all operators are obliged to have some financial security through the *Offshore Pollution Liability Agreement* (known as OPOL).¹⁷³³ In the regulations on licensing in the UK, financial capacity and membership of OPOL is made a precondition for a licence to be granted for an offshore operator.¹⁷³⁴ It is further reinforced by the inclusion of a standard OPOL Clause in all joint-operating agreements.¹⁷³⁵ The operator must establish and maintain its financial capacity to meet claims that arise under OPOL by producing evidence of insurance, self-insurance, or other satisfactory measures, with the financial security to meet such capability allocated contractually between the operator and non-operators under a joint-operating agreement.¹⁷³⁶ In practice, most members of OPOL use insurance as their preferred method of satisfying financial responsibility.¹⁷³⁷

Specifically, OPOL has three requirements. First, for evidence of insurance, verification of insurance from an insurance company or insurance broker or agent is acceptable to the Association, for an amount of not less than USD 250 million per incident and USD 500 million in the annual aggregate. For that purpose, the level of financial responsibility should cover the two aspects of costs: (i) costs of well control and (ii) cost of financial remediation and compensation from pollution.¹⁷³⁸ Second, for an operator that wishes to rely upon a guarantee, the verification of a guarantor must be acceptable to the OPOL Association. Third, in order to qualify as a self-insurer, the operator must have one or more of the credit or financial strength ratings from an internationally recognised credit rating agency.¹⁷³⁹

Despite that the *Petroleum Act 1998* does not oblige operators to take out insurance, the *Offshore Petroleum Licensing (Offshore Safety Directive) Regulation 2015* (the *OPL Regulations 2015*) requires a demonstration of financial competence,¹⁷⁴⁰ as it contains the obligations on the offshore licensee that includes financial liability

¹⁷³³ OPOL was adopted on September 4, 1974 and entered into force on May 1, 1975. All oil and gas operators on the United Kingdom Continental Shelf (UKCS) are party to a voluntary industry mutual agreement known as the OPOL. The OPOL Agreement represents a commitment from the oil and gas industry whereby operators take financial responsibility for any discharges of oil that occur as a result of exploration or production and that any remedial measures are promptly reimbursed.

¹⁷³⁴ See Clause 23(9) of the *Petroleum Regulation 2008*.

¹⁷³⁵ Faure *et al.* (2013), 95.

¹⁷³⁶ *OPOL Agreement*.

¹⁷³⁷ OSPRAG (2011), 33.

¹⁷³⁸ DECC Guidance Note 2013.

¹⁷³⁹ For example, Standard & Poor's (A- or higher), A. M. Best (A- or higher), Moody's (A3 or higher), and Fitch (A or higher).

¹⁷⁴⁰ DECC (2011), 76.

provisions.¹⁷⁴¹ There are two aspects of financial competence in terms of offshore licensing operations: one is to carry out the anticipated - daily operations - under the licence; while the other is to deal with the adverse environmental consequences of drilling activities (i.e., unplanned or accidental events) under the OPRC Regulations,¹⁷⁴² as it is part of the approval of *Oil Pollution Emergency Plans* (OPEPs).¹⁷⁴³ According to the Department of Energy & Climate Change (DECC),¹⁷⁴⁴ the granting of a licence or a drilling consent to a company is conditional, proving that they have sufficient financial resources to cover the costs of an oil spill.¹⁷⁴⁵ In addition to licensing, the *DECC Guidance Note*¹⁷⁴⁶ specifies that the financial mechanism shall be accompanied by the oil pollution emergency plans (OPEPs), which contain worst-case scenario information and guidance for the incident response actions.¹⁷⁴⁷

However, such a financial instrument built upon OPOL has obvious limitations: it only provides a solvency guarantee; it has no risk differentiation and hence has inadequate incentives for prevention; it has never been applied in practice and hence there is no practical experience.¹⁷⁴⁸

3.3 The CLC: Financial guarantee on shipowners

The CLC requires a compulsory financial guarantee and limits the liability of the shipowner up to a certain amount. Specifically, the owner of a tanker carrying more than 2,000 tons of persistent oil as cargo is obliged to maintain insurance to cover its

¹⁷⁴¹ *Directive 2013/30 EU.*

¹⁷⁴² The *International Convention on Oil Pollution, Preparedness, Response and Co-operation* (OPRC), which has been ratified by the UK, requires the UK Government to ensure that operators have a formally approved *Oil Pollution Emergency Plan* in place for each offshore operation, or agreed grouping of facilities. For more information on the OPRC, see 'UK national standard for marine oil spill response organisations' on the website of the UK government, available at <https://www.gov.uk/government/publications/uk-national-standard-for-marine-oil-spill-response-organisations> (accessed on April 9, 2022).

¹⁷⁴³ An *Oil Pollution Emergency Plan* (OPEP) is a legally required emergency response document that will facilitate the implementation of a robust and effective response to an oil pollution incident and minimise the impact on the marine environment. More information about OPEPs is provided on the website of the Health Safety Executive (HSE) of the UK, available at <https://www.hse.gov.uk/osdr/guidance/oil-pollution.htm> (accessed on April 9, 2022).

¹⁷⁴⁴ The Department of Energy & Climate Change (DECC) made sure the UK has secure, clean, affordable energy supplies, and promoted international action to mitigate climate change. Since July 14, 2016, DECC was abolished and the UK energy policy was set to be merged into a new ministry called the Department of Business, Energy and Industrial Strategy (BEIS).

¹⁷⁴⁵ Maitland (2011), 76- 77.

¹⁷⁴⁶ DECC Guidance Note 2013.

¹⁷⁴⁷ *Ibid.*

¹⁷⁴⁸ Faure *et al.* (2013), 189.

liability.¹⁷⁴⁹ It stipulates that the vessel should prove the availability of insurance or another form of financial security to cover its liability, and as proof of the availability of financial security the vessel should carry a certificate.¹⁷⁵⁰ The CLC is wise in providing that the form of financial guarantee is not restricted to insurance but can also take other forms that can give certain flexibility in using other financial market instruments. In practice, this is mainly done through the pooling arrangement among the Protection and Indemnity Clubs (P & I Clubs).¹⁷⁵¹

However, critique has been voiced on the fact that there is a minimum tonnage requirement, which means that tankers carrying less than 2,000 tons of oil do not need to have any financial guarantee. An undesirable fact is that even small-sized tankers can cause equally extensive pollution damage and hence encounter the insolvency risk.¹⁷⁵²

When it comes to the enforcement of the compulsory financial guarantee, the CLC has rather weak provisions.¹⁷⁵³ It merely addresses that a State, as a flag State, shall not permit its ship to trade without providing the financial guarantee; as a port State, it shall ensure all ships entering or leaving its port or offshore terminal have the required financial guarantee available. Despite the seemingly weak enforcement rules, the financial guarantee with respect to tankers has been available in almost all of the jurisdictions that are parties to the CLC.¹⁷⁵⁴

It is worthwhile to mention that China acceded to the 1969 CLC and the 1992 CLC, and these international conventions have been formally adopted and transformed into domestic law by the adoption of implementing legislation. The *Measure of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-induced Oil Pollution Damage* (hereinafter the *Vessel-induced Damage Insurance Measure*)¹⁷⁵⁵ that was amended in 2013 obliges shipowners to have financial guarantees.¹⁷⁵⁶ Article 4 classifies vessels into four categories and

¹⁷⁴⁹ Faure & Wang (2005), 14.

¹⁷⁵⁰ The content of this certificate is fixed in Art. VII.2 of the CLC. For further details see Chen (2011), 141; Özcayir (1998), 215-217.

¹⁷⁵¹ Faure *et al.* (2013), 189.

¹⁷⁵² *Ibid.*

¹⁷⁵³ Article VII.11 of the CLC.

¹⁷⁵⁴ Faure *et al.* (2013), 189.

¹⁷⁵⁵ *Measure of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-induced Oil Pollution Damage* (in Chinese: 《中华人民共和国船舶油污损害民事责任保险实施办法》) was first promulgated by the Ministry of Transport on August 19, 2010, and amended on August 31, 2013.

¹⁷⁵⁶ Article 2 of the *Vessel-induced Damage Insurance Measure*.

demonstrates the financial requirements of each type.¹⁷⁵⁷ Notably, the financial obligation of ‘vessels carrying persistent oil substances’ in China is stricter than that given by the CLC, as the latter only requires ‘vessels carrying more than 2,000 tons of persistent oil to maintain insurance.’¹⁷⁵⁸ Articles 8-9 clarify that ‘after buying civil liability insurance or obtaining any other financial guarantee for vessel-induced oil pollution damage, shipowners are entitled to apply for a *Certificate of Civil Liability Insurance for Vessel-induced Oil Pollution Damage*. Article 15 further addresses that anyone who fails to provide such a certificate shall be subjected to a fine, a suspension of its navigation, or a ban on entering or leaving the port or making a transit stop.

3.4 Summary

As discussed above, mandatory financial security has been widely applied worldwide to both offshore oil operators and shipowners in order to prevent potential marine oil pollution. Details of how to apply the financial guarantee are provided under the OPA, OPOL and CLC, bringing it into effect. These rules could reduce the insolvency risk of operators and alleviate great potential risks associated with an oil spill. To be specific, (i) they allow various types of financial tools, (ii) set specific upper limits of the financial guarantee, and (iii) require that offshore licensing and preventive measures should be accompanied with the demonstration of a financial guarantee.

Given that the CLC is an international regime governing vessel-induced pollution, it should be implemented domestically by national regulations, resulting in it not potentially being as strict as those under the OPA and OPOL. Nevertheless, the CLC merits extra attention, as it has been transposed into law in China. That is, in terms of vessel-induced pollution, China has implemented international conventions and adopted mandatory financial guarantees. In comparison, there is relatively little regulation as far as the rules for damage resulting from offshore drilling is concerned. Hence, the mandatory financial security in the event of vessel-induced pollution in

¹⁷⁵⁷ Article 4 the *Vessel-induced Damage Insurance Measure* states that the four types are (a) a vessel carrying persistent oil substances in bulk; (b) a vessel carrying non-persistent oil substances with a gross tonnage of 1,000 gross tonnes or more; (c) a vessel carrying non-oil substances with a gross tonnage of 1,000 gross tonnes or more; and (iv) a vessel carrying non-persistent oil substances with a gross tonnage of less than 1,000 gross tonnes.

¹⁷⁵⁸ Ministry of Transportation (MOA 交通运输部) (November 22, 2010). An interview with the Vice Director of the Bureau of Maritime Affairs at the Ministry of Transport of the PRC, Cao Desheng, An Interpretation of the Vessel-induced Damage Insurance Measure (交通运输部海事局曹德胜副局长: 解读《中华人民共和国船舶油污损害民事责任保险实施办法》), available at <https://www.mot.gov.cn/zhengcejiedu/chuanboyouwushmszrbxssbf/> (accessed on April 30, 2022).

China set an ideal example to offshore oil activities, as it is designed and implemented particularly within the Chinese context.

4. Independent dispute resolution in the *Deepwater Horizon Oil Spill*

The discussions regarding the liability and compensation for offshore oil damage via tort law in different jurisdictions have focused on substantive law. In reality it is equally important to consider procedural aspects of claiming compensation and settling disputes. Especially in the case of mass disasters - like oil spills - this involves a large number of claimants and a mere focus on substantive law may not suffice.¹⁷⁵⁹

The previous chapters have addressed that administrative management is the primary claims process to pursue remedies for both traditional and ecological damage in China, while the public administration plays a vital role in claims settlement. The claims resolution in China that has been profoundly shaped by government intervention is less independent, and the decision-making process may not be free from political bias. Victims are naturally concerned about impartiality and neutrality in decision-making, as it can negatively affect the claims procedures and compensation awards.

In this respect, an interesting lesson regarding solutions may be drawn from the example of the *Deepwater Horizon Oil Spill* settlement in the US. It was a disastrous accident that occurred in the Gulf of Mexico on the BP-operated Macondo Prospect.¹⁷⁶⁰ Victims of the *Deepwater Horizon Oil Spill* had the option of seeking compensation from the Gulf Coast Claims Facility (GCCF), a compensation scheme funded by BP, or joining one of the class action lawsuits against BP.

These two compensation mechanisms for the aftermath of disasters are both part of independent dispute resolutions, which are different from the methods used in the *Bohai Bay Oil Spill* case, where China primarily applied administrative handling to settle compensation claims. Therefore, this section addresses the practices in the *Deepwater Horizon Oil Spill* settlement, as China may learn from this US model that provides detailed guidance on claims settlement. For example, what options are offered to victims to claim compensation through what procedures? How fast and accurate are victims compensated? For what reasons do victims choose different claims settlement solutions? What is the legal status of decision-makers and how are

¹⁷⁵⁹ Faure & Weber 2016.

¹⁷⁶⁰ Robertson & Krauss, 2010; Telegraph 2010; Jervis & Levin 2010.

they independent from the litigants? Answers to these questions will be provided in the following parts.

4.1 Private compensation scheme: GCCF

Shortly after the accident, British Petroleum (BP) entered into negotiations with the US Government that resulted in an announcement that BP established the **Gulf Coast Claims Facility** (GCCF), a USD 20 billion fund to settle claims arising from the *Deepwater Horizon Oil Spill*.¹⁷⁶¹ This fund was set aside for natural resource damages, State and local response costs, and individual compensation but could not be used for fines or penalties.¹⁷⁶² Prior to establishing the GCCF, emergency compensation was paid by BP from an initial facility.¹⁷⁶³ Additionally, BP also announced that it would create a new claims process to be administered by a neutral third party. The GCCF was a private compensation scheme funded by BP.¹⁷⁶⁴ A common ground was that *'this 20 billion fund will not be controlled by either BP or by the government. It will be put in an escrow account administered by an impartial, independent third party.'* The US government and BP agreed on having attorney Kenneth Feinberg administer the fund.¹⁷⁶⁵

Being a well-known lawyer with experience and expertise, *Kenneth Feinberg* was the ideal candidate to lead the GCCF. He is a prestigious attorney specialised in mediation and alternative dispute resolution. More importantly, he has established a high reputation in disastrous victim compensation, as he was appointed to manage the compensation funds in other catastrophic cases, such as the *Agent Orange*, the *9/11 Terrorist Attacks*, and the *Virginia Tech shootings*.¹⁷⁶⁶ Immediately after Feinberg was selected as the Claim Administrator,¹⁷⁶⁷ his law firm *Feinberg Rozen* began the process of assembling a large team of experienced professionals, including claims processing firms, accounting firms, investigators, catastrophe response companies, economists, academics, and other professionals, to assist it in the development and

¹⁷⁶¹ McDonell 2012.

¹⁷⁶² Guardian 2010.

¹⁷⁶³ BDO Consulting 2012.

¹⁷⁶⁴ McDonell 2012.

¹⁷⁶⁵ Kenneth Feinberg, Managing Partner of the Washington, D.C.-based law firm, Feinberg Rozen, LLP (Feinberg Rozen.), was appointed to administer this new claims process. The GCCF thereafter undertook to receive, process and, where appropriate, pay claims of losses. See, Stolberg 2010.

¹⁷⁶⁶ Feinberg 2012.

¹⁷⁶⁷ Claims administrators are professionals who are responsible for performing administrative duties related to insurance claims. These administrators must collaborate with insurance companies so that they can analyse claims and determine the extent of the company's liability.

implementation of claims processing protocols and methodologies.¹⁷⁶⁸ At the same time, the GCCF publicised its existence to potential claimants and created methods through which it communicated with claimants.¹⁷⁶⁹

During its one and one-half year tenure, the GCCF processed over one million claims and paid a total of more than USD 6.2 billion to over 220,000 individual and business claimants.¹⁷⁷⁰ In the first stage of its operation, the GCCF paid claimants USD 2.5 billion¹⁷⁷¹ in Emergency Advance Payment (EAP).¹⁷⁷² At the end of the ninety-day EAP period, the GCCF commenced phase two of the compensation programme. The fund offered each eligible claimant a menu of three payment choices,¹⁷⁷³ without favouring or preferring any particular option: quick payment,¹⁷⁷⁴ interim payment,¹⁷⁷⁵ and final payment.¹⁷⁷⁶ Another USD 3.5 billion was paid in the second stage through these three types of claims.¹⁷⁷⁷ Ninety-seven percent of payments were made by the GCCF were made to claimants in the Gulf States,¹⁷⁷⁸ almost exclusively to

¹⁷⁶⁸ BDO Consulting 2012.

¹⁷⁶⁹ *Ibid.*

¹⁷⁷⁰ BDO Consulting 2012.

¹⁷⁷¹ Feinberg (2012), 219.

¹⁷⁷² Emergency Advance Payment is a payment available to Individuals and Businesses that are experiencing financial hardship resulting from damages incurred by the Spill. Individuals and Businesses may request such a payment on the Claim Form. Victims were asked to file for Emergency Advance Payments on or before November 23, 2010. Victims did not need to waive any legal rights if they received an Emergency Advance Payment, but the total Emergency Advance Payments they received would be deducted from any Final Payment they received from the GCCF or, if they did not receive a Final Payment from the GCCF, from any other payment they received in another legal action associated with the Spill. More information is provided in *Gulf Coast Claims Facility Frequently Asked Questions* (Aug 11, 2010), available at https://www.restorethegulf.gov/sites/default/files/imported_pdfs/library/assets/gccf-faqs.pdf (accessed on April 10, 2022).

¹⁷⁷³ For detailed information about these three options, see Feinberg (2012), 209-215.

¹⁷⁷⁴ Quick payment meant that any individual who had already received an emergency payment from BP or the GCCF could file a simple form without submitting any further documentation of damage and receive a cheque within two weeks for USD 5,000. Similarly, a business could quickly file and receive USD 25,000 from the GCCF. Since BP or the GCCF had already evaluated the claim's merits during the earlier emergency phase, this option provided the claimant with ready additional cash. But claimants exercising this option had to sign a full release promising not to sue BP or any other businesses deemed responsible for the rig explosion, nor could the claimants return to the GCCF seeking additional compensation. In the year after the end of the EAP period, over 130,000 individuals and businesses accepted this quick-payment option, and the fund paid USD 1.3 billion in quick payments.

¹⁷⁷⁵ Interim payment was available to claimants who were uncertain about their financial future and were not prepared to sign any type of lawsuit release. Concerned about the spill's long-term effect on the fishing, shrimping, and oyster harvesting industries, as well as tourism and related retail businesses, they preferred a short-term payment while they continued to monitor recovery efforts in the Gulf. This allowed them to document the past quarterly damage while maintaining their right to sue and return to the GCCF for additional quarterly payments if the damage continued. At some point in the future, a full release and final payment might be in order, but for now the risk-free interim system was attractive. More than 35,000 individuals and businesses opted for interim payments, receiving an aggregate total of USD 495 million in just the first year.

¹⁷⁷⁶ Final payment was available for eligible claimants who wanted to be done once and for all with the oil spill. It was the most generous option and the riskiest. If claimants could document their past, present, and future damage, they would receive a single lump-sum cheque to cover it all. In exchange, they had to relinquish their right to return to the GCCF and sign a full release promising not to sue. In addition, all final payments had to include a 'future recovery risk factor,' compensation for the time it would take for Gulf fishing grounds to be restored, shrimping and oyster harvesting to be back to normal, and tourists to return for vacation.

¹⁷⁷⁷ Feinberg (2012), 219.

¹⁷⁷⁸ The *Gulf States* in this case refer to the states of the US bordering on the Gulf of Mexico: Florida, Alabama,

individuals and businesses in the Gulf Coast shoreline vicinity and Gulf Alliance counties.¹⁷⁷⁹

There is a benefit in such a facility being presented as optional in that it allows victims to choose the solution that best satisfies their preferences.¹⁷⁸⁰ Meanwhile, victims will not be denied the right to take their case to court if they wish so. Apart from a large number of claimants that resorted to the GCCF and received damages shortly after the accident, there were also victims who found that this resolution was not attractive based on their personal interests. Given that the GCCF set specific maximum amounts for compensation,¹⁷⁸¹ victims who sustained severe losses or who mostly suffered losses that were difficult to prove would be unlikely to receive the damages they expected through this compensation scheme. Naturally these victims who pursued substantive damages preferred the courts to the GCCF, and hence there was an enormous selection bias. As a result, even though in some cases the compensation amounts received from the courts were relatively higher than those through the GCCF, it might barely prove that public litigation was superior to private resolution in terms of the compensation awards that victims obtained.

It should also be noted that one group of people that criticised the GCCF were *de facto* personal injury lawyers. One could expect opposition from them, as they would hardly support a system that would mean a loss of business for them and where speedy handling of claims is also not in their interest.¹⁷⁸² As the case of the GCCF showed, victims had to face the powerful lobbying force of the lawyers and some of them could be persuaded to undertake litigation.¹⁷⁸³

It was probably against such a background that criticism has been raised by plaintiff bars and some Gulf Coast residents that the GCCF was not processing all claims in a fair and timely way. In July, the attorney general ordered a third-party audit on the claims process.¹⁷⁸⁴ Congress passed legislation that required the US Department of Justice (hereinafter DOJ) to identify an independent auditor to evaluate the GCCF.

In December 2011, the DOJ publicly announced the selection of BDO¹⁷⁸⁵ to perform

Mississippi, Louisiana, and Texas.

¹⁷⁷⁹ It refers to the affected shorelines and counties alongside the Gulf of Mexico.

¹⁷⁸⁰ Faure & Weber (2016), 149.

¹⁷⁸¹ For instance, the maximum amount of a quick claim in the GCCF was USD 5,000 for an individual and USD 25,000 for a company.

¹⁷⁸² Faure & Weber (2016),150.

¹⁷⁸³ *Ibid.*

¹⁷⁸⁴ Canfield 2012.

¹⁷⁸⁵ BDO Consulting, a division of BDO USA LLP (—BDO), presents to the US Department of Justice, this Executive Summary of BDO's findings and observations drawn from our independent evaluation of the Gulf Coast

the independent evaluation and mandated that their work would be fully independent and meet the highest professional standards.¹⁷⁸⁶ According to the independent evaluation, there were errors in claims processing that negatively affected almost 7,300 claimants. The GCCF made first-time and additional payments and/or offers for payment, which was currently estimated to total more than USD 64 million, to these claimants.¹⁷⁸⁷ In addition, more than 2,600 claimants' claims were erroneously denied and to whom payments or offers will not be issued because their claim files did not contain the information needed to determine whether the claimants sustained a financial loss.¹⁷⁸⁸ There were also over-payments being made to claimants, but the GCCF did not request the return of these over-payments from the affected claimants.¹⁷⁸⁹

From the outset, the US government and BP agreed on inviting an impartial third party to administer the GCCF rather than authorising certain administrative organs to take charge. The defendant BP was able and willing to fund a massive private claims resolution scheme and to enlist the nation's preeminent claims administrator with an unquestioned reputation for independence.¹⁷⁹⁰ For whatever reasons or purposes, when there were suspicions on this private claim resolution, Congress noticed the different voices and required the DOJ to request third-party auditors - the BDO - to conduct an independent evaluation of the GCCF. Although technical errors were made in the GCCF, it turned out that this resolution did rapidly compensate a significant number of victims and largely fulfilled its mission. On the one hand, it might reflect the difficulties and complexities in organizing a compensation system that effectively settles all the claims arising from an offshore oil accident. The practices of independent resolution and evaluation in the US system proved to contribute greatly to responding to anyone who was doubted during the claims procedure and supervising the interested parties to correct the faults to the utmost. On the one hand, in this case, an alliance of potential victim groups and industry were formed, both gaining from the GCCF that in the end paid more to the victims than in tertiary costs (more particularly to the plaintiff bar). Such a cost-reduction was also

Claims Facility (GCCF).

¹⁷⁸⁶ BDO Consulting 2012.

¹⁷⁸⁷ *Ibid.*

¹⁷⁸⁸ *Ibid.*

¹⁷⁸⁹ Canfield 2012.

¹⁷⁹⁰ Issacharoff & Rave (2014), 427-431.

ultimately in the interest of society.¹⁷⁹¹

4.2 Public litigation via class actions

The GCCF was not the only route to compensate *Deepwater Horizon* victims. In March 2012, after BP and a team of the plaintiffs' attorneys agreed to a class-action settlement, a court-supervised administrator *Patrick Juneau* took over the administration.¹⁷⁹² In light of Judge Barbier's *First Amended Order Creating Transition Process* in the multi-district class action lawsuit, in *Re: Spill by the Oil Rig 'Deepwater Horizon' in the Gulf of Mexico*, the settlement of claims through the GCCF was replaced by the court-supervised settlement programme as of June 2012. During this transition period, an additional USD 404 million in claims was paid.¹⁷⁹³ Hundreds of actions filed in federal court, many of them class actions, have been consolidated in New Orleans. Of the thousands of briefs, motions, and orders filed in the court, several of them concerned efforts to regulate the administration of the GCCF.¹⁷⁹⁴

Although the public litigation system has higher transaction costs than the streamlined private dispute resolution system that BP set up under OPA, there were victims who claimed that they obtained more compensation under the class action settlement, which might reflect some factors at play that gave BP something it valued and for which it was willing to pay but could not get through the GCCF. Issacharoff and Rave (2014) mention two factors in favour of class actions.

First, they argue that defendants in mass litigation are eager for peace, and they are willing to pay extra for a settlement that resolves all claims in a single transaction instead of piecemeal serial litigation or settlements.¹⁷⁹⁵ Settling all the claims in a single transaction allows the defendant to take advantage of economies of scale. Handling claims in bulk is normally more cost-effective, as the marginal cost of adding another claim to a group settlement is typically less than the cost of individually negotiating a separate settlement.¹⁷⁹⁶ The class action mechanism offers plaintiffs (or, more realistically, a lawyer acting on their behalf) a relatively low-cost

¹⁷⁹¹ Faure & Weber (2016), 150.

¹⁷⁹² Kunzelman 2012.

¹⁷⁹³ *Ibid.*

¹⁷⁹⁴ McDonell 2012.

¹⁷⁹⁵ For a more detailed discussion of why defendants might be willing to pay a peace premium, see Rave (2013), 1183.

¹⁷⁹⁶ Silver & Baker (1997), 733.

method of overcoming the dynamic and assembling their dispersed rights of action into a single package to sell to the defendant. In comparison, claimants in private settlements like the GCCF must affirmatively opt in on an individual basis. As a result, if a class action settlement promises something approaching peace, the defendant may prefer to pay a premium for serial individual litigation or settlement.¹⁷⁹⁷ However, one should also note that, in terms of personal injury cases, victims will usually be signed up to contingency fee contracts that specify that the lawyer will receive a percentage of any recovery the client receives net of expenses. In the US, the ratio is often 33 to 40 percent.¹⁷⁹⁸ It indicates that the public litigation with the higher built-in transaction costs does not always offer the parties a superior result,¹⁷⁹⁹ as ultimately claimants will merely receive part of the payments, while lawyers will take a significant percentage of the awards as a fee for legal services (so-called contingency fee arrangement).

Second, class settlement offers defendants more finality.¹⁸⁰⁰ The public system of class action litigation enables victims to pursue considerable damages that surpassed the limits of the GCCF, while at the same time providing guarantees of transparency, consistency, and equitable treatment of absentees. Specifically, the payment calculation methodologies were set out in detail at the beginning of the settlement programme and could not be modified for the duration of the programme.¹⁸⁰¹ Moreover, all parties in the class action settlement made a credible pre-commitment to consistently apply the same criteria to all of the claims made by all claimants over the entire duration of the settlement programme.¹⁸⁰² The adoption of transparent and consistent procedures restrained interested groups from lobbying for prospective changes in the compensation criteria, nor could they induce claims administrators secretly to offer increased payments to get them to go away, as their hands were tied.¹⁸⁰³

¹⁷⁹⁷ Rave (2013), 1193-1195. For an explanation of why a defendant might be willing to pay a premium even when a settlement does not include every single claim.

¹⁷⁹⁸ TIPS Committees & Task Forces (2006), 108.

¹⁷⁹⁹ Issacharoff & Rave (2014), 397.

¹⁸⁰⁰ Several features of the economic and property damages class action settlement made it possible for plaintiffs to offer BP a greater degree of finality than it could ever have hoped to achieve through the GCCF. These features include (a) a walk-away provision; (b) a firm cut-off date; (c) transparent and consistent procedures; and (d) a shift from an option model to an opt-out model-may have contributed to BP's ability and willingness to pay claimants more under the class action settlement than through the GCCF. More information, see Issacharoff & Rave (2014), 418-426.

¹⁸⁰¹ *Bon Secour Fisheries v. BP 2012*.

¹⁸⁰² Issacharoff & Rave (2014), 424.

¹⁸⁰³ *Ibid.*

Nevertheless, complex litigation can take so long that it increases the victim's losses substantially. After many years of litigation, even if victims finally obtain compensation, they may still face bankruptcy or suspension, as a result of which total social losses would hence be substantially higher than if compensation had taken place earlier. It shows that trade-offs between efficiency and accuracy exist in dispute resolution. Actions intended to make economic outcomes fairer can cause efficiency to decrease and vice versa.¹⁸⁰⁴ It is therefore no surprise that the attention has increasingly shifted to procedural solutions that can guarantee rapid compensation for victims. A procedural solution like GCCF constitutes an alternative to the traditional civil litigation via the court system.¹⁸⁰⁵

These discussions indicate that the paradox of public litigation begins with the dispute resolution system with apparently higher transaction costs, which proved to be more efficient and effective in providing compensation and closure in the *Deepwater Horizon Oil Spill*.

4.3 Summary

Scholarship has developed insights regarding the feasibility of these different systems and showed different opinions on litigation versus alternative dispute resolution (ADR) solutions. Faure and Weber (2016) prefer a rapid ADR mechanism to litigation based on law and economics theory. To the extent that a rapid claims mechanism can compensate at a lower cost than the traditional court system, ADR solutions entail a reduction of tertiary accident costs. As a peculiar benefit, it was also able to provide more speedy payments and thus reduce primary accident costs by avoiding follow-on damage.¹⁸⁰⁶ On the contrary, Issacharoff and Rave (2014) believe that public litigation is the simplest and most effective way to manage oil spill cases, as class actions allow victims to enter into a resolution of litigation that proved more comprehensive and generous than that afforded by the private resolution of a case. It also provides guarantees of a consistent, transparent, and equitable application to all claimants.¹⁸⁰⁷

In terms of the *Deepwater Horizon Oil Spill* settlement, the GCCF was designed to

¹⁸⁰⁴ Samuelson 1998; Samuelson 2014.

¹⁸⁰⁵ Faure & Weber (2016), 127.

¹⁸⁰⁶ Faure & Weber (2016), 125-150.

¹⁸⁰⁷ Issacharoff & Rave (2014), 397-432.

respond, and did respond, with urgency to the economic difficulties of those most likely affected by the oil spill. However, because of the complexity and unprecedented nature of the task undertaken by the GCCF, it was inevitable that some claimants and stakeholders would have concerns about its operations. While a large amount of individual and business claimants received payments without litigation over the two years immediately following the accident, many others have sought an alternative to the GCCF.¹⁸⁰⁸ The *Deepwater Horizon* case showed a necessity to compensate victims of an accident speedily, and a private compensation scheme like GCCF is expeditious and has low overheads. Nevertheless, the advantages of lower costs and speed come at a price in terms of a reduction of procedural fairness and standardisation of the compensation.¹⁸⁰⁹

The court, by comparison, is transparent and offers victims the opportunity to present claims that the private system refuses to recognise. Therefore, public litigation, mainly in the form of class actions, was a significant alternative for victims. Class action settlements had better performance in terms of delivering finality and guaranteeing a consistent, transparent, and equitable application to all claimants.¹⁸¹⁰ However, the court is slow, expensive, and cumbersome. In addition to the court fees, personal injury lawyers charge a substantial fee, usually 33-40 percent of the compensation awards, based on contingency fee arrangements. By contrast, victims can get 100 percent compensation awards in the GCCF.

In a nutshell, the theoretical discussion, enriched by the illustration of the practical example of the *Deepwater Horizon Oil Spill* settlement, can culminate in guidelines on setting up a rapid claims settlement mechanism and meanwhile making use of the court system.¹⁸¹¹ As regards China, a careful design of the system could also be of crucial importance to guarantee adequate compensation for the victims as well as a correct allocation of the risk to the risk creators.¹⁸¹²

5. Policy recommendations for the Chinese legal system

Addressing the three limitations of the Chinese legal system mentioned in the introduction, sections 2-4 examined the legal arrangements in several selected

¹⁸⁰⁸ BDO Consulting (2012), 12.

¹⁸⁰⁹ Faure & Weber (2016), 149.

¹⁸¹⁰ *Ibid.*

¹⁸¹¹ *Ibid.*

¹⁸¹² *Ibid.*

countries and areas with a focus on these three problems. China can undoubtedly learn from the successful experience abroad; it can equally take lessons from the mistakes that other mechanisms have made. This section discusses if the rules addressed above can be used as a reference to improve the current system of offshore oil damage in China.

5.1 Joint and several liability

From the above examples, the *Deepwater Horizon Oil Spill* settlement in the US, which imposed joint and several liability on the ‘responsible party’ under the OPA, seems to be more in line with economic analysis; whereas the international regime built upon the CLC, with an exclusive channelling of liability to the shipowner in the Cour de Cassation decision on the Erika case, is less effective.¹⁸¹³ The question arises how liability rules should be optimally designed for offshore oil damage.¹⁸¹⁴ Compared to channelling liability, joint and several liability is beneficial in that it provides incentives for mutual monitoring by potential injurers.¹⁸¹⁵ Joint tortfeasors can be held liable for the entire damage caused to the marine environment, even if their behaviour only contributed to a portion of the harm, which can relieve the burden of proof for victims.¹⁸¹⁶ In case one liable party is selected by the victim to compensate the damage, that liable party will exercise a right of recourse against those who contributed to the loss.¹⁸¹⁷ It provides incentives to all parties involved to take prevention measures.¹⁸¹⁸

Therefore, the CNOOC and its partner operator will be required to bear the liability, based on the contract share of an offshore oil project or the risk they create and, ultimately, they will be obliged to compensate the damage on a *pro-rata* basis. Given that the CNOOC is a major oil company with its own captive company, it is more financially capable of dealing with an accident associated with disastrous loss, which is in line with the deep-pocket theory. Unlike the existing rules, the CNOOC will be accountable and thus legally incentivised for prevention, as it is the party that holds the majority share of an offshore oil project.

¹⁸¹³ Liu *et al.* (2014), 178.

¹⁸¹⁴ Faure *et al.* (2015), 403.

¹⁸¹⁵ Tietenberg 1989.

¹⁸¹⁶ Faure *et al.* (2015), 406.

¹⁸¹⁷ Kornhauser & Revesz 1994.

¹⁸¹⁸ Liu *et al.* (2014), 177.

A criticism of holding several parties jointly liable can be formulated from an insurance perspective, because it increases the necessity to purchase insurance coverage by all parties involved.¹⁸¹⁹ This may lead to increased administrative costs, which was precisely why, historically, the drafters of the CLC opted for channelling liability to the shipowner.¹⁸²⁰ However, it is unlikely that the losses resulting from not exposing all parties that can influence the accident risk are higher than the increased administrative costs. Moreover, the OPA suggests that financial obligations can normally require one party, primarily liable for the activities, to take out insurance or other financial guarantees. Given that mandatory financial security is precisely the next proposal in China, this concern is relatively insignificant in this case.

5.2 Financial security

In addition to reshaping the allocation of liability, the second important lesson is to introduce a duty to insure, as it provides appropriate incentives in the fight against underdeterrence and under-compensation. Financial security has been established by offshore operators in some significant oil-producing countries like the US and the UK and also applies to shipowners under the international regime. Based on their successful experience, China may take four steps to incorporate this idea into the current legal system.

First and foremost, the basic rule is to oblige mandatory financial security for offshore oil companies, which could fundamentally improve their financial competence to handle offshore oil risks, especially for those SMEs that are financially modest. The obligation of financial security for shipowners that China has formulated in the case of vessel-induced pollution can be used as a role model for the offshore oil sector.

In particular, as far as SMEs are concerned, there may be a serious insolvency risk especially concerning the larger accidents for which no financial guarantee is obliged, but that is not necessarily the case for those oil majors.¹⁸²¹ Nevertheless, imposing a duty on SMEs only while not on majors is unjustified. A flexible approach should be considered in legislation and awarded to regulators when assessing whether the obligation to show financial coverage has been met.¹⁸²² Since oil majors mostly

¹⁸¹⁹ Faure & Hartlief 2003a.

¹⁸²⁰ Wang (2011), 249.

¹⁸²¹ Faure *et al.* (2013), 306-307.

¹⁸²² *Ibid.*

prefer self-insurance in the form of captives, it can be allowed as another form of financial coverage. Hence, the second step is to set clear and specific legal criteria for self-insurance. Any entity that intends to be self-insured should have a high credit rating and pass a specific financial test, the purpose of which is to guarantee that these companies have a sufficient reserve for future losses. Moreover, captives established by oil majors are categorised as ‘insurance companies’ by law and hence should comply with all the solvency margins under relevant insurance regulations.

Accordingly, the third step is to incorporate a wide variety of financial and insurance instruments, as long as they can guarantee compensation when the accident happens. On the one hand, traditional insurance will normally bring about moral hazards and adverse selection due to asymmetric information.¹⁸²³ Insurers should control such problems¹⁸²⁴ by structuring policies that incentivise behaviour that does not lead to claims and penalise actions that do. It can also take the form of more practical strategies like deductibles and premium reduction for less unreasonable claims. It should also be noted that an insurance market with strict restrictions could result in a high concentration, as a result of which premiums would be too high, ultimately reducing insurers’ incentives to mitigate the moral hazard risk. This constitutes another argument for adopting mandatory financial security that provides various options. On the other hand, limiting the financial coverage to insurance could create an undesirable situation whereby insurers would become *de facto* licensors of the offshore oil activities, as it would become totally dependent on insurance to fulfil the duty to insure.¹⁸²⁵ Therefore, it is unwise to limit the duty to seek financial cover to one particular instrument such as insurance.¹⁸²⁶

The fourth step expects a link to be created between financial security and safety regulations. The licensing regulations should require a demonstration of financial strength, making it a precondition for offshore oil activities and providing incentives for prevention to operators. Any entity that intends to acquire a license for exploitation and production has to provide the relevant financial guarantee in advance, the amount of which is based on the size of offshore facilities or the volume of oil production.

¹⁸²³ *Ibid.*

¹⁸²⁴ Shavell 1986.

¹⁸²⁵ Monti (2001), 65.

¹⁸²⁶ Faure 2006.

5.3 Independent dispute resolution

As shown in the *Bohai Bay Oil Spill* and the *Deepwater Horizon Oil Spill*, although China and the US used specific solutions to handle the unique and unprecedented circumstances, their preferences differed. China chose administrative management as its primary resolution, whereas the US adopted two claims-resolution systems - a private resolution scheme and class action litigation. Since the scope, magnitude, and impact of an offshore oil accident is so extensive, it requires typical resolutions that can be effectively operated in a highly time-sensitive, challenging, and dynamic environment. Compared to a scheme that relies on the public administration, a combination of private resolution and public litigation to settle oil spills is more likely to be efficient, transparent, and consistent.

Specifically, the first proposal is to establish an organisation that specialises in dispute resolution and, more importantly, independent from the plaintiff and the defendant. When claiming ecological remediation through the administrative method, in particular, currently the plaintiff and the decision-maker are both marine administrative organs, while one of the opposing parties is the State-owned CNOOC that is also linked to the public administration. Unsurprisingly, the public could easily cast doubt on the objectivity of the claims settlement, as the parties with a governmental background simultaneously claim, defend, and decide the case. Setting up a specialised organisation to serve as the decision-making body could, on the one hand, offer a degree of independence while avoiding overburdening marine administrative organs that used to engage in multiple tasks.

In this way, the claims process of administrative handling would be *de facto* replaced by an alternative dispute resolution mechanism, which leads to the second proposal, which is to introduce ADR mechanisms into the oil spill resolution settlement in China. The example from abroad shows that the claims settlement resolution should be independent, and the decision-maker should be separate from the plaintiffs and defendants. As a speedy and effective settlement mechanism that the US set up under the OPA, the GCCF can be seen as a typical example for China to learn from. Moreover, since this ADR system remains optional, claimants are still entitled to pursue compensation through any methods based on the specific circumstances.

The final proposal stresses the role of public litigation, as the court should have taken a significant role in the claims procedure, providing guarantees of transparency and

consistency. In particular, the function of EPIL in ecological remediation could be reinforced and the limitations of NGO's legal standing could be relaxed, as they are highly specialised groups with the capacity to represent individual victims and initiate class actions.

Chapter 11 Concluding remarks and future study

China has grown to become a significant oil producer in recent years, but with an increased risk in the daily operations of numerous offshore drilling projects. China's coastline covers approximately 14,500 km. The shores are on the Bohai Gulf, the Yellow Sea, the East China Sea, and the South China Sea, where abundant oil reserves have been explored and exploited.¹⁸²⁷ The offshore oil industry was the first domain in China that opened to the world after the adoption of the Chinese economic reform in the early 1980s. As ensuring adequate energy supply to sustain economic growth has been a core concern of the Chinese government,¹⁸²⁸ China has gradually become a major oil producer and a large oil consumer in the past four decades.

Although China is blessed with its rich oil resources, the nature of offshore oil drilling - extraction of volatile substances sometimes under extreme pressure in a hostile environment - means the risk that accidents could occur. In particular, in the southern half of the Chinese waters, the average water depth is over 1,200 meters and the whole area has been exposed to tropical storms all the year round. Such unfavourable natural conditions inevitably increase the difficulty of initiating deepwater oil projects there.

Generally speaking, oil discharge from an offshore rig has a low probability of occurrence, but, once it takes place, the damage can be disastrous and long-lasting, resulting in personal casualties, economic losses, and lasting damage to the marine ecological system.¹⁸²⁹ To some extent, China has been blessed, as it has not experienced large offshore oil accidents in the past four decades with the exception of *Bohai Bay Oil Spill* as of 2011.

However, given the large number of drilling projects in Chinese waters and the long coastline with complicated geographical and weather conditions, there is no doubt that the danger is always there. A similar tragedy as the Bohai case may occur, and an accident with more substantial losses and casualties like the *Deepwater Horizon Oil Spill* may also happen as. Such potential hazards resulting from offshore drilling trigger concerns from various perspectives. From the perspective of law, in particular,

¹⁸²⁷ State Council 2021.

¹⁸²⁸ Andrews-Speed 2014.

¹⁸²⁹ Smith *et al.* 2011.

it leads to an important question: how does China, in the context of its development of the environmental law and liability law in recent years, provide legal remedies for individual victims, restore the polluted environment, and how do these arrangements affect prevention of oil spills? This constitutes the central topic of this study.

1. Answers to the research question

Starting from this point, the study examined the compensation system by looking at two aspects. The first aspect is whether the existing legal mechanism in China provides victims with compensation for their losses and ecological restoration to the contaminated environment. The second aspect is whether the system provides adequate incentives for prevention to the parties that create the risks, as the compensation mechanism greatly impacts accident prevention. The research question of this study therefore was: *does China have a legal system in place to remedy the damage arising from offshore drilling, providing adequate compensation and incentives for prevention for risk creators?* This central question was divided into two sub-questions:

(a) What legal system is available in China that remedies offshore oil damage?

(b) Does the legal system provide adequate compensation and incentives for prevention?

Based on the analysis in the previous chapters, the answers will follow in this concluding chapter.

After the introductory part, chapters 2-7 employed a descriptive approach to look into the first sub-question. The applicable rules in China regarding the compensation and prevention of offshore oil damage contain substantive and procedural laws, which involve major issues of the offshore oil business: liability attribution, tort damages, claims procedure, financial security, and safety regulation. It concluded that China has a legal framework on paper that governs offshore oil damage and there is also a set of procedural methods and rules as well.

The second sub-question was subsequently addressed in chapters 8-9, which aimed at evaluating the effectiveness of the existing legal regime from two perspectives-damage compensation and accident prevention. Chapter 8 found that the existing system has advantages in handling offshore oil damage based on law and economics. In general, the strict liability system with no financial caps in China, leaving aside the

insolvency issue, is theoretically favourable to tackle offshore oil damage. Moreover, victims with personal injury or economic loss are allowed to pursue compensation awards, while marine administrative organs, legally mandated NGOs, and procuratorates are entitled to require ecological restoration. In addition, offshore oil companies can voluntarily purchase financial tools or count on self-insurance. Finally, a set of safety standards and a specific internal compliance mechanism within the companies are also formulated to regulate and monitor offshore oil operations. However, the study also pointed out that some issues deviate from the economic theory, creating an insolvency risk associated with under-compensation and underdeterrence: (i) the liability is exclusively channelled to operators, while the joint developer CNOOC bears no liability; (ii) there is no mandatory financial security for offshore oil companies; and (iii) the current claims procedure relies heavily on the public administration and is thus not independent enough compared to other types of oil spill settlement solutions, such as the ADR mechanism or the judicial system.

Chapter 9 used a case study on the *Bohai Bay Oil Spill* to examine the theoretical predictions provided in chapter 8, as the case used the applicable rules in an actual oil spill. It showed that most features shown in the Bohai case were in line with the theoretical findings, but there were also a few exceptions that differed from the hypotheses. Apart from the application of rules, some temporary solutions were also created by the public administration to settle the dispute. For instance, in addition to the liable operator, the CNOOC paid substantively for ecological restoration, but this was in the name of social consideration instead of on the basis of tort liability. Although one single accident that happened ten years ago might not accurately present the whole picture, it gave a new insight into the reality of how the laws were implemented and enforced in the Chinese context.

In light of the problems of the existing system in China, chapter 10 selected several legal mechanisms in other jurisdictions addressing marine oil pollution. Based on a functional comparative approach, the study examined whether the legal arrangements in the selected countries could offer potential solutions to China. In particular, three recommendations were made in this regard. The first is to apply joint and several liability, imposing liability on the joint developer CNOOC, next to the operator. The second is to introduce a mandatory obligation to provide financial security to offshore oil companies, making this a precondition for oil operations and providing incentives for prevention. The third is to enable a system of alternative dispute resolution (ADR),

where the decision-making body is independent, separate from plaintiffs and defendants. Ideally, combining such an ADR scheme with public litigation could settle oil spills in a more effective and transparent way.

2. Academic contributions

After the major incident with the *Deepwater Horizon* in the Gulf of Mexico, western legislators and legal scholars have shown great interest in the compensation mechanism for offshore oil pollution, but mainly from the perspectives of the US or the EU. In China, although the exploration and production of oil in the offshore industry is growing rapidly, and this leads to significant potential risks, legislators and scholars rarely concentrate on the legal remedies for offshore oil damage. When it comes to marine oil pollution, most literature pays attention to vessel-induced damage. Moreover, legislators have formulated several regulations aimed at vessel-sourced pollution in recent years, and these specific legal documents have entered into force. In comparison, the rules related to offshore-related damage are scattered among dozens of legal documents, while quite a few relevant provisions are either unclear or unspecific. Although the *Bohai Bay Oil Spill* in 2011 once triggered a heated discussion about oil spill settlement, the focus was mainly on the accident response rather than digging into the legal arrangement of this particular type of damage. In academia, so far there was no comprehensive study on how China legally remedies the damage arising from offshore drilling.

This study, therefore, was undertaken to fill in the gaps on this research map. It started with a detailed description of the applicable legal instruments regarding offshore oil damage in China. Apart from theoretical contributions, a practical contribution is that people who are closely related to offshore oil activities (i.e., offshore oil operators, potential victims of offshore oil risks, fishermen and tourism providers, environmental NGOs, etc.) will find useful legal guidance in this book.

Furthermore, the study critically analysed the strengths and particularly weaknesses of the applicable rules based on economic theory, which is not frequently used in Chinese academia when discussing damage compensation and accident prevention. It provides China with a fresh insight into the evaluation of the existing legal system. The study of the compensation mechanism of offshore drilling reflected that the legislation and the implementation of laws are influenced by the special Chinese legal

characteristics. Interestingly, some features are distinctive in the offshore oil sector, while some have generally taken root in Chinese society.

First, the joint development pattern in the Chinese offshore drilling makes the CNOOC a dominant party in this sector; this State-owned company automatically joins every oil project in Chinese waters, while holding a majority share of the petroleum contract. As a result, all the operators have to cooperate with the CNOOC in order to exploit oil offshore. In the case of oil spills, a strict liability rule governs, which is largely in line with theoretical prediction and economic theory. However, the liability rule is not perfect, as the tort liability will be channelled to the operator. It may pose an insolvency risk, especially when operators are financially inadequate or not insured. Moreover, the joint developer CNOOC is not liable by law, so that it will not be incentivised to take preventive measures, which is problematic from an economic theory perspective. This typical business pattern leads to a liability allocation model engraved with unique characteristics, making the entire offshore oil sector exist in the shadow of the State-owned CNOOC.

Second, claims settlement concerning offshore oil damage is highly dependent on public administration. Currently, the entire compensation system regarding offshore oil pollution has been established in China, and most rules on paper are well drafted and in line with economic theory, with a few exceptions. One major concern is that administrative handling plays an overwhelming role in claims settlement, so the attitude of the authority towards the dispute and the efficiency of specific public administrators determines the result. In comparison, the court plays a relatively moderate role and is seen as the last resort to settle the case. Due to the typical institutional structure in China, the judges are also less independent, as the courts are dependant on administrative organs in personnel management, financial allocation, and even judicial decisions. Nevertheless, administrative handling does not mean that victims will not get compensation. On the contrary, individual victims may have the chance to be paid rapidly, and the polluted water areas may also be remediated effectively, but on the precondition that the authority in charge takes care of everything. Unlike a civil law system where victims can actively file a suit, predict the result, and follow the steps that have been clearly regulated by law, the process of claims settlement through administrative handling is largely dependent upon the administrative authority and can thus hardly be predicted.

3. Limitations of the research and possibilities for future study

This study has provided a description of the legal rules used in China regarding both damage compensation and accident prevention of offshore oil damage. Based upon the descriptive analysis, it also critically evaluated the effectiveness of the applicable rules and provided several policy recommendations. Even so, this research still has certain limits and leaves room for future study in the following respects.

First, the research mainly analyses the *status quo* in China from a doctrinal and economic perspective, and some data regarding the effectiveness of the applicable rules in practice were also addressed through a case study. However, more empirical evidence is required to make the analysis more accurate and to evaluate the effectiveness of the rules in reality. Currently, most data regarding compensation claims and safety performance is either confidential or unavailable in China. For instance, in terms of financial security, it is currently unclear how much coverage is available for offshore oil companies, what the extent of the coverage is, and whether the coverage is adequate for the potential damage. All these issues are significant to evaluate the effectiveness of the legal mechanism and hence they deserve to be carefully examined-if relevant data become available in the future.

The lack of comprehensive data restricts us from adequately examining offshore safety as well. Another typical example concerns regulation. The research devoted an entire chapter (chapter 7) to safety regulations regarding offshore drilling in China. According to Cohen (2000),¹⁸³⁰ we are supposed to evaluate the performance of regulations in environmental deterrence through (i) compliance status and (ii) actual levels of pollution. However, although China provides a set of rules to prevent accidents *ex ante* and to handle offshore oil pollution *ex post*, the data on safety performance is limited and most available information is self-reported. Based on the data availability at this moment, it is impossible to check whether operators have a good compliance rate. Therefore, the study cannot give a convincing evaluation nor depict the whole image of the safety performance in the Chinese offshore oil sector.

Second, in the context of China, the risk for offshore activities to cause a catastrophe creates challenges for both prevention and compensation. The study also examined the effectiveness of the legal system based on these two aspects. Although the central topics concern compensation, the study did look at prevention, but it concentrated

¹⁸³⁰ Cohen 2000.

more on one aspect of prevention - the preventive impact of civil liability - instead of on safety regulation in general. Specifically, the study examined how the legislation in China provides incentives for prevention through civil liability and regulation. Due to the channelling of liability, operators are legally mandated to be strictly liable for marine oil pollution and thus incentivised to take preventive measures. In contrast, the answer is complicated for the other joint developer - the CNOOC. As it is by law not liable, it is theoretically not incentivised for prevention. Occasionally, it may have the incentive to take prevention measures in exceptional cases. An example is that in the Bohai case the public administration required the State-owned CNOOC to pay damages for the sake of social responsibility. However, without clear legal guidance, such administrative-oriented temporary solutions can hardly be predicted. As a consequence, due to the particular joint development model of offshore drilling and the channelled liability rule, it is difficult to analyse to what extent the liability rules could incentivise risk creators, especially the CNOOC, to take prevention measures. Furthermore, although prevention is set as the secondary focus of the thesis, it is a fundamental issue that involves various aspects in addition to its impact on tort liability rules, such as health and safety in the workplace, specific standards, compliance, etc. This is why the whole 'prevention' story deserves independent research.

Third, the law and economics analysis that has greatly developed in the US and Europe may not always be appropriate when analysing all the specific issues in the Chinese oil industry. Some typical features are more politically oriented and thus cannot be simply interpreted using economic theory. For instance, the statutory rule that victims can only sue the operator using the channelling of liability is in conflict with economic theory and may pose a threat to the insolvency of operators, especially as operators are not obliged to take liability insurance. The other joint developer CNOOC is formally free from liability but was *de facto* held to undertake ecological restoration in the Bohai case. The State-owned CNOOC's effort of undertaking obligations to pay in that real case was in line with economic theory, but it was required to do so because of administrative pressure. The SOA demanded the financially adequate CNOOC to help the operator COPC out of a predicament because there was a concern that the operator may not be able to fully pay the costs. However, there was no legal obligation for the CNOOC to provide compensation and hence it cannot be held liable in other similar cases. It is difficult to pinpoint the

nature of the CNY 480 million contributed by the CNOOC in the Bohai case. We can have multiple interpretations of the CNOOC's actions. Economic theory may interpret that payment as a reflection of incentives for prevention, which would incentivise the CNOOC to pay more attention to safety performance. Furthermore, according to the official statement from the SOA, the CNOOC was willing to spend money on ecological restoration because it felt socially responsible. It might also be some sort of strategy of the CNOOC to make concessions to avoid further problems; in this regard, this money might be seen as an administrative subsidy through a State-owned company. After all, it regularly receives financial allocations from the Central Government and has a leading role in the offshore oil sector.¹⁸³¹

Fourth, when studying the legal remedies regarding offshore oil damage in several selected countries, chapter 10 addressed the compensation mechanisms in the US, the UK, and the international regime of vessel-source pollution in a problem-oriented approach. Addressing the major limitations of China has the advantage of staying focused on the central research question, as the successful experience in other jurisdictions may help China to gain insight into the weaknesses of the legal system. However, using a problem-oriented approach may have the disadvantage of not seeing the whole picture. For instance, a specific rule from a foreign country could in theory solve particular problems, but meanwhile it might not fit into the legal system of China. For example, from the comparative analysis it appeared that several legal systems follow the suggestion from law and economics to apply a joint and several liability scheme in the case of multiple tortfeasors. Joint and several liability is preferable to channelling, as it incentivises all risk creators - both the operator and the CNOOC - to take prevention measures and increases the possibility to compensate victims adequately, which is apparently favourable from economic theory. What the comparative study does not take into account is the special role of the CNOOC in the Chinese offshore oil industry, as this State-owned enterprise has dominated the sector for decades. There are complicated reasons behind the legal system that adopted the joint business model and allows the CNOOC to enjoy a liability exemption, which goes beyond economic theory. -Therefore, the adoption of joint and several liability may meet with strong opposition from the CNOOC. Given the fact that the CNOOC is a State-owned enterprise and also an important player in the Chinese offshore oil

¹⁸³¹ As a Central State-owned enterprise, the CNOOC receives financial funds from the State Council regularly. See *supra* section 2.3.3 of chapter 2.

sector, its opinion may have a great impact on policymaking.

Moreover, studying laws and legal institutions from other countries is supposed to improve a legal system. Transplanting foreign rules does not take place in a legal cultural vacuum, as even selective borrowing has its own obstacles.¹⁸³² The US and the UK were selected for comparison purposes, mainly because these two oil-producing countries have established relatively mature mechanisms to handle offshore oil damage. They both are developed countries with a long history of dealing with oil spills, yet they are both common law countries. In comparison, China, as the largest developing country, has been devoting itself to forming a socialist system of laws with Chinese characteristics and can be regarded as a civil law country.¹⁸³³ Particularly, legal instruments in other jurisdictions can theoretically provide legal guidance to China, but how well it works and whether it leads to the desired results remains uncertain. In particular, as the research concentrates on the legal system regarding offshore drilling in China, where the State-owned CNOOC participates in all the projects and the public administration plays a significant role in the entire sector, legal borrowing seems more challenging.

Lastly, although I have offered three pieces of advice based on the weaknesses of the current system, it is not an easy task to implement these particular policy recommendations in the context of China. We need to be down to earth when modifying the current legal regime; we also need to tailor each suggestion according to the actual circumstances. The *first* advice is to incorporate the joint and several liability and hence hold the CNOOC to be liable. It may not be appropriate to seek experience in other domains of China, simply because the dominant role of the CNOOC and the channelled liability rule are unique in the Chinese offshore oil sector. Hence, it is better to concentrate on the joint development pattern and take multiple interested parties into consideration. In comparison, for the *second* advice regarding compulsory liability insurance, it seems feasible to look into other domains in China, because certain fields, such as vessel-induced oil pollution, have successful experience in this issue. Legislation clearly requires shipowners to take mandatory liability insurance against marine oil pollution. The *third* advice concerns the implementation of laws to create a set of transparent and independent procedures to deal with settlement the settlement of claims. The US experience suggests

¹⁸³² Husa 2018.

¹⁸³³ Zhang 2010.

establishing an ADR mechanism. By doing so, China should at first have the intention to set up an independent organisation that can protect itself against the influence of the public administration. In addition, making the best of the judicial system is also essential to handle disputes related to compensation, which requires China to make up its mind to encourage judicial independence. Environmental social organisations are another significant party that can play an active role in the settlement of claims regarding ecological restoration. Nevertheless, all of these changes require the willingness and cooperation of the public administration. In the context of the Chinese offshore oil industry at this moment, it takes time for the government to realise the weaknesses of the current legal system and the necessity of modifying it.

On the whole, whether and when these policy recommendations will be introduced or not largely depends on the political necessity. After all, so far China has a relatively good safety record in the offshore oil sector, and only one catastrophic case has been reported in the past four decades. If China maintains its safety performance in drilling oil offshore, it may be not that urgent for the government to put a high priority on this issue. We also need to take the State-owned enterprise CNOOC into account, as it has played a decisive role in this sector for decades. It is likely for the CNOOC to object to certain suggestions that go against their interests, such as joint and several liability. Furthermore, China does have an established regime on paper that is able to handle marine oil pollution. When applying it in practice, for example in the *Bohai Bay Oil Spill*, victims received compensation and the contaminated water areas were remediated; the result in that case was not that dramatic. The operator was held strictly liable with no financial caps, and the CNOOC also paid the cost out of social consideration *ad hoc*. In other words, despite all kinds of problems discussed above, the existing system in China can largely deal with the compensation associated with oil spills. The fact that the public administration has a powerful impact on nearly every aspect of offshore drilling will be continued in the near future, it seems. However, from an economic perspective, what we could prefer is a more structured and systematic solution in line with the policy recommendations mentioned above.

Summary

In the past four decades that China has devoted to its offshore oil exploration and production, a model of joint development between the China National Offshore Oil Corporation (CNOOC) and foreign operators has been used. Drilling for oil offshore is a challenging task with multiple hazards, as oil spills may originate both from daily operations and from offshore accidents. Therefore, it is considered as threats to life and property and endangers the marine ecosystem. This book examines the legal remedies for compensating and preventing offshore oil damage in China, which generally include, *inter alia*, tort liability, claims process, insurance, and regulation. Some unique features rooted in the Chinese offshore oil industry fundamentally shape the liability distribution and the approaches to implement the rules, creating new challenges to damage compensation and ecological remediation. Based on a law and economics approach, observations are made on the efficiency of the legal regime to evaluate if the existing rules are in line with economic starting points. The *Bohai Bay Oil Spill* in 2011 is used a case study to demonstrate what features are resonated with or deviated from the theoretical findings. Following the limitations of the Chinese legal system as specified, the study ends with policy recommendations based upon a functional comparative study with several selected countries.

Overzicht

In de afgelopen vier decennia dat China zich wijdde aan zijn offshore-exploratie en productie van olie, is een model van gezamenlijke ontwikkeling tussen de China National Offshore Oil Corporation (CNOOC) en buitenlandse operators gebruikt. Offshore olie boren is een uitdagende taak met meerdere risico's, aangezien olie lekkages zowel door dagelijkse operaties als door offshore-ongevallen kunnen gebeuren. Daarom wordt het beschouwd als een bedreiging voor leven en eigendom en vormt het een gevaar voor het mariene ecosysteem. Dit boek onderzoekt de juridische instrumenten voor het compenseren en voorkomen van offshore olieschade in China, waaronder in het algemeen onder meer aansprakelijkheid uit onrechtmatige daad, claimprocedure, verzekering en veiligheidsregulering. Enkele unieke kenmerken die geworteld zijn in de Chinese offshore-olie-industrie bepalen

fundamenteel de verdeling van de aansprakelijkheid en de benaderingen om de regels te implementeren, waardoor nieuwe uitdagingen ontstaan voor schadecompensatie en ecologische sanering. Op basis van een rechtseconomische benadering worden observaties gedaan over de efficiëntie van het wettelijk regime om te beoordelen of de bestaande regels in overeenstemming zijn met economische uitgangspunten. De *Bohai Bay Oil Spill* in 2011 wordt gebruikt als case studie om aan te tonen welke kenmerken resoneren met of afwijken van de theoretische bevindingen. In navolging van de gespecificeerde beperkingen van het Chinese rechtssysteem, eindigt het onderzoek met beleidsaanbevelingen op basis van een functioneel vergelijkend onderzoek met enkele geselecteerde landen.

Bibliography

A

Abraham 2011

Abraham, K. S. (2011). Catastrophic Oil Spills and the Problem of Insurance. *Vanderbilt Law Review*, 64, 1767.

Abraham 2014

Abraham, M. (2014). Nuclear liability: A key component of the public policy decision to deploy nuclear energy in Southeast Asia. American Academy of Arts and Sciences.

Aghion & Quesada 2010

Aghion, P. & Quesada, L. (2010). *What Does Contract Theory Tell Us?* London, the UK: The MIT Press.

Ai (艾尔肯) 2008

Ai, E. (2008). On Concrete Items and Computation Standard for Medical Compensation for Damage (论医疗损害赔偿的具体项目及其计算标准). *Law Science Magazine* (法学杂志), 29(3), 56-59.

Ai (艾尔肯) 2017

Ai, E. (2017). The Function of Medical Compulsory Liability Insurance (论医疗责任强制保险制度的功能), *Hebei Legal Journal* (河北法学), 35(07), 50-58.

Almeida 2014

Almeida R. (September 4, 2014). Transocean Cleared from Deepwater Horizon Blowout Liability), *G Captain*.

Ameye 2010

Ameye, E. (2010). Channeling of Nuclear Third Party Liability towards the Operator: Is It Sustainable in a Developing Nuclear World or Is There a Need for Liability of Nuclear Architects and Engineers, *European Energy and Environmental Law Review*, 19 (1), 33-58.

Amiri et al. 2017

Amiri, M., Ardeshir, A. & Zarandi, M. H. F. (2017). Fuzzy probabilistic expert system for occupational hazard assessment in construction. *Safety. Science*, 93, 16–28.

Andrew 2005

Andrew, C. (2005). *The Politics of Piracy: Intellectual Property in Contemporary China*. Ithaca, NY: Cornell University Press.

Andrews-Speed 2014

Andrews-Speed, P. (November 18, 2014). China's Energy Policymaking Processes and Their Consequences, *The National Bureau of Asian Research Energy Security Report* No.47.

Arcuri 2001

Arcuri, A. (2001). Controlling environmental risk in Europe: the complementary role of an EC environmental liability regime, *Tijdschrift voor Milieuaansprakelijkheid (TMA)*, 15(2), 39-40.

Arlen 2000

Arlen, J. (2000). Tort Damages, in: Bouckaert, B. & De Geest, G. (eds.), *Encyclopedia of Law and Economics, Volume II, Civil Law and Economics*, Cheltenham: Edward Elgar.

Arthur & Sheffrin 2003

Arthur, S., & Sheffrin, S. M. (2003). Economics: Principles in action. *Upper Saddle River, New Jersey*, 7458, 173.

AP 2012

The Associated Press (February 17, 2012). *BP Partner in Blown-Out Well Agrees to Pay \$90 Million*. New York Times, <https://www.nytimes.com/2012/02/18/business/energy-environment/bp-partner-in-spill-moex-to-pay-90-million-seitlement.html> (accessed on April 9, 2022).

B

Badgley 2011

Badgley, C. (June 10, 2011). Fishery and the offshore oil industry: a delicate imbalance, The Center for Public Integrity, available at <https://publicintegrity.org/accountability/fishing-and-the-offshore-oil-industry-a-delicate-imbalance/> (accessed on March 15, 2022).

Bawden 2011

Bawden, T. (October 22, 2011). Anadarko to pay BP \$4bn in settlement, Independent, available at <https://www.independent.co.uk/news/business/news/anadarko-to-pay-bp-4bn-in-settlement-2372137.html> (accessed on April 9, 2022w)

Bahrij & Ko 2013

Bahrij, J., & Ko, L. (2013). An overview of English resources for Chinese legal research, *Legal Information Management*, 13(1), 25-40.

Banks 1984

Banks, W. C. (1984). Efficiency in government: Separation of Powers reconsidered, *Syracuse Law Review*, 35, 715.

BDO Consulting 2012

BDO Consulting (Apr 19, 2012). *Independent evaluation of the Gulf Coast Claims Facility: Executive summary*, BDO Consulting, a Division of BDO USA, LLP.

Beavers et al. 2009

Beavers, J.E., Moore, J.R., Schriver, W.R. (2009). Steel erection fatalities in the construction industry. *Journal of construction engineering and management*, 135, 227–234.

Beijing News (新京报) 2011

The Beijing News (August 11, 2011). *Ten follow-up questions as regards the oil spills in the Bohai area* (十问康菲渤海溢油事故), available at <https://www.yicai.com/news/1030202.html> (accessed on April 14, 2022).

Ben-Shahar 2009

Ben-Shahar, O. (2009). Causation and Foreseeability. In Faure, M., (ed.) (2009). *Tort Law and Economics* (pp.83-105), Edward Elgar Publishing.

Bergkamp 2021

Bergkamp, L. (2021). *Liability and environment: private and public law aspects of civil liability for environmental harm in an international context*. Brill.

Bigley & Roberts 2001

Bigley, G. A., & Roberts, K. H. (2001). The Incident Command System: High-Reliability Organizing for Complex and Volatile Task Environments, *The Academy of Management Journal*, 44 (6), 1281–1299.

Blackman 2006

Blackman, A. (2006). Introduction: Small firms and the environment. In *Small firms and the environment in developing countries: Collective impacts, collective action*, 1-19.

Bloomberg 2010

Bloomberg (May 1, 2010). *BP, Transocean lawsuits surge as oil spill spreads*, available at <https://www.bloomberg.com/news/articles/2010-04-30/bp-transocean-face-at-least-23-lawsuits-over-gulf-rig-blast-crude-spill> (accessed on April 9, 2022).

Bocken 2009

Bocken, H. (2009). Alternative Financial Guarantees for Environmental Liabilities under the ELD, *European Energy and Environmental Law Review*, 18(3).

Bodenheimer 1981

Bodenheimer, E. (1981). *Jurisprudence: the Philosophy and Method of the Law* (4 ed.) Cambridge, MA: Harvard University Press.

Borre 1999

Borre, T. V. (1999). Channeling of Liability: A Few Juridical and Economic Views on an Inadequate Legal Construction, in Horbach, N. (ed.), *Contemporary Developments in Nuclear Energy Law: Harmonizing Legislation in CEEC/NIS*, London: Kluwer Law International, 13-39.

Bosma 2012

Bosma, S. (2012). The Regulation of Marine Pollution Arising from Offshore Oil and Gas Facilities: An

Evaluation of the Adequacy of Current Regulatory Regimes and the Responsibility of States to Implement a New Liability Regime, *Australia and New Zealand Maritime Law Journal*, 26, 89-117.

Boyd 2002

Boyd, J. (2002). Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling Their Promise? In Swanson, T. (ed.), *An Introduction to the Law and Economics of Environmental Policy: Issues in Institutional Design*, Oxford: Elsevier Science.

Boyd & Ingberman 1994

Boyd, J. & Ingberman, D.E. (1994). Non-compensatory Damages and Potential Insolvency, *Journal of Legal Studies*, 23, 895-910.

Boyd & Ingberman 1997

Boyd, J. & Ingberman, D. E. (1997). The Search of Deep Pocket: is 'Extended Liability' Expensive Liability? *Journal of Law, Economics, and Organization*, 13, 232-258.

Boyer & Porrini 2008

Boyer, M. & Porrini, D. (2008). The Efficient Liability Sharing Factor for Environmental Disasters: Lessons for Optimal Insurance Regulation, *The Geneva Papers on Risk and Insurance-Issues and Practices*, 33(2), 337-362.

Bruggeman 2010

Bruggeman, V. (2010). *Compensating Catastrophe Victims: A Comparative Law and Economic Approach*, The Hague: Kluwer Law International.

BSEE 2017

Bureau of Safety and Environmental Enforcement of the United States (2017). *Stats & Facts. Offshore Incident Statistics*, available at <https://www.bsee.gov/stats-facts/offshore-incident-statistics> (accessed on April 10, 2022).

Buchanan 1968

Buchanan, J. M. (1968). The demand and supply of public goods, *Volume 5 of Works of James M. Buchanan, Library of Economics and Liberty*, Chicago: Rand McNally.

Burrows 1999

Burrows, P. (1999). Combining regulation and liability for the control of external costs, *International Review of Law and Economics*, 19(2), 227-242.

C

Cai (蔡守秋) & Zhang (张文松) 2016

Cai, S. & Zhang, W. (2016). Legal Dilemma and Rule Construction of Procuratorates in Breaking through the Difficulty of Environmental Civil Public Interest Litigation—Thinking Based on the Pilot Program of Public Interest Litigation Reform (检察机关在突破环境民事公益诉讼难局中的法律困境与规则建构——基于公益诉讼改革试点方案的思考), *Journal of China University of Geosciences (Social Sciences Edition)* (中国地质大学学报 (社会科学版)), 16(03), 23-33.

Calabresi 1960

Calabresi, G. (1960). Some Thoughts on Risk Distribution and the Law of Tort, *Yale Law Journal*, 70, 499.

Calabresi 1965

Calabresi, G. (1965). The decision for accidents: An approach to nonfault allocation of costs. *Harvard Law Review*, 78(4), 713-745.

Calabresi 1968

Calabresi, G. (1968). Transaction Costs, Resource Allocation and Liability Rules--A Comment. *The Journal of Law and Economics*, 11(1), 67-73.

Calabresi 1970

Calabresi, G. (1970). *The Costs of Accidents: A Legal and Economic Analysis*, New Haven/London: Yale University Press.

Calabresi 1983

Calabresi, G. (1983). The New Economic Analysis of Law: Scholarship, Sophistry, or Self-Indulgence? *British Academy*, 68-85.

Campbell & Picciotto 1998

Campbell, D., & Picciotto, S. (1998). Exploring the interaction between law and economics: the limits of formalism. *Legal Studies*, 18(3), 249-278.

Cameron 2012

Cameron, P. (2012). Liability for Catastrophic Risk in the Oil and Gas Industry, *International Energy Law Review*, 6, 207-219.

Canfield 2012

Canfield, S. (April 25, 2012). *Audit Finds \$64M Hole in Paid Oil Spill Claims*, Courthouse News Service, available at <https://www.courthousenews.com/audit-finds-64m-hole-in-paid-oil-spill-claims/> (accessed on April 10, 2022).

Cao (曹明德) 2000

Cao, M. (2000). *Laws Addressing Environmental Torts* (环境侵权法), Beijing, China: Law Press (法律出版社).

Cao (曹明德) 2013

Cao, M. (2013). An Analysis on the Policy and the Law for the Existence and the Development of the Chinese Environmental NGO (中国环保非政府组织存在和发展的政策法律分析), *Tsinghua Journal of Rule of Law* (清华法治论衡), 3, 17-26.

Cao (曹明德) & Tan (谭古丽) 2011

Cao, M. & Tan, G. (2011). The Legal Liability in the 2011 Bohai accident (渤海溢油索赔案件中的法律责任), *Faren Magazine* (法人), 9., 40-42.

Cao (曹明德) & Wang (王琬璐) 2012

Cao, M. & Wang, W. (2012). Legal Analysis of the Bohai Bay Oil Spill (渤海油田漏油事故法律问题分析), *Law Science Magazine* (法学杂志), 33 (03), 71-76.

Cao (曹艳春) 2011

Cao, Y. (2011). *Compensation Liability of Occupational Injury* (工伤损害赔偿责任研究), Peking, China: Law Press (法律出版社).

Carpenter 2022a

Carpenter, J. W. (March 30, 2022). *The five biggest Chinese oil companies*. Investopedia, available at <https://www.investopedia.com/articles/markets/091515/5-biggest-chinese-oil-companies.asp> (accessed on April 18, 2022).

Carpenter 2022b

Carpenter, J. W. (January 31, 2022). *The biggest oil producers in Asia*. Investopedia, available at <https://www.investopedia.com/articles/markets/100515/biggest-oil-producers-asia.asp> (accessed on April 18, 2022).

CASS (中国社会科学院语言研究所) 2020

CASS Institute of Linguistics C (2020), *Xinhua Dictionary, 12th* (新华字典 (第十二版)), Peking, China: Commercial Press (商务印书馆)

CCICED (中国环境与发展国际合作委员会-国会) 2012

China Council for International Cooperation on Environmental and Development (December 2012). *CCICED Special Report: research on China's marine environmental management mechanism based on the Bohai Sea oil spill case* (以渤海溢油为案例的中国国海洋环境管理机制研究摘要报告), 2012 CCICED annual conference.

CCTV (中央电视台) 2012

CCTV (March 16, 2012). *The Head of SOA Responded to the Criticism of CNY 200,000 Fine as the Upper Limit in the Bohai Case* (国家海洋局长: 渤海溢油仅罚 20 万系最高限额), available at <http://news.cntv.cn/20120316/106331.shtml> (accessed on April 15, 2022).

Chang (常理) 2019

Chang, L. (August 28, 2019). *The mandatory standards of safety liability insurance is ready to be published* (安全生产责任险强制性标准出台), *Economics Daily* (经济日报), available at http://www.gov.cn/zhengce/2019-08/28/content_5425124.htm (accessed on April 15, 2022)

Chang (常纪文) 2014

Chang J. (September, 2014). Eight Issues of Environmental Public Interest Litigation that Should be Settled (环境公益诉讼需解决的八个问题), *Economic Information Daily* (经济参考报)

Chen (陈建华) 1999

Chen, J. (1999). A Research on the Legal Practice of Insurance Contract of Maritime Oil Development (浅议海上石油开发保险合同的法律适用), *Journal of Insurance Study* (保险研究), 3, 40-41.

Chen (陈现杰) 2004

Chen, X. (2004). The Theoretical and Practical Analysis on the SPC Interpretation on Occupational Injury Insurance (《最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释》的若干理论与实务问题解析), *Journal of Law Application* (法律适用), 2, 3-8.

Chen (陈红) 2006

Chen, H. (2006). *Research on the Unsafe Behaviors in China Coal Mine Accidents* (中国煤矿重大事故中的不安全行为研究). Beijing: Science Press (科学出版社)

Chen 2008

Chen, J. (2008). *Chinese Law: Context and Transformation*. Leiden, the Netherlands: Martinus Nijhoff.

Chen 2016

Chen, J. (2016). *Chinese law: Context and Transformation* (Revised and expanded edition), Leiden, the Netherlands: Martinus Nijhoff Publishers.

Chen 2011

Chen, X. (2011). *Limitation of Liability for Maritime Claims. A Study of US Law, Chinese Law and International Conventions*, The Hague, the Netherlands, Kluwer Law International.

Chen et al. (2012)

Chen, H., Qi, H., Long, R., & Zhang, M. (2012). Research on 10-year tendency of China coal mine accidents and the characteristics of human factors. *Safety science*, 50(4), 745-750.

Chen et al. (2013)

Chen, H., Feng, Q., Long, R. & Qi, H. (2013). Focusing on coal miners' occupational disease issues: a comparative analysis between China and the United States. *Safety Science*, 51, 217-222.

Chen (陈亮) 2018

Chen, L. (2018). Study on safety regulation and management of offshore drilling operations (海洋石油钻井平台设备安全管理研究), *China Chemical Trade* (中国化工贸易下旬刊), 3.

Chen & Woo (2018)

Chen, Y. & Woo, R. (January 17, 2018). *Another Chinese city admits 'fake' economic data*, Reuters, available at <https://www.reuters.com/article/us-china-economy-data-idUSKBN1F6011> (accessed on April 15, 2022).

Chen (陈芳)& Wang (王璇政) 2019

Chen, F. & Wang, X. (2019). A study on risk control of process safety management in chemical and petroleum companies (石油化工企业过程安全管理风险管控的探讨与实践), *Modern Chemical Research* (当代化工研究), 8, 160-161.

Chen (陈庆沐) et al. 2012

Chen, Q, Li, W. & Chen, J. (2012). A Discussion on a Uniformed Standard of the Identification for Personal Injuries (浅谈人体伤残鉴定标准的统一). *Chinese Journal of Forensic Sciences* (中国司法鉴定), 63(4), 159-160.

Chen (陈盛伟)& Wang (王晓丽) 2017

Chen, S. & Wang, X. (2017). Literature Review on the Chinese Fishery Mutual Insurance (我国渔业互助保险研究综述), *Journal of Ocean University of China (Social Science part)* (中国海洋大学学报 (社会科学版)), 2, 67-70.

Cheng (程潜) 2011

Cheng, Q. (2011). Oil Spill in Oceans is becoming a Big Threat to Environmental Safety (海上溢油渐成环保安全大患), *World Environment* (世界环境), 6, 40-41.

Cheng (程啸) 2015

Cheng, X. (2015). *Tort liability law (2ed)* (侵权责任法 (第二版)), Beijing, China: Law Press (法律出版社).

CFMI (中国渔业互保协会) 2017a

China Fishery Mutual Insurance Association (2017). Policy of Fishing Vessel Mutual Insurance of CFMI (《中国

渔业互保协会渔船互保条款》)。

CFMI (中国渔业互保协会) 2017b

China Fishery Mutual Insurance Association (2017). *Policy of Personal Accident Mutual Insurance of CFMI* (《中国渔业互保协会渔民人身平安互助保险条款》)。

CFMI (中国渔业互保协会) 2017c

China Fishery Mutual Insurance Association (2017). *Policy of Employer's Liability Mutual Insurance of CFMI* (《中国渔业互保协会雇主责任互助保险条款》)。

China Court 2014

China Court (July 3, 2014). *The SPC Publishes Nine Model Environmental Cases* (最高法院公布九起环境资源审判典型案例), available at <https://www.chinacourt.org/article/detail/2014/07/id/1329697.shtml> (accessed on April 15, 2022).

China Court 2018

China Court (January 5, 2018). *Handling disputes over compensation for damage to marine natural resources and ecological environment in accordance with the law & nourishing the marine ecological civilization: An Interview with the head of the Civil Division IV of the Supreme People's Court concerning the 2018 SPC Interpretation* (依法审理海洋自然资源与生态环境的损害赔偿纠纷案件, 服务保障海洋生态文明建设 ——最高人民法院民四庭负责人就《最高人民法院关于审理海洋自然资源与生态环境损害赔偿纠纷案件若干问题的规定》答记者问), available at <https://www.chinacourt.org/article/detail/2018/01/id/3148137.shtml> (accessed on April 15, 2022).

China Labour Bulletin 2018

China Labour Bulletin (August 21, 2018). China's most dangerous industry is getting more dangerous, available at <https://clb.org.hk/content/china%E2%80%99s-most-dangerous-industry-getting-more-dangerous> (accessed on April 18, 2022).

Chopra 2019

Chopra, K. (October 9, 2019). Twelve Types of Maritime Accidents, *Marine Insight*, available at <https://www.marineinsight.com/marine-safety/12-types-of-maritime-accidents/> (accessed on March 15, 2022).

Chow 2017

Chow, D. C. (2017). The Costly Problem of Poorly Drafted Choice of Law Clauses. *Washington Law Review Online*, 92, 50.

Chow & Lo 2001

Chow, L. C., & Lo, W. Y. (2001). Chinese Offshore Oil Production: Hopes and Reality. *Journal of International Development and Cooperation*, 7(2), 81-97.

Clarke 1991

Clarke, D. C. (1991). Dispute Resolution in China, *Chinese Journal of International Law*, 5, 245.

Clegg et al. 2016

Clegg M., Ellena, K. & Ennis, D. (2016). *The Hierarchy of Laws: understanding and implementing the Legal Frameworks that Govern Elections*, International Foundation for Electoral System (IFES).

CNOOC 2016

CNOOC (April 6, 2016). *2015 Annual Result Report*, available at https://www.cnoccltd.com/module/download/down.jsp?i_ID=2314801&colID=3881 (accessed on April 18, 2022).

CNOOC 2017

CNOOC (April 25, 2017). *2016 Annual Report*, available at <https://www.cnoccltd.com/attach/0/1704250615141037823.pdf> (accessed on April 18, 2022).

CNOOC 2018a

CNOOC (2018). *An introduction of the China National Offshore Oil Corporation*, available at <https://www.cnoc.com.cn/col/col6141/index.html> (accessed on April 18, 2022).

CNOOC 2018b

CNOOC (April 12, 2018). *2017 Annual Report*, available at <https://www.cnoccltd.com/attach/0/1804120631438791699.pdf> (accessed on April 18, 2022).

CNOOC 2019a

CNOOC (April 4, 2019). *2018 Annual Report*, available at

<https://www.cnoccltd.com/attach/0/91ce9f2285834a7fa5d7e070a01640ec.pdf> (accessed on April 18, 2022).

CNOOC 2019b

CNOOC (April 11, 2019). *2018 CNOOC Limited Environmental, Social, and Governance Report*, available at <https://www.cnoccltd.com/attach/0/828e24614a4e44abac7c4cad98a1d7e9.pdf> (accessed on April 18, 2022).

CNOOC 2020a

CNOOC (April 8, 2020). *2019 Annual Report*, available at <https://www.cnoccltd.com/attach/0/f6a7aa6b93294582889a1b0acc07c8f1.pdf> (accessed on April 18, 2022).

CNOOC 2020b

CNOOC (April 15, 2020). *2019 CNOOC Limited Environmental, Social, and Governance Report*, available at <https://www.cnoccltd.com/attach/0/1f327d785d4b4fb4bb704eda72ae190a.pdf> (accessed on April 18, 2022).

CNOOC 2021a

CNOOC (April 8, 2021). *2020 Annual Report*, available at <https://www.cnoccltd.com/attach/0/c63efe2e72b84001bf234fcc38d836ff.pdf> (accessed on April 18, 2022).

CNOOC 2021b

CNOOC (April 13, 2021). *2020 CNOOC Limited Environmental, Social, and Governance Report*, available at <https://www.cnoccltd.com/attach/0/bbfd87698b542c38f0870d13e36bcd7.pdf> (accessed on April 3, 2022).

CNPC 2016a

China National Petroleum Corporation News Center (October 12, 2016). *The Chinese petroleum industry after the economic reform: 1979-1999*, available at <http://center.cnpc.com.cn/bk/system/2016/10/12/001615055.shtml> (accessed on April 10, 2022).

CNPC 2016b

China National Petroleum Corporation News Center (October 13, 2016). *The development of Chinese oil exploration and exploitation in the South China Sea*, available at <http://center.cnpc.com.cn/bk/system/2016/10/13/001615423.shtml> (accessed on April 10, 2022).

CNPC 2016c

China National Petroleum Corporation News Center (October 13, 2016). *The evolution and development of the Bohai oilfield of China*, available at <http://center.cnpc.com.cn/bk/system/2016/10/13/001615381.shtml> (accessed on April 10, 2022).

CNPC 2016d

China National Petroleum Corporation News Center (October 13, 2016). *The Economic Reform of China And the Establishment of the CNOOC (2016-10-13)*, available at <http://center.cnpc.com.cn/bk/system/2016/10/13/001615454.shtml> (accessed on April 10, 2022).

CNPC 2016e

China National Petroleum Corporation News Center (October 12, 2016). *Chinese offshore oil industry has entered into a new phase of development: 1998-2010*, available at <http://center.cnpc.com.cn/bk/system/2016/10/12/001615068.shtml> (accessed on April 10, 2022).

CNPC 2016f

China National Petroleum Corporation News Center (October 12, 2016). *The growth of Chinese offshore oil production with technological innovation: 1988-1997*, available at <http://center.cnpc.com.cn/bk/system/2016/10/12/001615067.shtml> (accessed on April 10, 2022).

CNPC 2017

China National Petroleum Corporation News Center (December 25, 2017). *South China Sea: the starting point of Chinese marine oil industry*, available at <http://center.cnpc.com.cn/bk/system/2017/12/25/001673213.shtml> (accessed on April 10, 2022).

Coase 1960

Coase, R. H. (1960). *The problem of social cost. Classic papers in natural resource economics*. London: Palgrave Macmillan.

Cohen 1997

Cohen, J. A. (1997). Reforming China's Civil Procedure: Judging the Courts, *The American Journal of Comparative Law*, 45, 793-804.

Cohen 2000

Cohen, M.A. (2000). Empirical Research on the Deterrent Effect of Environmental Monitoring and Enforcement,

Environmental Law Reporter News & Analysis, 30(4), 10245-10252.

Cohen 2014

Cohen, J. (January 14, 2014). Struggling for Justice: China's Courts and the Challenge of Reform, *World Politics Review*.

Colatrella 1999

Colatrella Jr, M. T. (1999). Court-Performed Mediation in the People's Republic of China: A Proposed Model to Improve the United States Federal District Courts' Mediation Programs. *Ohio State Journal on Dispute Resolution*, 15 (2), 391-424.

Collins & Erickson 2011

Collins, G., & Erickson, A. S. (April 3, 2011). China Aims to More Than Triple Its Oil & Gas Production in the South China Sea over the Next 10 years, *China Sign Post*.

Conk 2007

Conk, G.W., (2007). A New Tort Code Emerges in China: An Introduction to the Discussion And A Translation of Chapter 8- Tort Law of the Official Discussion Draft of the Proposed Revised Civil Code. *Fordham International Law Journal*, 30, 935-999.

COPC (康菲中国) 2012

ConocoPhillips China (2012). *Penglai 19-3 Oil Spill Accident*, available at <https://www.conocophillips.com.cn/zh/ke-chi-xu-fa-zhan/zhi-li-yu-bo-hai-de-zhang-qi-fa-zhan/peng-lai19-3you-ti-an-yi-you-shi-jian/> (accessed on April 3, 2022).

Cooney 2007

Cooney, S. (2007). China's Labor Law, Compliance and Flaws in Implementing Institutions, *Journal of Industrial Relations*, 49 (5), 673–686.

Cooter 1989

Cooter, R. D. (1989). The Coase theorem. In *Allocation, Information and Markets* (pp. 64-70), Palgrave Macmillan, London.

Cooter & Ulen 2016

Cooter, R., & Ulen, T. (2016). *Law and Economics, 6th edition*, Berkeley Law Books. Book 2.

2016

Cui, W. (2016). Does Judicial Independence Matter: A Study of the Determinants of Administrative Litigation in an Authoritarian Regime. *University of Pennsylvania Journal of International Law*, 38, 941-998.

CWR 2021

China Water Risk (June 18, 2021). *Marine Ecology & Environment Status of China (MEESC) Bulletin as of 2020*, China Water Risk Review, Ministry of Ecology Environment of PRC.

D

Dai (戴瑛) & Pei (裴兆斌) 2017

Dai, Y. & Pei, Z. (ed.) (2017). A New Study on the *Fishery Law (渔业法新论)*, Nanjing, China: Southeast University Press (东南大学出版社)

Dari-Mattiacci & De Geest 2005

Dari-Mattiacci, G., & De Geest, G. (2005). Judgment Proofness under Four Different Precaution Technologies, *Journal of Institutional and Theoretical Economics*, 161, 38-56.

Day 2005

Day, K. A. (2005). *China's Environment and the Challenge of Sustainable Development*, New York, ME Sharpe.

Day 2016

Day, K. A. (2016). *China's environment and the challenge of sustainable development*. New York: Routledge.

DECC 2011

Department of Energy & Climate Change of the U.K. (December 14, 2011), *Offshore Oil and Gas in the UK – An Independent Review of the Regulatory Regime*.

De Smedt & Faure 2013

De Smedt, K., & Faure, M. (ed.) (2013), *Civil Liability and Financial Security of Offshore Oil and Gas Activities*,

Final Report, METRO.

Deason 2004

Deason, E. E. (2004), Procedural Rules for Complementary Systems of Litigation and Mediation-Worldwide, *Notre Dame Law Review*, 80, 553 - 563.

Diller 2003

Diller, M. (2003). Tort and Social Welfare Principles in the Victim Compensation Fund. *DePaul Law Review*, 53, 719.

Ding (丁玉龙) 2017

Ding, Y. (December 1, 2017), *Advice on Promoting the Green Insurance* (大力推进绿色保险发展的建议), China Insurance News (中国保险报), available at http://pl.sinoins.com/2017-12/01/content_248976.htm (accessed on April 15, 2022).

Dong (董岩)&Wang (王革) 2009

Dong, Y. & Wang, G. (2009), Historical review and reflection on the Bohai-II shipwreck case (“渤海二号”钻井船翻沉案的历史回顾与反思). *Journal of China University of Petroleum (Social Science Edition)* (中国石油大学学报(社会科学版)), 25(06), 70-74.

Dove 2010

Dove, L. (June 23, 2010). *How Relief Wells Work*, How Stuff Works, available at <https://science.howstuffworks.com/environmental/green-science/relief-well.htm> (accessed on April 15, 2022).

Du 2013

Du, Q. (2013). Losses of Marine Resources and Compensation for Ecological Damage, *The Environmental Rule of Law*, 2, 11-24.

E

Easo 2010

Easo, J. (2010). Managing the Risk of Catastrophic Events on the UK Continental Shelf, *Ashurst Energy Source*, 7, 18-22.

EIA 2022

Energy Information Administration of the United States (February 15, 2022). *Oil and petroleum products explained: offshore oil and gas*, available at <https://www.eia.gov/energyexplained/oil-and-petroleum-products/offshore-oil-and-gas.php> (accessed on April 7, 2022).

El-Reedy 2014

El-Reedy, M. A. (2014). *Marine structural design calculations*, Butterworth Heinemann.

Energy Global News 2019

Energy Global News (March 10, 2019). Glomar Java Sea Sinks in the South China Sea, available at <http://www.energyglobalnews.com/october-1983-glomar-java-sea-sinks-in-south-china-sea/> (accessed on April 7, 2022).

Epstein 1988

Epstein, E. J. (1988). Tortious Liability for Defective Products in the People’s Republic of China. *Journal of Chinese Law*, 2(2), 285-322.

Ernst 2014a

Ernst (January 20, 2014). How to Proceed with Oil Platform Accident Claims, available at <https://www.ernstlawgroup.com/blog/proceed-offshore-oil-platform-accident-claims/> (accessed on March 15, 2021).

Ernst 2014b

Ernst (February 10, 2014). How Lawyers Consider Offshore Platform Incidents?, available at <https://www.ernstlawgroup.com/blog/lawyers-considerations-offshore-oil-platform-incidents/> (accessed on March 15, 2021).

Ernst 2014c

Ernst (March 3, 2014), Legal options for workers after an offshore accident, available at <https://www.ernstlawgroup.com/blog/legal-options-workers-offshore-accident/> (accessed on March 15, 2021).

Ernst 2014d

Ernst (March 4, 2014). How Oil Rig Injuries Affect Legal Procedures, available at <https://www.ernstlawgroup.com/blog/oil-rig-injuries-affect-legal-procedures/> (accessed on March 15, 2021).

Engardio 2005

Engardio, P. (August 21, 2005), *China Is A Private-sector Economy*, Bloomberg Business Week, available at <https://www.bloomberg.com/news/articles/2005-08-21/online-extra-china-is-a-private-sector-economy> (accessed on April 10, 2022).

European Commission 2014

European Commission DG Energy (August 14, 2014). *Civil liability, financial security and compensation claims for offshore oil and gas activities in the European Economic Area* (final report), available at https://euoag.jrc.ec.europa.eu/files/attachments/201408_offshore_oil_and_gas_activities_liabilitystudy_final_report.pdf (accessed on March 16, 2022).

European Parliament 2016

European Parliament (October 19, 2016). *Report on liability, compensation and financial security for offshore oil and gas operations* (2015/2352(INI)), available at https://www.europarl.europa.eu/doceo/document/A-8-2016-0308_EN.html (accessed on March 16, 2022).

F

Fan et al. 2015

Fan, Y., Li, Z., Pei, J., Li, H. & Sun J. (2015). Applying systems thinking approach to accident analysis in China: Case study of “7.23” Yong-Tai-Wen High-Speed train accident. *Safety Science*, 76, 190-201.

Fang (方振春)2013

Fang, Z. (2013). The truth about the Bohai -II shipwreck case (“渤海 2 号”翻沉真相), *China CPCC* (中国石油化工), 23.

Faure 2004

Faure, M. (2004). Alternative Compensation Mechanisms as a Remedy for Insurability of Liability, *The Geneva Papers on Risk and Insurance*, 457-458.

Faure 2006

Faure, M. (2006). Economic Criteria for Compulsory Insurance, *The Geneva Papers on Risk and Insurance*, 31, 149-168.

Faure 2009a

Faure, M. (2009). Regulatory strategies in environmental liability. In *The Regulatory Function of European Private Law*. Edward Elgar Publishing.

Faure 2009b

Faure M. (2009), *Tort law and economics*. Edward Elgar Publishing.

Faure et al. 2010

Faure, M., Goodwin, M. & Weber, F. (2010). Bucking the Kuznets Curve: Designing Effective Environmental Regulation in Developing Countries, *Virginia Journal of International Law*, 51, 95.

Faure et al. 2013

Faure, M., Liu J., Philipsen N. & Wang, H. (2013), *Civil Liability and Financial Security for Offshore Oil and Gas Activities: Final Report*, Metro, Maastricht University.

Faure et al. 2015

Faure, M., Liu, J., & Wang, H. (2015), A multilayered approach to cover damage caused by offshore facilities. *Virginia Environmental Law Journal*, 33(3), 356-422.

Faure 2017

Faure M. (ed.) (2017). *Civil Liability and Financial Security for Offshore Oil and Gas Activities*, Cambridge, the UK: Cambridge University Press.

Faure 2018

Faure, M. (2018). Economic models of compensation for damage caused by nuclear accidents: Some lessons for the revision of the Paris and Vienna Conventions. In Segerson, K. (ed.) (2018). *Economics and Liability for Environmental Problems* (pp. 473-495). Routledge.

Faure & Grimeaud 2003

Faure, M. & Grimeaud, D. (2003), *Financial Assurance Issues of Environmental Liability*. In: Faure, M. (ed.),

Deterrence, Insurability, and Compensation in Environment Liability: Future Development in the European Union (pp. 7-255), Vienna: Springer.

Faure & Hartlief 1996

Faure, M., & Hartlief, T. (1996). Compensation funds versus liability and insurance for remedying environmental damage. *Review of European Comparative & International Law*, 5, 321.

Faure & Hartlief 2003a

Faure, M., & Hartlief, T. (2003), Insurance and expanding systemic risks, *Financial Market Trends*, 145-156.

Faure & Hartlief 2003b

Faure, M. & Hartlief, T. (2003). Economic analysis. *The Impact of Social Security Law on Tort Law*, 221-265.

Faure & Hu 2011

Faure, M. & Hu, W. (2011). Towards A Reform of Environmental Liability in China: An Economic Analysis. *Asia Pacific Journal of Environmental Law*. 13, 225-247.

Faure & Liu 2013

Faure, M. & Liu, J. (2013). Compensation for environmental damage in China: Theory and practice. *Environmental Damage Compensation*, 31, 240-321.

Faure & Ruegg 1994

Faure, M. & Ruegg, M. (1994). Standard Setting through General Principles of Environmental Law. In Faure, M., Vervaele, J. and Weale, A. (eds.), *Environmental Standards in the European Union in an Interdisciplinary Framework* (pp. 65-85), Antwerpen, Maklu.

Faure & Wang 2005

Faure, M., & Wang, H. (2005). Compensation for oil pollution damage: China versus the international regime. *Asia Pacific Journal of Environmental Law*, 9, 14.

Faure & Wang 2006

Faure, M., & Wang, H. (2006). Economic analysis of compensation for oil pollution damage. *Journal of Maritime Law and Commerce*, 37, 179.

Faure & Wang 2011

Faure, M., & Wang H. (2011), Civil Liability and Compensation for Marine Pollution - Lessons to Be Learned for Offshore Oil Spills, *Oil, Gas & Energy Law Intelligence (OGEL)*, 8(3).

Faure & Wang 2015

Faure, M., & Wang, H. (2015). Compensating victims of a European Deepwater Horizon accident: OPOL revisited. *Marine Policy*, 62, 25-36.

Faure & Weber 2016

Faure, M., & Weber, F. (2016). Potential and Limits of Out-Of-Court Rapid Claims Settlement—A Law and Economics Analysis. *Journal of Environmental Law*, 28(1), 125-150.

Faure & Van den Bergh 1990

Faure, M. & Van den Bergh, R. (1990), Liability for nuclear accidents in Belgium from an interest group perspective, *International Review of Law and Economics*. 10(3), 241-254.

Faure & Xu 2013

Faure, M., & Xu, G. (2013). *Economics and regulation in China*. Routledge.

Feess & Hege 2000

Feess, E., & Hege, U. (2000). Environmental harm and financial responsibility. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 25(2), 220-234.

Fei 2015

Fei, L. (2015). The role of the law in Chinese judicial mediation: a case study, *International Journal of Conflict Management*, 26 (4), 386-401.

Feinberg 2012

Feinberg, K. R. (2012), *Who Gets What: Fair Compensation after Tragedy and Financial Upheaval*, New York: Public Affairs.

Feng (冯源) 2018a

Feng H. (July 19, 2018), Seven-year long run of the Bohai oil spill lawsuit tortured China's marine environmental

legal system, *China Dialogue*, available at <https://chinadialogueocean.net/zh/27733/77314/> (accessed on April 14, 2022).

Feng (冯灏) 2018b

Feng H. (July 19, 2018), Bohai legacy highlights weakness in China's marine law, *China Dialogue*, available at <https://chinadialogueocean.net/en/governance/3787-bohai-oil-leak-china-marine-law/> (accessed on April 14, 2022).

Feng & Tu 2014

Feng J. & Tu F. (2014), *Oil Spills and Ocean Pollution, in Chinese Research Perspectives on the Environment*, vol.3. Leiden, the Netherlands: Brill Publishing.

Feng et al. 2014

Feng, Y., Mol, A. P., Lu, Y., He, G., & Van Koppen, C. S. A. (2014). Environmental pollution liability insurance in China: in need of strong government backing. *Ambio*, 43(5), 687-702.

Feng et al. 2020

Feng, L., Wu, Q., Wu, W., & Liao, W. (2020). Decision-Maker-Oriented VS. Collaboration: China's Public Participation in Environmental Decision-Making. *Sustainability*, 12(4), 1334.

Fernald et al. 2013

Fernald, J., Malkin, I., & Spiegel, M. (2013). On the reliability of Chinese output figures. *FRBSF Economic Letter*, 8(1), 1-5.

Finder 1993

Finder, S. (1993). The Supreme People's Court of the People's Republic of China, *Chinese Journal of International Law*, 7, 148-150.

Fingas 2012

Fingas, M. (2012). *The Basics of Oil Spill Cleanup (3rd edition)*, Boca Raton, USA: CRC Press.

Fiore 2009

Fiore, K. (2009). No-fault compensation systems. In *Encyclopedia of Law and Economics*. Edward Elgar Publishing Limited.

Fisk et al. 2014

Fisk, M. C., Brubaker C. L., & Feeley, J. (September 4, 2014). Worst Case' BP Ruling on Gulf Spill Means Billions More in Penalties, Bloomberg LLP.

Foley 2010

Foley, V. J. (2010). Post-Deepwater Horizon: the changing landscape of liability for oil pollution in the United States. *Albany Law Review*, 74, 515.

Fountain 2010

Fountain, H. (June 3, 2010). *Plan for Relief Well Spurs Hope Among Caution*, The New York Times, available at <https://www.nytimes.com/2010/06/04/science/earth/04relief.html> (accessed on April 3, 2022).

Fu (傅贵) 2013

Fu, G. (2013), *Safety Management (安全管理)*, Beijing, China: Science Press (科学出版社).

Fu & Cullen 2011

Fu, H., & Cullen, R. (2011), From Mediator to Adjudicatory Justice: The Limits of Civil Justice Reform in China. In Woo, M. Y., & Gallagher, M. E. (eds.), *Contemporary Chinese Justice: Legal Development and Institutional Tensions* (pp.25-57), Cambridge: Cambridge University Press.

G

Gao (高利红)& Yu (余耀军) 2003

Gao, L. & Yu, Y. (2003). A Study on the Punitive Damage in the application of Environmental Civil Torts (环境民事侵权适用惩罚性赔偿原则之探究), *Law Science(法学)*, 3, 106-112.

Gao (高爽) 2007

Gao, S. (2007). Analysis on the Insurance Contract of Mobile Offshore Units (析海上移动式钻井平台保险合同), *Journal of Resource and Industry (资源与产业)*, 1, 96-101.

Gao (高翔) 2013a

Gao, X. (2013). Legal Remedies for Environmental Damage Caused by Offshore Oil Exploration and Exploitation: taking Deepwater Horizon oil spill as an example (海洋石油开发环境污染法律救济机制研究--以美国墨西哥湾漏油事故和我国渤海湾漏油事故为视角), Wuhan, China: Wuhan University Press (武汉大学出版社).

Gao (高国辉) 2013b

Gao, G. (January 18, 2013). *Guang Dong Firstly Initiates Environmental Liability insurance* (广东先行先试环境污染责任保险), available at <https://news.12371.cn/2013/01/18/ARTI1358489896923134.shtml?from=singlemessage> (accessed on April 15, 2022).

Gao (高雁) & Gao(高桂林) 2011

Gao, Y. & Gao, G. (2011). The Extension and Limitation of the Scope of Plaintiffs in Environmental Public-Interest Litigation (环境公益诉讼原告资格的扩展与限制), *Hebei Law Science* (河北法学), 3, 153-157.

Gao 1994

Gao, Z. (1994). *International petroleum contracts: current trends and new directions*, London; Boston: Graham & Trotman/M. Nijhoff.

Gard 2013

Gard (Apr 17, 2013). The Erika- The Cour de Cassation decision, *Insight 210*, available at <https://www.gard.no/web/updates/content/20735233/the-erika-the-cour-de-cassation-decision> (accessed on Mar 16, 2022).

Garner 2009

Garner, B. A. (ed.). *Black's Law Dictionary* (2009), St. Paul, MN: Thomson Reuters Business.

Garner 2019

Garner, B. A. (ed.) (2019). *Black's Law Dictionary (11th Edition)*, St. Paul, MN: Thomson Reuters Business.

Gordon et al. 2014

Gordon, D., Sautin, Y., & Wang, T. (May 6, 2014). *China's Oil Future*. Carnegie Endowment for International Peace, available at <https://carnegieendowment.org/2014/05/06/china-s-oil-future-pub-55437> (accessed on March 16, 2022).

Graham 2017

Graham, E. (2017). *The Hague Tribunal's South China Sea Ruling: Empty Provocation or Slow-Burning Influence?* 2, 1-6.

Guardian 2010

The Guardian (June 17, 2010), BP chief Tony Hayward's statement in full, available at <https://www.theguardian.com/business/2010/jun/17/bp-tony-hayward-oil-spill-statement> (accessed on April 9, 2022).

Guéguen et al. 2011

Guéguen, M., Amiard, J. C., Arnich, N., Badot, P. M., Claisse, D., Guérin, T., & Vernoux, J. P. (2011). Shellfish and Residual Chemical Contaminants: Hazards, Monitoring, and Health Risk Assessment Along French Coasts, *Reviews of Environmental Contamination and Toxicology*. 213, 55-111.

Guo (郭明瑞) 2013

Guo, M. (2013). Critical Analysis of Causation Theory in Tort Law (侵权责任构成中因果关系理论的反思), *Journal of Gansu Institute of Political Science and Law* (甘肃政法学院学报). 129, 1-6.

Guo & Wu 2011

Guo, W. & Wu, C. (2011). Comparative study on coal mine safety between China and the US from a safety sociology perspective. First international symposium on mine safety science and engineering. *Procedia Engineering*, 26, 2003-2011.

Guo (郭永峰) 2018

Guo, Y. (September 3, 2018), *How Far China Has Reached in Developing Oil and Gas in the South China Sea* (南海油气资源开发, 中国已经走了多远). Oil SNS (石油圈), available at <http://www.oilSNS.com/article/334335> (accessed on March 16, 2022).

H

Hagerty 2010

Hagerty, C. L. (2010). *Deepwater Horizon oil spill: Selected issues for Congress*. Diane Publishing.

Han (韩立新) 2008

Han, L. (2008), Legal Research About Compensation for Pure Economic Loss Due to Oceanic Environmental Infringement (海洋环境侵权中纯经济损失的赔偿问题研究), *Law Science Magazine* (法学杂志), 6, 56-62.

Han 2014

Han, H. (2014). Policy deliberation as a goal: The case of Chinese E-NGO activism. *Journal of Chinese Political Science*, 19(2), 173-190.

Handl 2019

Handl, G. (2019), *Managing the Risk of Offshore Oil and Gas Accidents: The International Legal Dimension*, Cheltenham, the UK: Edward Elgar Publishing.

Handl & Svendsen 2019

Handl, G., & Svendsen, K. (eds.) (2019). *Managing the Risk of Offshore Oil and Gas Accidents: The International Legal Dimension*. Edward Elgar Publishing.

Hanlon 2013

Hanlon, C. (2013). The Usumacinta Disaster. *Proto-Type/Journal of Undergraduate Engineering Research and Scholarship*, 1.

Haworth 2001

Haworth, N. (2001). *Environment for safety regulations*, available at <http://www.deathreference.com/Py-Se/Safety-Regulations.html> (accessed on April 15, 2022).

Harratz 2016

Harratz, H. Z. (2016), *Petroleum Laws: Types of International Petroleum Contract*, Economic Petroleum Project, available at https://www.researchgate.net/publication/301848692_PETROLEUM_LAWS_TYPES_OF_INTERNATIONAL_PETROLEUM_CONTRACTS (accessed on April 10, 2022).

Hausman & Foggan 2011

Hausman, D. E. & Foggan L. A. (2011), The Aftermath of the Macondo Discovery Well Spill: The Interplay of Claims to the Gulf Coast Claims Facility and Insurance Claims, 23 *Environmental Claims Journal*, 91, 100.

He 2009

He, Xin (2009), Enforcing Commercial Judgments in the Pearl River Delta of China, *American Journal of Comparative Law*, 57, 419-456.

He (何勇) 2011

He Y. (July 8, 2011), China needs zero tolerance for concealing major accidents (重大事故瞒报迟报必须“零容忍”), *People's Daily Comment* (人民日报时评).

He 2013

He, X. (2013). Judicial innovation and local politics: Judicialization of administrative governance in East China. *The China Journal*, 69, 20-42.

He et al. 2012

He, G., Lu, Y., Mol, A. P., & Beckers, T. (2012). Changes and challenges: China's environmental management in transition. *Environmental Development*, 3, 25-38.

Hellwig 2003

Hellwig, M. F. (2003). Public-good provision with many participants. *The Review of Economic Studies*, 70(3), 589-614.

Hollaender & Kaminsky (2000)

Hollaender, K., & Kaminsky, M. A. (2000). The past, present, and future of environmental insurance including a case study of MTBE litigation. *Environmental Forensics*, 1(4), 205-211.

Holz 2004

Holz, C. A. (2004). China's statistical system in transition: Challenges, data problems, and institutional innovations. *Review of Income and Wealth*, 50(3), 381-409.

Hook 2011

Hook, L. (August 30, 2011), *Doing business in China: a tale of two oil spills*, *Financial Times*, available at <https://www.ft.com/content/3524b33b-59b6-3a3a-99ca-ec66c8e1d7f7> (accessed on March 16, 2022).

Hou (侯佳儒) 2014

Hou, J. (2014). *Fundamental Issues in China of Environmental Tort Law*(中国环境侵权责任法基本问题研究). Beijing, China: Peking University Press (北京大学出版社).

Hu (胡奎)& Jiang (姜抒) 2003

Hu, K. & Jiang, S. (2003), China encounters the Flood of Xinfang (中国遭遇信访洪峰), *Oriental outlook Weekly* (瞭望东方周刊), 4, 32-35.

Huang (黄大芬)& Zhang (张辉) 2018

Huang, D. & Zhang, H. (2018). The Boundary Between Environmental Private Interest Litigation and Environmental Public Interest Litigation(环境私益诉讼与环境公益诉讼的界分——回归诉讼本来面貌), *Journal of Henan University of Science and Technology (social science)* (河南科技大学学报(社会科学版)), 36, 105-112.

Huang (黄海涛) 2016

Huang, H. (2016). Analysis of reviewing the conditions on hearing civil cases——Take 100 rejected cases as samples (民事立案条件审查的实体化现象分析——以 100 件裁定驳回起诉案件为样本), *Study on Civil Procedure* (民事程序法研究), 1,152-160.

Huang (黄金荣) 2014a

Huang, J. (2014). Legal definition and validity of normative documents (规范性文件的法律界定及其效力), *Law Science*(法学), 7, 10-12.

Huang (黄金荣) 2014b

Huang, J. (2014). Progress and Drawbacks on the Construction of Public-Interest Litigation System: Comments on Article 55 of the *Civil Procedure Law* (公益诉讼制度构建中的进步与局限——评新民事诉讼法第 55 条). *Research on Rule of Law*(法治研究), 2,102-110.

Huang et al. 2012

Huang, P., Xuan, X., Qiu, R., & Liu G. (2012), Statistical analysis on production safety accidents of heavy casualties of the period 2001-2011 in China. *Procedia Engineering*, 45, 950-958.

Huang 2006

Huang, C. C. (2006). Court mediation in China, past and present. *Modern China*, 32(3), 275-314.

Huang (黄松有) 2004

Huang, S. (2004). *The Interpretation and Application of Judicial Interpretation Concerning Compensation for Personal Injury* (最高人民法院人身损害赔偿司法解释的理解与适用), Beijing, China: People's Court Press (人民法院出版社).

Huo (霍海红) 2016

Huo, H. (2016). Rethink of Improving the Standard of Proof in the Civil Procedure Law (提高民事诉讼证明标准的理论反思), *China Legal Science* (中国法学). 2. 258-279.

Husa 2018

Husa, J. (2018), Developing Legal System, Legal Transplants, and Path Dependence: Reflections on the Rule of Law, *The Chinese Journal of Comparative Law*, 6(2), 129-150.

Hutchinson 2013

Hutchinson, T. (2013). Doctrinal research: researching the jury. In *Research methods in law* (pp. 15-41). Routledge.

I

Ismail et al. 2014

Ismail, Z., Kong, K. K., Othman, S. Z., Law, K. H., Khoo, S. Y., Ong, Z. C., & Shirazi, S. M. (2014). Evaluating accidents in the offshore drilling of petroleum: Regional picture and reducing impact. *Measurement*. 51, 18-33.

IOGP 2010

International Association of Oil & Gas Producers (March 2010), *Risk assessment data directory: major accident*, NO.434-17, OGP Publications.

IOGP 2020

International Association of Oil & Gas Producers (September 2020). *Safety Performance Indicators -2019 Data*,

OGP Publications, available at

https://www.iogp.org/bookstore/?download_file=324294&order=wc_order_VT4GtliVGYneS&uid=8762c25bc47853dc83aac97b4c4024355618f87b0bbfb60546ce542bcb94db1f&key=d8471109-f605-4b80-b443-2ca29e83260d (accessed on April 18, 2022).

I TOPF 2019

International Association of Oil & Gas Producers (January 2019). *Oil Tanker Spill Statistics 2018*, available at https://www.connaissancedesenergies.org/sites/default/files/pdf-actualites/Oil_Spill_Stats_2018.pdf (accessed on March 16, 2022).

Issacharoff & Rave 2014

Issacharoff, S., & Rave, D. (2014). The BP Oil Spill Settlement and the Paradox of Public Litigation. *Louisiana Law Review*, 74(2), 427-431.

J

Jacobs 2019

Jacobs, S. B. (2019). The Statutory Separation of Powers, *Yale Law Journal*, 129, 378.

Janssen 2012

Janssen, J. J. G. (2012). *Preventing a next Deepwater Horizon? Evaluation of the regime for the prevention of and response to accidental oil spills*, MSc Thesis, Utrecht University, The Netherlands.

Jervis & Levin 2010

Jervis, R. & Levin, A. (May 27, 2010). Obama in Gulf, pledges to push on stopping leak, *USA Today*. Associated Press. available at http://usatoday30.usatoday.com/news/nation/2010-05-27-oil-spill-news_N.htm (accessed on March 16, 2022).

Ji 2013

Ji, W. (2013). The judicial reform in China: The *status quo* and future directions, *Indiana journal of global legal studies*, 20(1), 185-220.

Jia 2016

Jia, M. (2016). Chinese Common Law? Guiding Cases and Judicial Reform. *Harvard Law Review*, 129(8), 2213-2234.

Jiang (江必新) 2009

Jiang, B. (2009). Reflection and Reconstruction of the Idea of Administrative Rule-of-law: Based on "Supporting Concepts" (行政法治理念的反思与重构——以“支撑性概念”为分析基础), *Law Science (法学)*, 12, 32-41.

Jiang (江必新) 2013

Jiang, B. (2013). Research on China's Administrative Adjudication System Reform: Currently on Foundation, Basis and Conception of China's Administrative Court System Construction (中国行政审判体制改革研究——兼论我国行政法院体系构建的基础、依据及构想), *Administrative Law Review (行政法学研究)*, 4, 3-11.

Jiang & Faure 2020

Jiang, M. & Faure M. (2020). Risk-sharing in the context of fishery mutual insurance: Learning from China. *Marine Policy*, 121, 104191.

Jimmie et al. 2013

Jimmie H, Samuel T, Andrew W. (2013). Leading indicators of construction safety performance. *Safety Science*, 51, 23-28.

Jing 2011

Jing Y. (May 9, 2011). *Interest-based politics in current China: challenges & prospects*, Brookings, available at https://www.brookings.edu/wp-content/uploads/2012/04/20110509_yuejin_presentation.pdf (accessed on March 16, 2022).

Jost 1996

Jost, P. J. (1996). Limited liability and the requirement to purchase insurance. *International Review of Law and Economics*, 16(2), 259-276.

K

Kambia-Chopin 2010

Kambia-Chopin, B. (2010). Environmental Risks, the Judgment-Proof Problem and Financial Responsibility,

European Journal of Law and Economics, 30(2), 77-87.

Kang et al. 2017

Kang, Y., Siddiqui, S., Suk, S.J., Chi, S. & Kim, C. (2017). Trends of fall accidents in the U.S. construction industry. *Journal of Construction Engineering and Management*, 143 (8), 04017043.

Kehne 1986

Kehne, J. (1986). Encouraging Safety Through Insurance-Based Incentives: Financial Responsibility for Hazardous Waste, *Yale Law Journal*, 96, 403.

Kellogg 2011

Kellogg, T. E. (2011). The Constitution in the Courtroom: Constitutional Development and Civil Litigation in China. In M.Y.K. Woo (ed.), *Chinese Justice: Civil Dispute Resolution in Contemporary China*. New York, NY: Cambridge University Press. 340-379.

Kennedy 1981

Kennedy, D. (1981). Cost-benefit analysis of entitlement problems: a critique. *Stanford Law Review*, 33(3), 387-445.

Kennedy2009

Kennedy, S. (2009). *The business of lobbying in China*. Harvard University Press.

Kim & Lee 2019

Kim, S., & Lee, J. (2019). Citizen participation, process, and transparency in local government: An exploratory study. *Policy Studies Journal*, 47(4), 1026-1047.

King 2010

King, R. O. (2010). *Deepwater horizon oil spill disaster: Risk, recovery, and insurance implications*. Diane Publishing.

Koch & Koziol 2002

Koch, B. A., & Koziol, H. (eds.) (2002). *Compensation for personal injury in a comparative perspective (vol. 4)*. Springer.

Koch & Koziol 2003

Koch, B. A., & Koziol, H. (2003). Comparative analysis. In *Compensation for personal injury in a comparative perspective* (pp. 407-446). Springer Vienna.

Koch-Weser & Haacke 2013

Koch-Weser, I. N., & Haacke, O. D. (2013). US-China Economic and Security Review Commission. *China Investment*.

Korea Times 2011

The Korean Times (July 12, 2011). Beijing ought to show neighbour sincerity, available at http://www.koreatimes.co.kr/www/news/opinion/2011/07/137_90742.html (accessed on April 14, 2022).

Kolstad et al. (1990).

Kolstad, C. D., Ulen, T. S., & Johnson, G. V. (1990). Ex post liability for harm vs. ex ante safety regulation: substitutes or complements?. *The American Economic Review*, 80, 888-901.

Kornhauser & Revesz 1990

Kornhauser, L. A. & Revesz, R. L. (1990). Apportioning Damages Among Potentially Insolvent Actors, *Journal of Legal Studies*, 19(S2), 617-651.

Kornhauser & Revesz 1994

Kornhauser, L. A., & Revesz, R. L. (1994). Multidefendant settlements: The impact of joint and several liability. *The Journal of Legal Studies*, 23(1), 41-76.

Kornhauser & Revesz 1998

Kornhauser, L. A., & Revesz, R. L. (1998). Joint and several liability. In *Encyclopedia of Law and Economics*. Edward Elgar Publishing Limited.

Kornhauser & Revesz 2018

Kornhauser, L. A., & Revesz, R. L. (2018). Sharing damages among multiple tortfeasors. In *Economics and Liability for Environmental Problems* (pp. 245-298). Routledge.

Kossof 2014

Kossof, P. (2014). *Chinese Legal Research*. Durham, NV, USA: Carolina Academic Press.

Koziol 1998

Koziol, H. (ed) (1998). *Unification of Tort Law: Wrongfulness. Principles of European Tort Law*, vol. 3. The Hague/London/Boston: Kluwer Law International.

Kunreuther & Freeman 2001

Kunreuther, H. & Freeman, P. (2001). Insurability, environmental risks and the law, in: Heyes, A. (ed.), *The Law and Economics of the Environment*. 302-318.

Kunzelman 2012

Kunzelman, M. (April 26, 2012). *Federal judge hears details of Gulf oil spill settlement*, Tampa Bay Times, available at <https://www.tampabay.com/incoming/federal-judge-hears-details-of-gulf-oil-spill-settlement/1226968/> (accessed on March 16, 2022).

Kuo 2012

Kuo, V. (January 27, 2012). Judge clears Transocean of some damages in Deepwater Horizon spill, CNN, available at <https://edition.cnn.com/2012/01/26/us/louisiana-transocean-ruling/index.html> (accessed on April 9, 2022).

L

Laborde 1997

Laborde, A. J. (1997). *My Life and Times*. New Orleans, Louisiana: Laborde Print Company.

Laffont 2005

Laffont, J. J. (2005) *Regulation and Development*. Cambridge: Cambridge Univ. Press.

Landes & Posner 1984

Landes, W. & Posner, R. (1984). Tort law as a regulatory regime for catastrophic personal injuries, *Journal of Legal Studies*, 13(3), 417-434.

Laursen 2013

Laursen, W. (September 18, 2013). South China Sea offers opportunities and challenges, available at <https://www.offshore-mag.com/regional-reports/article/16761234/south-china-sea-offers-opportunities-challenges> (accessed on March 16, 2022).

Lei (雷杰淇) & Xue (薛柏成) 2016

Lei, J. & Xue B. (2016). Concurrence Between Occupational Insurance and Compensation Claim (论工伤保险与民事赔偿请求权的竞合), *Jiangxi Social Science* (江西社会科学), 1, 171-172.

Leng (冷翠华) 2013

Leng, C. (December 5, 2013). Three giant Chinese oil companies have founded their self-insurance subsidiaries (中石化自保公司落地香港“三桶油”皆成立自保公司), available at <http://finance.people.com.cn/insurance/n/2013/1205/c59941-23750588.html> (accessed on April 15, 2022).

Leng 2019a

Leng, S. (June 20, 2019). *China's economic census uncovers more fake data as officials promise 'zero tolerance' to data manipulation* (2019-06-20), South China Morning Post, available at <https://www.scmp.com/economy/china-economy/article/3015206/chinas-economic-census-undercovers-more-fake-data-officials> (accessed on March 16, 2022).

Leng 2019b

Leng, S. (October 25, 2019). *China plans to tackle fraudulent data with harsh new penalties for local leaders and the help of AI*, South China Morning Post, available at <https://www.scmp.com/economy/china-economy/article/3034617/china-plans-tackle-fraudulent-data-harsh-new-penalties-local> (accessed on March 16, 2022).

Lepic 2020

Lepic, B. (July 2, 2020). *Worldwide offshore rig count in June down 65 units year over, the database is from the Baker Hughes Report regarding the number of worldwide oil rigs*, Offshore Energy, available at <https://www.offshore-energy.biz/worldwide-offshore-rig-count-in-june-down-65-units-year-over-year/> (accessed on October 15, 2020).

Levine et al. 2012

Levine, D. I., Toffel, M. W., & Johnson, M. S. (2012). Randomized government safety inspections reduce worker injuries with no detectable job loss. *Science*, 336(6083), 907-911.

Lewis & Sappington 1999

Lewis, T. R., & Sappington, D. E. (1999). Using Decoupling and Deep Pockets to Mitigate Judgment-Proof Problems, *International Review of Law and Economics*, 19, 275–293.

Li (李楠) 2015

Li, D. (2015). *Environmental Public-Interest Litigation Observation Report* (环境公益诉讼观察报告). Beijing, China: Law Press (法律出版社).

Li (李国光) 2002

Li, G. (2002). *Understanding and Application of the Some Provisions of the Supreme People's Court on the Evidence in Civil Procedures* (最高人民法院《关于民事诉讼证据的若干规定》的理解与适用). Beijing, China: China Legal Publishing. (中国法制出版社).

Li (李禾) 2014

Li, H. (February 28, 2014). No Environmental Public Interest Lawsuits in 2013, (2013 年环境公益诉讼“挂空挡”), *Science and Technology Daily* (科技日报).

Li (李河清) 2020

Li, H. (2020). The performance of chemical and petroleum companies on safety operations and the corresponding measures 石油化工企业安全生产现状和措施研究, *Chemical Enterprise Management* (化工管理), 7, 197-198.

Li (李婧) 2015

Li, J. (October 30, 2015). *The court required the COPC to compensate the losses arising from the 2011 Bohai accident* (美国康菲公司子公司因油污事故被判赔偿), Supreme People's Court, available at <http://www.court.gov.cn/fabu-xiangqing-15889.html> (accessed on April 10, 2022).

Li (李文芳) 2012

Li, W. (November 39, 2012). *Establishing a powerful marine country and ensuring the safety of deepwater drilling platforms* (助力海洋强国建设, 保障深水钻井平台安全), *China Daily*, available at http://www.chinadaily.com.cn/dfpd/gd/bwzg/2012-11/30/content_15973203.htm (accessed on April 18, 2022).

Li 2013

Li, J. (2013). Suing the Leviathan – An Empirical Analysis of the Changing Rate of Administrative Litigation in China, *Journal of Empirical Legal Studies*, 10(4), 815-846.

Li 2017

Li, Lin (2017). *Building the Rule of Law in China*. Cambridge, MA, USA: Chandos Publishing.

Li 2010

Li, Ling (2010). *Corruption in China's courts, in Judicial Independence in China - Lessons for Global Rule of Law Promotion*, Randall Peerenboom (ed.), Cambridge University Press.

Li (李帅) 2017

Li, S. (2017). Judicial independent reform in terms of financial budget (财政法治视角下的司法预算独立性改革), *Journal of Northwest University of Political Science and Law* (法律科学(西北政法大学学报)), 35(01), 125-133.

Li (李天生) 2016

Li T. (2016). *A Study on Damage Compensation in the Marine Oil and Gas Development* (海洋油气开发污染损害赔偿研究), Peking, China: Law Press (法律出版社).

Li (李晓明) 2008

Li, X. (2008). Self-insurance: A Case Study on the Innovation of Risk Management of Chinese Oil Companies (自保: 中国石油企业风险管理创新与案例研究), *Journal of Gansu Finance*(甘肃金融), 5, 49-52.

Li et al. 2018

Li, Y., Kocken, J., & Van Rooij, B. (2018). Understanding China's Court Mediation Surge: Insights from a Local Court, *Law & Social Inquiry*, 43(1), 58-81.

Li (李攀萍) 2010

Li, Z. (2010). Analysis on the Strength, Weakness and Order Selection of Plaintiffs in China's Environmental Public-Interest Litigation (中国环境公益诉讼原告主体的优劣分析和顺序选择), *Hebei Law Science* (河北法学), 1, 21-25.

Liang (梁慧星) 2017

Liang, H. (2017). *General Introduction to Civil Law (5th)* (民法总论 (第五版)), Beijing, China: Law Press (法律出版社).

Liang (梁文莉) 2009

Liang, W. (2009). The Scope of Compensation for Environmental Damage (环境损害赔偿范围研究). *Journal of Political Science and Law* (政法学刊), 26(1), 51-55.

Liebman 2007

Liebman, B. L. (2007). China's courts: Restricted reform. *The China Quarterly*, 191, 620-638.

Liebman 2011

Liebman, B. L. (2011). A Return to Populist Legality? Historical Legacies and Legal Reform. In *Mao's Invisible Hand* (pp. 165–200), Sebastian Heilmann and Elizabeth J. Perry (ed.), Cambridge, MA: Harvard University Asia Center.

Lindøe et al. 2013

Lindøe, P. H., Baram, M., & Renn, O. (eds.) (2013). *Risk governance of offshore oil and gas operations*. Cambridge University Press.

Lioudis 2020

Lioudis, N. (February 11, 2020). *How Do Average Costs Compare Among Various Oil Drilling Rigs?* Investopedia, available at <https://www.investopedia.com/ask/answers/061115/how-do-average-costs-compare-different-types-oil-drilling-rigs.asp> (accessed on April 3, 2022).

Liu & Chik (2012)

Liu, C., & Chik, A.R.B. (2012). Reasons for insufficient demand of environmental liability insurance in China: a case study of Baoding, Hebei Province. *Asian Social Science*, 8, 201-204.

Liu (刘大卫) 2016

Liu, D. (2016). Research on Occupational Injury Insurance and the Testimony Traced by the Third Person Competition and Cooperation in Compensation (工伤保险与第三人侵权赔偿竞合问题循证研究), *Human Resources Development of China* (中国人力资源开发), 6, 94-98.

Liu 2013

Liu, J. (2013). *Compensating ecological damage: comparative and economic observations*. Intersentia.

Liu 2019

Liu J. (October 10, 2019). *China Steps Up Fight Against Fake Data*, Caixin News, available at <https://www.caixinglobal.com/2019-10-10/china-steps-up-fight-against-fake-data-101469653.html> (accessed on April 16, 2022).

Liu et al. 2014

Liu, J., Faure, M., & Wang, H. (2014). Compensating for natural resource damage caused by vessel-induced marine oil pollution: comparing the international, US, and Chinese regimes. *Journal of Environmental Law and Litigation*, 29, 123.

Liu (刘连生) & Shen (申河) 2015

Liu, L. & Shen, H. (2015). *Property Insurance (3rd)* (财产保险(第三版)), Peking, China: Higher Education Press (高等教育出版社).

Liu (刘伟) & Zhang (张蕾) 2020

Liu, W. & Zhang, L. (2020). Discussion on the strategy of safety inspection and management of offshore drilling equipment (探讨海洋石油钻井设备安全检查与管理的策略), *Journal of China Petroleum and Chemical Standards and Qualities* (中国石油和化工标准与质量), 40(3), 80-81.

Lv (吕林) 2013

Lv, Li. (2003). Occupational Injury Insurance and the Application of Civil Compensation (工伤保险与民事赔偿适用关系研究), *Studies in Law and Business* (法商研究), 3, 54-61.

Liu (刘临川) & Xiao (肖云) 2012

Liu L. & Xiao Y. (July 16, 2012), *How does China Develop the South China Sea* (中国在南海开发上的实际行动), available at <https://opinion.huanqiu.com/article/9CaKrnJweGC> (accessed on April 4, 2022).

Liu (刘葶) & Zhang (张玉珂) 2016

Liu, R. & Zhang, Y. (November 7, 2016). *Amendment to the MEPL: to remove the upper limit of the fine and to calculate the amount of the penalty proportionally* (海洋环境保护法修改: 30 万元罚款上限取消 按比例计罚), NPC People Online (人大新闻网), available at <http://npc.people.com.cn/n1/2016/11/07/c14576-28842258.html> (accessed on April 14, 2022).

Liu (刘宪阁) 2018

Liu X. (2018), *The reality behind the news: rethinking the report on Bohai II Accident* (渤海二号沉船事故报道之台前幕后). *The Journalism* (新闻界), 1, 48-53.

Lv (吕忠梅) 2005

Lv, Z. (2005). *Communication and Coordination: Civil Protection of Citizen's Environmental Right*. (沟通与协调之途:论公民环境权的民法保护), Beijing, China: China Remin University Press. (中国人民大学出版社)

Lv (吕忠梅) 2010

Lv, Z. (2010). *The Heredity And Variation of Environmental Torts: Systematic Development of Environmental Damage* (环境侵权的遗传与变异——论环境侵害的制度演进), *Jilin University Journal Social Sciences Edition* (吉林大学社会科学学报), 50(1), 124-133.

Lv (吕忠梅)&Zhang (张宝) 2010

Lv, Z. & Zhang B. (2010), *The Response and Limits of Tort Law regarding Environmental Issues——From the Perspective of Article 65 of Tort Law* (环境问题的侵权法应对及其限度——以《侵权责任法》第 65 条为视角), *Journal of South-Central Minzu University (Humanities and Social Sciences)* (中南民族大学学报(人文社会科学版)), 31(02), 106-112.

Lubman 1967

Lubman, S. (1967), *Mao and Mediation: Politics and Dispute Resolution in Communist China*, *California Law Review*, 55, 1284 -1325.

M

Ma 2011

Ma, J. (July 20, 2011). *Transparency Test in the Bohai Sea*, *China Dialogue*, available at <https://chinadialogue.net/en/pollution/4418-transparency-test-in-the-bohai-sea/> (accessed on August 18, 2020).

Ma (马淑亚) et al. 2017

Ma, S., Yin, S. & Wang, B. (April 23, 2017). *How to Manage and Make Use of the Compensation payment through EPIL* (环境公益诉讼赔偿款项如何管理使用), *Procuratorate Daily* (检察日报), available at https://www.spp.gov.cn/llyj/201704/t20170423_188761.shtml (accessed on April 15, 2022).

Ma et al. 2019a

Ma, K., Li, A., Guo, S., Pang, J., Xue, Y. & Zhou, Z. (2019). *Techniques for improving the water flooding of oil fields during the high water-cut stage*, *Oil & Gas Science and Technology—Revue d'IFP Energies Nouvelles*, 74, 69.

Ma et al. 2019b

Ma, M., Tam, V. W., Huang, Z., Sing, M. C., & Shen, L. (2019). *Evaluation of workplace safety performance in the Chinese petroleum industry*. *Organization, Technology and Management in Construction: an International Journal*, 11(1), 1904-1910.

Ma (马英娟) 2013

Ma, Y. (2013). *Continued the Discussion On the Judgment of the Hierarchy of Laws Made by the National People's Congress and Its Standing Committee: From the Perspective of the Case of Jiahai Liu Suing the Traffic Police Department on Administrative Penalty* (再论全国人大法律与全国人大常委会法律的位阶判断——从刘家海诉交警部门行政处罚案切入). *Journal of the East China University of Politics Science and Law* (华东政法大学学报), 4(3), 76-96.

Ma (马英) et al. 1996

Ma Y., Li Z. & Zhang F. (1996). *Strengthening the coastal environmental monitoring for the continuous development of the coastal economy 加强近岸海域环境监测保证海洋经济持续发展*. *Marine Environmental Science 海洋环境科学*, 15 (2), 57-61.

Macfarlane et al 2003

Macfarlane, J., *et al.* (eds) (2003). *Dispute Resolution: Readings and Case Studies, 2nd*, Toronto: Emond Montgomery.

Maitland 2011

Maitland, G. (2011). *Offshore Oil and Gas in the UK-an independent review of the regulatory regime*. Department of Energy & Climate Change, Imperial College, London.

Marchand 2017

Marchand, P. (2017). The International Law Regarding Ship-Source Pollution Liability and Compensation: Evolution and Current Challenges. In *International Oil Spill Conference Proceedings* (No. 1, pp. 193-210). International Oil Spill Conference.

Maritime Executive 2011

Maritime Executive (July 13, 2011), Another Oil Leak off China Coast Halts Drilling Operations, available at <https://www.maritime-executive.com/article/another-oil-leak-off-china-s-coast-halts-drilling-operations> (accessed on April 9, 2022).

Maritime Executive 2018

Maritime Executive (July 5, 2018). July 6, 1988: The Piper Alpha Disaster, available at <https://www.maritime-executive.com/article/july-6-1988-the-piper-alpha-disaster> (accessed on April 9, 2022).

McAllister *et al.* 2010

McAllister, L. K., Van Rooij, B., & Kagan, R. A. (2010). Reorienting regulation: pollution enforcement in industrializing countries. *Law & Policy*, 32(1), 1-13.

McDonell 2012

McDonell, C. (2012), Comment. The Gulf Coast Claims Facility and the Deepwater Horizon Litigation: Judicial Regulation of Private Compensation Schemes, *Stanford Law Review*. 64 (3), 766.

McElwee 2011

McElwee, C. (2011). *Environmental Law in China: Mitigating Risk and Ensuring Compliance*. Oxford, UK: Oxford University Press.

McKenzie 2010

McKenzie, D. (2010). *Dealing with risk in offshore drilling*, *Standard Bulletin: Offshore Special Edition*, 5-11, available at <https://www.standard-club.com/fileadmin/uploads/standardclub/Documents/Import/publications/bulletins/2010/54-049-StandardBulletinOffshoreSpecialedition14October2010.pdf> (accessed on April 4, 2022).

Melina 2010

Melina, R. (May 28, 2010). *Why is offshore drilling so dangerous?* Planet Earth, available at <https://www.livescience.com/32614-why-is-offshore-drilling-so-dangerous.html> (accessed on April 4, 2022).

Mencken 1982

Mencken, H. L. (1982). *A Mencken chrestomathy*. Vintage.

Miao (苗丰民)& Guan (关道明)

Miao, F. & Guan, D. (1996). Inquire into management of dumping area for the prevention of marine pollution (对排海污染物实行“纳污区”管理探讨), *Marine Environmental Science* (海洋环境科学), 15 (2), 1-5.

Ministry of Ecology and Environment 2018

Ministry of Ecology and Environment of the PRC (November 29, 2019), Bulletin of Marine Ecology and Environment Status of China in 2018, available at <https://english.mee.gov.cn/Resources/Reports/bomeaesoc/201911/P020191129369234962072.pdf> (accessed on April 8, 2022).

Ministry of Ecology and Environment 2019

Ministry of Ecology and Environment of the PRC (December 25, 2020), Bulletin of Marine Ecology and Environment Status of China in 2019, available at <https://english.mee.gov.cn/Resources/Reports/bomeaesoc/202012/P020201225370164112761.pdf> (accessed on April 8, 2022).

Ministry of Ecology and Environment 2020

Ministry of Ecology and Environment of the PRC (March 28, 2022), Bulletin of Marine Ecology and Environment Status of China in 2019, available at <https://english.mee.gov.cn/Resources/Reports/bomeaesoc/202203/P02022032861122958024.pdf> (accessed on April 8, 2022).

Ministry of Land and Resources 2011

Ministry of Land and Resources of the PRC (October 11, 2011), China had 41 accidents of marine pollution in the past five years, available at http://www.gov.cn/jrzq/2011-10/11/content_1965813.htm (accessed on April 8, 2022).

Minzner 2009

Minzner, C. F. (2009). Judicial Disciplinary Systems for Incorrectly Decided Cases: The Imperial Chinese Heritage Lives On, *New Mexico Law Review*, 39, 63-67.

Mitchell 1980

Mitchell, S., (1980). Dispute Settlement in China. A.S.I.L.S. *International Law Journal*, 4, 71-90.

Miyazaki et al. 2005

Miyazaki, N., Adeel, Z., Ohwada, K. (2005). *Mankind and the Oceans: Water Resources Management and Policy*, Tokyo, Japan: United Nation University Press.

Mohan 2017

Mohan, A. (2017). Risk Management in Offshore Construction, *International Journal of Engineering Technology Science and Research*, 4, 1163-1171.

Monti 2001

Monti, A. (2001). Environmental Risk: a Comparative Law and Economics Approach to Liability and Insurance, *European Review of Private Law*, 9(1), 65.

Moum et al. 2007

Moum, J. N., Klymak, J. M., Nash, J. D., Perlin, A., & Smyth, W. D. (2007). Energy transport by nonlinear internal waves. *Journal of Physical Oceanography*, 37(7), 1968-1988.

Murphy 2017

Murphy, T. (May, 2017). *The role of food in hospitals*. HealthCare CAN, Canada, available at https://www.healthcarecan.ca/wp-content/themes/camyno/assets/document/Reports/2017/HCC/EN/RoleofFood_FinancialEN.pdf (accessed on April 4, 2022).

Mushalik 2015

Mushalik, M. (June 10, 2015). *China's Offshore Oil and Gas Production Started to Peak in 2010*. Crude Oil Peak, available at <https://www.resilience.org/stories/2015-06-10/china-s-offshore-cnooc-started-to-peak-in-2010> (accessed on April 4, 2022).

N

Nathan 2003

Nathan, A. J. (2003). Authoritarian Resilience, *Journal of Democracy*, 14, 6–17.

NOAA 1992

National Oceanic and Atmospheric Administration (1992). *Summaries of significant U.S. and international Spills from 1967-1991*, available at https://response.restoration.noaa.gov/sites/default/files/Oil_Spill_Case_Histories.pdf (accessed on April 9, 2022).

NOAA 2010

National Oceanic and Atmospheric Administration (July 27, 2010), Deepwater Horizon- Gulf of Mexico, Incident News, available at <https://incidentnews.noaa.gov/incident/8220> (accessed on April 9, 2022)

NOAA 2014

National Oceanic and Atmospheric Administration (March 19, 2014). After the Big Spill, What Happened to the Ship Exxon Valdez?, available at <https://response.restoration.noaa.gov/oil-and-chemical-spills/significant-incidents/exxon-valdez-oil-spill/after-big-spill-what-happened-s> (accessed on April 4, 2022).

NOIA

National Ocean Industries Association of the United States (NOIA). The basis of offshore oil and gas, available at <https://www.noia.org/basics-offshore-oil-gas/> (accessed on April 7, 2022).

NPC (全国人民代表大会) 2016

National People's Congress (March 16, 2016), *The 13th Five-Year Plan for the National Economic and Social Development of the People's Republic of China* (中华人民共和国国民经济和社会发展第十三个五年规划纲要).

NPC (全国人民代表大会) 2011

National People's Congress (Mar 16, 2011), *The 12th Five-Year Plan for the National Economic and Social Development of the People's Republic of China* (中华人民共和国国民经济和社会发展第十二个五年规划纲要).

NPC (全国人民代表大会) 2006

National People's Congress (Mar 14, 2006), *The 11th Five-Year Plan for the National Economic and Social Development of the People's Republic of China* (中华人民共和国国民经济和社会发展第十一个五年规划纲要).

Ning (宁立林) 2014

Ning, L. (2014), The Application of Laws Regarding Compensation for Occupational Injury in China (我国工伤损害赔偿的法律适用探析), *Qinghai Social Science* (青海社会科学), 2, 11-114.

Zheng (郑祎华) & Yu (于明震) 2012

Zheng, Y. & Yu, M. (2012). Property Insurance (财产保险), Peking, China, Tsinghua University Press (清华大学出版社).

Niu (牛清波) 2020

Niu, Q. (2020). The study on the HSE system and safety culture in the petroleum industry (探索 HSE 管理体系与石油安全文化), *Chemical Enterprise Management* (化工管理), 8, 81-82.

O

O'Brien & Li 2004

O'Brien, K. J., & Li, L. (2004). Suing the local state: administrative litigation in rural China. *The China Journal*, (51), 75-96.

Offshore Energy 2019

Offshore Energy (January 2, 2019). S&P Ratings: Offshore rig rates to remain low till 2021, available at <https://www.offshore-energy.biz/sp-ratings-offshore-rig-rates-to-remain-low-till-2021/> (accessed on April 4, 2022).

Offshore Technology 2014

Offshore technology (September 8, 2014). Penglai 19-3 Oilfield Bohai Bay, available at <https://www.offshore-technology.com/projects/penglai-19-3-oilfield-bohai-bay/> (accessed on April 10, 2022).

Offshore technology 2019

Offshore technology (June 1, 2019). The world's worst offshore oil rig disasters, available at <https://www.offshore-technology.com/features/feature-the-worlds-deadliest-offshore-oil-rig-disasters-4149812/> (accessed on April 4, 2022).

Offshore Energy Today 2018

Offshore Energy Today (December 18, 2018). Offshore Energy Today, the CNOOC enters into cooperation agreements with nine oil majors, available at <https://www.offshoreenergytoday.com/cnooc-enters-into-cooperation-agreements-with-nine-oil-majors/> (accessed on April 4, 2022).

Oil & Gas UK 2011

Oil & Gas UK (November 2011), *Guidelines to assist licensees in demonstrating Financial Responsibility to DECC for the consent of Exploration & Appraisal Wells in the UKCS*, Issue 1.

Olson 1965

Olson, M. (1965). Some Social and Political Implications of Economic Development. *World Politics*, 17(3), 525-554.

O'May & Hill 1993

O'May, D., & Hill, J. (1993). *Marine Insurance: Law and Policy*, London, the UK: Sweet & Maxwell.

Ostrom & Ostrom 2019

Ostrom, V., & Ostrom, E. (2019). *Public goods and public choices*. Routledge.

Outreville 1998

Outreville, J. F. (1998). Retention, Self-Insurance, Captive Insurance Companies. In *Theory and Practice of Insurance* (pp. 179-196). Springer, Boston, MA.

Owyang & Shell 2017

Owyang, M. T., & Shell, H. (2017). China's economic data: an accurate reflection, or just smoke and mirrors? *The Regional Economist*, 25(2), 1108-1117.

Ozcayir 1998

Ozcayir, Z. O. (1998), *Liability for Oil Pollution and Collisions*, London, The UK: Lloyds of London Press.

P**Pagnamenta 2010**

Pagnamenta, R. (May 26, 2010). *Lloyd's syndicates launch legal action over BP insurance claim*, Locke Lord InsureReinsure.

<https://www.insurereinsure.com/2010/06/01/lloyds-syndicates-file-declaratory-judgment-action-against-bp/> (accessed on April 5, 2021).

Pan (潘斌) & Gao (高捷) 2003

Pan B. & Gao J. (2003), On the Necessity for Establishing Legal System for Moving Drilling Platform (试论建立移动式钻井平台法律体系的必要性), *China Offshore Platform* (中国海洋平台), 18 (04), 1-5.

Pardolesi & Tassone 2007

Pardolesi, R., & Tassone, B. (2007). Guido Calabresi on Torts: Italian Courts and the cheapest cost avoider. *Erasmus Law Review*, 1, 7-40.

Parion 2017

Parion, A. (April 25, 2017). *Provinces and Administrative Divisions of China*, World Atlas, available at <https://www.worldatlas.com/articles/provinces-and-administrative-divisions-of-china.html> (accessed on April 5, 2020).

Peeters et al. 2016

Peeters, M., Chen, H., & Li, Z. (2016). Contrasting emission trading in the EU and China: An exploration of the role of the courts. *Climate Law*, 6(1-2), 197-226.

Pei 1997

Pei, M. (1997). Citizens v. Mandarins: Administrative Litigation in China, *China Quarterly*, 152, 832-862.

Perkovich 1996

Perkovich R. (1996). A Comparative Analysis of Community Mediation in the United States and the People's Republic of China, *Temple International and Comparative Law Journal*, 10, 313.

Philipsen 2018

Philipsen, N. (2018). The role of private actors in preventing work-related risks: A law and economics perspective. *European Public Law*, 24 (3), 539.

Polborn 1998

Polborn, M. K. (1998). Mandatory insurance and the judgment-proof problem. *International Review of Law and Economics*, 18(2), 141-146.

Posner 2004

Posner, R. A. (2004). *Frontiers of legal theory*. Harvard University Press.

Potter 1994

Potter, P. (1994). The Administrative Litigation Law of the PRC: Judicial Review and Bureaucratic Reform, in Pitman Potter (ed.), *Domestic Law Reforms in Post-Mao China*. Armonk, NY: M.E. Sharpe.

Priest 1987

Priest, G. (1987). The current insurance crisis and modern tort law, *Yale Law Journal*, 96, 1521-1590.

Q**Qi 2018**

Qi, G. (2018). Public Interest Litigation' in China: Panacea or Placebo for Environmental Protection? *China: An International Journal*. 16(4), 47-75.

Qian (钱程) 2012

Qian, C. (2012). Oil Spill in Oceans is becoming a Big Threat to Environmental Safety, *World Environment*, (6), available at http://www.chinaeol.net/zyzx/sjhjzz/zlzm/rdgz/201208/t20120822_536067.shtml (accessed on April 7, 2022).

Qian (钱巨丰) 2007

Qian, J. (2007), *Research of safety production in offshore oil field* (海洋石油领域安全生产研究), The master thesis of Tianjin University (天津大学硕士学位论文).

Qiao (乔刚) 2013

Qiao, G. (2013), A Study on the Proper Plaintiff of Environmental Public Interest Litigation (论环境民事公益诉讼的适格原告), *Journal of Political Science and Law* (政法论丛), 5, 71-77.

Qu et al. 2016

Qu, Qunzhen, Tsai, S., Tang, M., Xu, C. & Dong, W. (2016). Marine ecological environment management based on ecological compensation mechanisms. *Sustainability*, 8 (12), 1267.

R

Rani 2021

Rani, A. (June 25, 2021), *CNOOC fires up Lingshui 17-2 ultra-deepwater gas field in China*, Offshore Technology, available at <https://www.offshore-technology.com/news/cnooc-lingshui-17-2-china/> (accessed on April 10, 2022)

Rave 2013

Rave, D. T. (2013). Governing the Anticommons in Aggregate Litigation. *Vanderbilt Law Review*, 66, 1183.

Rebeyrol 2013

Rebeyrol, V. (2013). The Erika Case: an Incitement to Rewrite the CLC. *European Energy and Environmental Law Review*, 22(1), 33-43.

Regan 1972

Regan, D. H. (1972). The problem of social cost revisited. *The Journal of Law and Economics*, 15(2), 427-437.

Reuters 2011

Reuters (October 25, 2011). CNOOC says Bohai Bay oil spill sources all sealed, available at <https://www.reuters.com/article/us-china-bohai-sea-oil-leak-idUSTRE79O05U20111025> (accessed on April 9, 2022).

Reuters 2014

Reuters (September 2, 2014). Halliburton to settle U.S. Gulf spill claims for \$1.1 billion, available at <https://www.reuters.com/article/us-halliburton-settlement-macondo-idUSKBN0GX1DT20140902> (accessed on April 9, 2022).

RMI Maritime Administrator 2011

Republic of the Marshall Islands Maritime Administrator (Aug 17, 2011). *Deepwater Horizon Marine Casualty Investigation Report*, IMO Number: 8764597, available at https://www.dco.uscg.mil/Portals/9/OCSNCOE/Casualty-Information/DWH-Macondo/RMI/RMI-DWH-Investigation-Report.pdf?ver=NevX46GkE_uCzLD2mRvuEg%3D%3D (accessed on April 5, 2022).

Robertson & Krauss 2010

Robertson, C., & Krauss, C. (Aug 02, 2010). *Gulf Spill Is the Largest of Its Kind, Scientists Say*. The New York Times, available at <https://www.nytimes.com/2010/08/03/us/03spill.html> (accessed on April 5, 2022).

Rose-Ackerman 1996

Rose-Ackerman, S. (1996). Public Law versus Private Law in Environmental Regulation: European Union Proposals in the Light of United States and German Experiences. In Eide, E. & Van den Bergh, R. (eds.), *Law and Economics of the Environment* (pp. 13-39). Oslo : Juridisk Forlag.

Ru (汝庆辉) 2019

Ru, Q. (2019). A safety management strategy of chemical and petroleum companies 石油化工企业安全生产管理策略, *Chemical Engineering Design Communications*(化工设计通讯), 45(12), 27-28.

S

Sadeghi et al. 2015

Sadeghi, L., Mathieu, L., Tricot, N., & Al Bassit, L. (2015). Developing a safety indicator to measure the safety level during design for safety. *Safety Science*, 80, 252-263.

Saich 2010

Saich, T. (2010). *Governance and politics of China*, Macmillan International Higher Education.

Samuelson 1998

Samuelson, W. F. (1998). Settlements out of court: Efficiency and equity. *Group Decision and Negotiation*, 7(2),

157-177.

Samuelson 2014

Samuelson, W. (2014). A Game-Theoretic Approach to Legal Settlements. In Chatterjee, K., & Samuelson, W. (Eds.), *Game Theory and Business Applications* (pp. 207-231). Springer, Boston, MA.

Sanchez-Graells 2016

Sanchez-Graells, A. (2016), Economic Analysis of Law, or Economically-Informed Legal Research. *Forthcoming in Dawn Watkins and Mandy Burton (eds), Research Methods in Law*, 2nd ed. (Routledge, 2017).

Schäfer & Müller-Langer 2009

Schäfer, H. B., & Müller-Langer, F. (2009). Strict liability versus negligence. In *Encyclopedia of Law and Economics*. Edward Elgar Publishing Limited.

Schoenbrod 1983

Schoenbrod, D. (1983). Limits and dangers of environmental mediation: review essay, *New York University Law Review*, 58(6), 1453-1477.

Schwartz 2003

Schwartz, J. (2003), The Impact of State Capacity on Enforcement of Environmental Policies: The Case of China, *Journal of Environmental & Development*, 12(1), 50-81.

Sen 1977

Sen, A. K. (1977). Rational fools: A critique of the behavioral foundations of economic theory. *Philosophy & Public Affairs*, 6(4), 317-344.

Shannon 2010

Shannon, R. (April 3, 2010). *Rig incident list of Offshore drilling disasters*. Beaver County Blue, available at <https://beavercountyblue.org/2010/04/03/offshore-drilling-disasters/> (accessed on April 9, 2022).

Shao et al. 2019

Shao, B., Hu, Z., Liu, Q., Chen, S., & He, W. (2019). Fatal accident patterns of building construction activities in China. *Safety science*, 111, 253-263.

Sharp 2008

Sharp, D. W. (2008). Upstream & Offshore Energy. Witherbys Insurance.

Shavell 1979a

Shavell, S. (1979). On moral hazard and insurance, *Quarterly Journal of Economics*, 93(4), 541-562.

Shavell 1979b

Shavell, S. (1979). Risk Sharing and Incentives in the Principal and Agent Relationship, *The Bell Journal of Economics*, 10, 55-73.

Shavell 1980

Shavell, S. (1980). Strict liability versus negligence. *Journal of Legal Studies*, 9(1), 1.

Shavell 1982

Shavell, S. (1982). On Liability and Insurance, *The Bell Journal of Economics*, 13, 120-132.

Shavell 1984a

Shavell, S. (1984). Liability for Harm versus Regulation of Safety, *Journal of Legal Studies*, 13, 357-374.

Shavell 1984b

Shavell, S. (1984). A Model of the Optimal Use of Liability and Safety Regulation, *The Rand Journal of Economics*, 15, 271-280.

Shavell 1986

Shavell, S. (1986). The Judgment Proof Problem, *International Review of Law and Economics*, 6(1), 43-58.

Shavell 1987

Shavell, S. (1987). *Economic analysis of accident law*, Cambridge, Harvard University Press.

Shavell 2000

Shavell, S. (2000). On the social function and the regulation of liability insurance. *The Geneva Papers on Risk and Insurance. Issues and Practice*, 25(2), 166-179.

Shavell 2004

Shavell, S. (2004), *Foundations of economic analysis of law*. Cambridge, Harvard University Press.

Shen (沈彬) 2013

Shen, B. (March 29, 2013), The tendency of ignoring the cases regarding sensitive topics should be criticized (敏感案件不立案, 如此特色不要也罢). Xinhua Daily Telegraph (新华每日电讯), available at <https://opinion.huanqiu.com/article/9CaKrnJzR3k> (accessed on April 5, 2022).

Shigenaka 2011

Shigenaka, G. (2011). *Effects of oil in the environment. Oil Spill Science and Technology*. Houston, Texas, the U.S.: Professional Publishing.

Shinn 2019

Shinn, D. C. (2019-07-02), The offshore rig market should love China's energy independence policy, Bassoe Offshore, available at <https://www.bassoe.no/the-offshore-rig-market-should-love-china-s-energy-independence-policy/news/147/#:~:text=With%20nearly%2060%20of%20rigs,out%20of%20the%20global%20market> (accessed on April 5, 2022).

Shleifer & Vishny 1998

Shleifer, A. & Vishny, R. (1998) *The Grabbing Hand: Government Pathologies and Their Cures*, Cambridge, MA: Harvard University Press.

Shoffman 2014

Shoffman, M. (November 10, 2014). Some food for thought on NHS costs - should we be asked to pay for hospital meals?, available at <https://www.thisismoney.co.uk/money/comment/article-2811000/MARC-SHOFFMAN-asked-pay-hospital-meals.html> (accessed on April 14, 2022).

Si (司玉琢) 2018

Si, Y. (2018), *Maritime Law (4th)* (海商法 (第四版)), Peking, China: Law Press (法律出版社).

Silver & Baker 1997

Silver, C., & Baker, L. A. (1997). Mass lawsuits and the aggregate settlement rule. *Wake Forest Law Review*, 32, 733.

Simon et al. 2016

Simon, T. W., Feng, C., & Nelson, L. P. (2016). *China's Changing Legal System: Lawyers & Judges on Civil & Criminal Law*. Springer.

Sinelnikov et al. 2015

Sinelnikov, S., Inouye, J., & Kerper, S. (2015). Using leading indicators to measure occupational health and safety performance. *Safety science*, 72, 240-248.

Singh 2019

Singh, B. (April 17, 2019), *Types Of Mobile Offshore Drilling Units (MODU)*. Marine Insight, available at <https://www.marineinsight.com/offshore/basics-of-offshore-drilling-types-of-mobile-drilling-units/> (accessed on April 5, 2022).

Skogh 2000

Skogh, G. (2000), Mandatory Insurance: Transaction Costs Analysis of Insurance. In Bouckaert, B. & De Geest, G. (eds.), *Encyclopedia of Law and Economics* (pp.521-537), Cheltenham, Edward Elgar.

Smith et al. 2011

Smith, L.C. & Smith, M. & Ashcroft, P.A. (2011). Analysis of environmental and economic damages from British Petroleum's Deepwater Horizon oil spill. *Albany Law Review*. 74, 563-585.

SOA (国家海洋局) 2011

State Oceanic Administration (July 5, 2011). The Initial Report of the Penglai 19-3 oil spill accident (国家海洋局公布蓬莱 19-3 油田溢油事故调查情况报告), available at http://www.gov.cn/gzdt/2011-07/05/content_189673.htm (accessed on April 3, 2022).

SOA (国家海洋局) 2012

State Oceanic Administration (June 21, 2012). The Investigation Report concerning the Causes of the Penglai 19-3 oil spill accident (蓬莱 19-3 油田溢油事故调查处理报告发布), available at <http://news.sohu.com/20120621/n346260856.shtml> (accessed on April 3, 2022).

Sönnichsen 2020

Sönnichsen, N. (June 24, 2020). Number of oil and gas rigs by world region May 2020, Statista, available at <https://www.statista.com/statistics/326727/global-gas-and-oil-rig-numbers-by-region/> (accessed on April 5, 2022).

SPC (最高人民法院) 2015

Supreme People's Court of the PRC (December 29, 2015). SPC's Ten Model Cases on Environmental Tort as of 2015 (最高人民法院发布 2015 年十大环境侵权典型案例), available at <https://www.court.gov.cn/zixun-xiangqing-16396.html> (accessed on April 6, 2022).

SPC (最高人民法院) 2017a

Supreme People's Court of the PRC (July 13, 2017). *Environmental and Resources Adjudication in China* (中国环境资源审判(2016-2017)), White Paper (白皮书), available at <http://wej.court.gov.cn/news/view-44.html> (accessed on April 6, 2022).

SPC (最高人民法院) 2017b

Supreme People's Court of the PRC (June 22, 2017). SPC'S Ten Model Cases on Environmental Criminal, Civil and Administrative Trial Work as of 2017 (最高法公布环境资源行政、刑事、民事十大典型案例), available at <https://www.court.gov.cn/zixun-xiangqing-48782.html> (accessed on April 6, 2022).

Speight 2015

Speight, J. G. (2015). Chapter 3-Offshore Platforms. In *Subsea and Deepwater Oil and Gas Science and Technology* (pp.71-106). Boston: Gulf Professional Publishing.

Spier 1998

Spier, J. (1998). *The Limits of Expanding Liability: eight fundamental cases in a comparative perspective*. Springer.

State Council (国务院) 1989

State Council (1989). Decision of the State Council on Handling the "Bohai-II Shipwreck Accident (国务院关于处理“渤海 2 号”事故的决定), *Labour Protection* (劳动保护), 9.

State Council (国务院) 2006

State Council of the PRC (June 15, 2006). *Opinions on the Reform and Development of the Insurance Company* (国务院关于保险业改革发展的若干意见).

State Council (国务院) 2015

State Council of the PRC (December 3, 2015). *The Pilot Program of Reforming the Legal System of Compensating Ecological Damage* (生态环境损害赔偿制度改革试点方案).

State Council (国务院) 2017

State Council of the PRC (December 17, 2017). *The Program of Reforming the Legal System of Compensating Ecological Damage* (生态环境损害赔偿制度改革方案).

State Council (国务院) 2019

State Council (August 27, 2019). The press conference of the Ministry of Emergency Management of PRC concerning the publication of 'Specifications for accidents prevention technical service on work safety liability insurance' (应急管理部就《安全生产责任保险事故预防技术服务规范》举行发布会), available at http://www.gov.cn/xinwen/2019-08/27/content_5424991.htm (accessed on April 15, 2022).

State Council (国务院) 2021

State Council of the PRC (October 21, 2021). *The State Council's special report on the management of state-owned natural resources as of 2020* (国务院关于 2020 年度国有自然资源资产管理情况的专项报告), available at <http://www.npc.gov.cn/npc/c30834/202111/6db6f1855c1a46a98783054265f7968f.shtml> (accessed on April 5, 2022).

Stein 1979

Stein, L. A. (1979). The Theoretical Bases of Locus Standi. In Stein, L.A., *Locus Standi*, 3. The Law Book Company Limited.

Stempel 2012

Stempel, J. (February 23, 2012). BP, Anadarko liable for U.S. spill damages, Reuters, available at <https://www.reuters.com/article/us-bp-oilspill-ruling-idUSTRE81L2C620120223> (accessed on April 6, 2022).

Stone 2001

Stone, A. (2001). Pollution insurance growing in popularity. *Philadelphia Business Journal*, 5, available at <https://www.bizjournals.com/philadelphia/stories/2001/11/05/focus4.html> (accessed on April 6, 2022).

Stolberg 2010

Stolberg, S.G. (June 16, 2010). Administering Fund, a Master Mediator. *The New York Times*, available at <https://www.nytimes.com/2010/06/17/us/17feinberg.html> (accessed on April 6, 2022).

Su & He 2010

Su, Y., & He, X. (2010). Street as Courtroom: State Accommodation of Labor Protest in South China. *Law & Society Review*, 44, 157-184.

Suarez-Cebador et al. 2015

Suarez-Cebador, M., Rubio-Romero, J.C., Carrillo-Castrillo, J.A., Lopez-Arquillos, A. (2015). A decade of occupational accidents in Andalusian (Spain) public universities. *Safety Science*. 80, 23–32.

T

Talbot 1983

Talbot, A. R. (1983). *Settling things: Six case studies in environmental mediation*. Washington, DC: Conservation Foundation.

Tam et al. 2004

Tam, C. M., Zeng, S. X., & Deng, Z. M. (2004). Identifying elements of poor construction safety management in China. *Safety science*, 42(7), 569-586.

Tan (谭世贵) 2004

Tan, S. (2004). *Analysis of judicial independence* (司法独立问题研究), Peking, China: Law Press (法律出版社).

Tang (唐璜) 2018

Tang, T. (2018). Logical Reconstruction of the Remedies for Environmental Damage- From ‘Right-oriented Relief’ to ‘Legal-interest Relief’ (环境损害救济的逻辑重构——从“权利救济”到“法益救济”的嬗变), *Law Review* (法律评论), 5, 125-137.

Taplin 2018

Taplin, N. (January 10, 2018). *Real News on Fake Data in China*, *The Wall Street Journal*, available at <https://www.wsj.com/articles/real-news-on-fake-data-in-china-1515573859> (accessed on April 18, 2022).

Telegraph 2010

Telegraph (Aug 03, 2010). BP leaks the world's worst accidental oil spill, *The Daily Telegraph*, available at <https://www.telegraph.co.uk/finance/newsbysector/energy/oilandgas/7924009/BP-leak-the-worlds-worst-accidenta-i-oil-spill.html> (accessed on April 6, 2022).

Thayer 2016

Thayer, C.A. (2016). The Southeast Asia Claimant States, ASEAN, and the South China Sea Dispute, *National Asian Security Studies Program Issue Brief*. No.6.1, 1-10.

Thayer 2017

Thayer, C.A. (2017). Military Modernization and Capacity Building in the Philippines and Vietnam, *In the Wake of Arbitration, Papers from the Sixth Annual CSIS South China Sea Conference*, 1, 95-109.

Tietenberg 1989

Tietenberg, T. H. (1989). Indivisible toxic torts: the economics of joint and several liability, *Land economics*, 65(4), 305-319.

TIPS Committees & Task Forces 2006

Task Force on Contingent Fees of the American Bar Association's Tort Trial & Insurance Practice Section (2006). Contingent Fees in Mass Tort Litigation. *Tort Trial & Insurance Practice Law Journal*. 42(1), 105-164.

Tran 2016

Tran Truong Thuy (2016). Re-balancing Vietnam's South China Sea Challenges, *National Asian Security Studies Program Issue Brief*. No.2.3, 1-18.

Trebilcock & Winter 1997

Trebilcock, M. & Winter, R. (1997). The Economics of Nuclear Accident Law, *International Review of Law and Economics*, 17(2), 215-243.

Tu 2007

Tu, J. (2007). Coal mining safety: China's Achilles' heel. *China Security*, 3(2), 36-53.

Tuo (庾国柱) 2012

Tuo G. (2012). The improvement and development of Fishery Mutual Insurance in China (论我国渔业互保制度及其完善和发展), *Journal of Insurance Professional College* (保险职业学院学报), 26(1), 5-11.

U**United Morning Paper 2019**

United Morning Paper (April 15, 2019). The first Chinese self-made offshore platform successfully exploits oil in the South China Sea, Singapore, available at <http://www.unzbw.com/cngov/2019-04/1556244.html> (accessed on April 6, 2022).

UNCTAD 2012

United Nations Conference on Trade and Development (2012). *Liability and Compensation for Ship-Source Oil Pollution: An Overview of the International Legal Framework for Oil Pollution Damage from Tankers*, United Nations: New York and Geneva, available at https://unctad.org/en/PublicationsLibrary/ditlbt20114_en.pdf (accessed on April 6, 2022).

UK OSPRAG (2011)

U.K. Oil Spill Prevention and Response Advisory Group (September, 2011), *Strengthening UK Prevention and Response: Final Report*.

Umar 2019

Umar, A. (May 2, 2019). Top ten countries by oil production, Offshore Technology, available at <https://www.offshore-technology.com/features/oil-production-by-country/> (accessed on April 6, 2022).

V**Van Aaken 2005**

Van Aaken, A. (2005). *Making International Human Rights Protection more Effective: a Rational Choice Approach to the Effectiveness of Use Standi Provisions*, Max-Planck Institute for Research on Collective Goods, Preprint, No.16.

Van Boom 2004

Van Boom, W. H. (2004). Pure Economic Loss- A Comparative Perspective, In Van Boom, W. H., Koziol, H., & Witting, C. A. (eds.), *Pure Economic Loss* (pp.1-59), Wien/New York: Springer- Verlag.

Van Rooij 2003

Van Rooij, B. (2003). Organization and Procedure in Environmental Law Enforcement: Sichuan in Comparative Perspective, *China Information*, 17, 36-64.

Van Rooij 2006

Van Rooij, B. (2006). Implementation of Chinese Environmental Law: Regular Enforcement and Political Campaigns. *Development and Change*, 37(1), 57-74.

Van Rooij 2012

Van Rooij, B. (2012). The people's regulation: citizens and implementation of law in China. *Columbia Journal of Asian Law*, 25, 116.

Van Rooij et al. 2011

Van Rooij, B., Wainwright, A. L., Wu, Y., & Zhang, Y. (2011). The compensation trap: the limits of community-based pollution regulation in China. *Pace Environmental Law Review*, 29, ii, 703.

Villaluz 2017

Villaluz, K. (April 22, 2017), *Six Most Impressive Oil Platforms of the Seas*, Interesting Engineering, available at <https://interestingengineering.com/check-gigantic-oil-platforms-of-the-seas> (accessed on April 7, 2022)

Viscusi & Zeckhauser 2011

Viscusi, W. K., & Zeckhauser, R. J. (2011). Deterring and compensating oil-spill catastrophes: the need for strict and two-tier liability. *Vanderbilt Law Review*, 64, 1715.

Visscher 2009

Visscher, L. T. (2009). In: Faure, M. (ed.), *Tort Law and Economics. Encyclopedia of Law and Economics* (pp. 153-200). Cheltenham/Northampton: Edward Elgar.

W

Wagner 2009

Wagner, G. (2009), Tort Law and Liability Insurance. In Faure, M. (ed.), *Tort Law and Economics* (pp.377-402), Cheltenham/Northampton: Edward Elgar.

Wang 2018

Wang, J. (January 29, 2018). *Sanchi oil tanker disaster: how spills and accidents can make ships safer*. The Conversation, available at <https://theconversation.com/sanchi-oil-tanker-disaster-how-spills-and-accidents-can-make-ships-safer-90207> at (accessed on April 10, 2022).

Wang (王梦瑶) 2017

Wang M. (November 8, 2017). Fishermen from Tianjin would make an appeal against the COPC regarding the losses from the Bohai accident (天津 5 渔民诉康菲溢油索赔百万一审败诉 将继续上诉), The Beijing News, available at <https://www.chinanews.com.cn/sh/2017/11-08/8370982.shtml> (accessed on April 9, 2022).

Wang (王明远) 2001

Wang, M. (2001), *The Remedial System of Environmental Torts* 环境侵权救济法律制度, Beijing, China: China Legal Publishing House (中国法制出版社).

Wang (王利明) 2003

Wang, L. (2003), *A study on the behavioral models in tort law (2nd)* (侵权行为法归责原则研究). Beijing, China: China University of Political Science and Law Press (中国政法大学出版社).

Wang (王利明) 2010a

Wang, L. (2010), *Tort Liability Law* (侵权责任法). Beijing, China: Remin University Press (中国人民大学出版社).

Wang (王胜明) 2010b

Wang, S. (2010), *Interpretation of the Tort Law of People's Republic of China* (中华人民共和国侵权责任法解读). Beijing, China: Law Press of China (法律出版社).

Wang (王灿发) 2005

Wang, C. (2005), On Framework and Content of Legislation on Compensation for Environmental Damage (环境损害赔偿立法框架和内容的思考). *Legal Forum* (法学论坛), 5, 29-35.

Wang 2006

Wang, A. (2006), The Role of Law in Environmental Protection in China: Recent Developments, *Vermont Journal of Environmental Law*, 8, 195.

Wang (王罕) 2006

Wang, J. (2006), *Theory and Practice of Strict Liability in the tort law system* (侵权法上严格责任的原理和实践). Beijing, China: Law Press (法律出版社).

Wang (王旭) 2009

Wang, X. (2009), Comparison on Criteria of Impairment Evaluation and Their Forms of Compensation (伤残评定标准及赔偿方式的比较研究), *Evidence Science* (证据科学), 17(2), 250-256.

Wang (王轶) 2010

Wang, K. (2010), Discussion on the Recording of Normative Documents (论规范性文件的备案审查), *Zhejiang Social Science* (浙江社会科学), 11, 11-17.

Wang 2011

Wang, H. (2011), *Civil Liability for Marine Oil Pollution Damage: A Comparative and Economic Study of the International, US and Chinese Compensation Regime*. New York, USA: Wolters & Kluwer.

Wang 2016

Wang Z. (July 11, 2016), China and UNCLOS: An Inconvenient History, The Diplomat, available at <https://thediplomat.com/2016/07/china-and-unclos-an-inconvenient-history/> (accessed on April 6, 2022).

Wang (王禹川) 2016

Wang, Y. (2016), A study on the management of HSE systems in the chemical and petroleum companies (石油化工企业 HSE 体系化管理建设实践浅谈), *Petroleum Education* (石油教育), 2, 12-13.

Wang (王竹) 2017

Wang, Z. (2017), *Disputes over Tort Liability and Personality Rights* (侵权责任纠纷与人格权纠纷). Beijing, China: Peking University Press (北京大学出版社).

Wang (汪鹏南) 2017

Wang, P. (2017), *Discussion on the Contract Law Concerning Maritime Insurance (4th Edition)* (海上保险合同法详论 (第四版)). Dalian, China: Dalian Maritime University Press (大连海事大学出版社).

Wang (王勇) 2018a

Wang, Y. (March 13, 2018), *Report on the Institutional Reform of the State Council (at the third Session of the Thirteenth National People's Congress)* (在第十三届全国人民代表大会第一次会议关于国务院机构改革方案的说明). Xinhua News.

Wang (王冠) 2018b

Wang, G. (March 16, 2018), *China's Congress approves government reshuffle plan*. CGTV American Online, available at <https://america.cgtv.com/2018/03/16/chinas-congress-approves-government-reshuffle-plan> (accessed on April 6, 2022).

Wang (王泽鉴) 1998

Wang, Z. (1998), *The Study of Civil Law and Precedent (3rd)* (民法学说和判决研究), China University of Political Science and Law Press (中国政法大学出版社).

Wang (王灿发) & Cheng (程多威) 2005

Wang, C. & Cheng, D. (2014), The Predicament Faced by Environmental Public- Interest Litigation and Solutions Thereof under the New Environmental Protection Law (新《环境保护法》下环境公益诉讼面临的困境及其破解), *Journal of Law Application* (法律适用), 8, 46-51.

Wang & Mendelson 1996

Wang, K. H. & Mendelson, D. (1996), An Overview of Liability and Compensation for Personal Injury in China Under the General Principles of Civil Law. *Torts Law Journal*, 4(2), 1-36.

Wang & Trbojevic 2007

Wang, J., & Trbojevic, V. (2007). *Design for safety of marine and offshore systems*. Institute of Marine Engineering, Science and Technology.

Washington Post 2018

Washington Post (October 20, 2018), *A 14-year long oil spill in the Gulf of Mexico verges on becoming one of the worst in US history*, available at https://www.washingtonpost.com/national/health-science/a-14-year-long-oil-spill-in-the-gulf-of-mexico-verges-on-becoming-one-of-the-worst-in-us-history/2018/10/20/f9a66fd0-9045-11e8-bcd5-9d911c784c38_story.html (accessed on April 6, 2022).

Watts 2019

Watts, G. (October 18, 2019), *Fake figures cloud China's economic data*, Asia Times, available at <https://asiatimes.com/2019/10/fake-figures-could-cloud-chinas-economic-data/> (accessed on April 6, 2022).

Waye & Xiong 2011

Waye, V., & Xiong, P. (2011). The Relationship between Mediation and Judicial Proceedings in China, *Asian Journal of Comparative Law*, 6, 1-34.

Wei (魏华) & Hao (郝友楠) 2019

Wei, H. & Hao, Y. (2019), On the Types of Environmental Tort Behaviours (论环境侵权行为类型的类型化), *Journal of Bohai University (Philosophy & Social Science Edition)* (渤海大学学报(哲学社会科学版)), 41(01), 58-63.

Wei (韦经建) 1996

Wei, J. (1996). *Maritime Law* (海商法), Changchun, China: Jilin People's Press (吉林人民出版社).

Wei 1997

Wei, L. (1997), Judicial Interpretation in China. *Willamette Journal of International Law and Dispute Resolution*, 5, 87-112.

Wei (韦兴平) et al. 1995

Wei X., Guan D., & Zhan X. (1995), Some ideas to the marine environmental protection in China in the coming years (对今后我国海洋环境保护工作的几点设想), *Marine Environmental Science* (海洋环境科学), 15(3),

64-70.

Wei (魏宏远) et al. 2003

Wei, H., Zheng, Z. & Sha, Y. (2003), *The History of the People's Republic of China from 1949 to 1999* (国史纪事本末(1949-1999)), vol. 6. Shenyang, China: Liaoning Remin Press (辽宁人民出版社).

Weller 1998

Weller, D. (1998), *The Bureaucratic Heavy Hand in China: Legal Means for Foreign Investors to Challenge Agency Action*, *Columbia Law Review*, 98, 1238-1282.

Wen (温辉) 2005

Wen, H. (2015). *Study on the Recording and Review System of Governmental Normative Documents* (政府规范性文件备案审查制度研究). *Law Science Magazine* (法学杂志). 36(1), 9-21.

Wen 2011

Wen M. (July 14, 2011), *A Rethink of the Oil Spills: Accidents Should be Announced Without Delay, Regardless of Accident Investigation*, DW News, available at <https://p.dw.com/p/11v7v> (accessed on April 6, 2022).

West 2019

West, L. (August 8, 2019), *Five Environmental Consequences of Oil Spills: oil damages wildlife, marine ecosystems, and coastal environments*, available at <https://www.thoughtco.com/environmental-consequences-of-oil-spills-1204088> (accessed on April 6, 2022).

Westergaard 1987

Westergaard, R. H. (1987). *All about blowouts*. Oslo, Norway: Norwegian Oil Review.

William & Saine 2015

William, T. & Saine, T. (December 14, 2015), *Understanding Hospital Charges, Costs and Payment*, available at <https://strategicdynamicsfirm.com/understanding-hospital-charges-costs-and-payments/> (accessed on April 6, 2022).

Wittman 1981

Wittman, D. A. (1981), *Optimal Pricing of Sequential Inputs: Last Clear Chance, Mitigation of Damages, and Related Doctrines in the Law*, *Journal of Legal Studies*, 10, 65-92.

Wolski 1997

Wolski, B. (1997), *Culture, Society and Mediation in China and the West*, *Commercial Dispute Resolution Journal*, 3, 97-123.

Wright 2004

Wright, T. (2004). *The political economy of coalmine disasters in China: Your rice bowl or your life*. *The China Quarterly*, 179, 629-646.

Wu (吴泽勇) 2013

Wu, Z. (2013). *The Standard of Proof for Civil Procedure in Chinese Law* (中国法上的民事诉讼证明标准). *Tsinghua Law Review* (清华法学). 7(1), 73-88.

Wu (吴祖谋) 2013

Wu, Z. (2013), *The Concept of Law* (法学概论), Beijing, China: Law Press (法律出版社).

Wu (鄢祥明) 2015

Wu, Z. (2015), *A Study on the Adjustment and Adoption of Contractors' All Risks Insurance* (建筑工程一切险适应性调整研究). Peking, China: China Financial & Economic Publishing (中国财政经济出版社).

Wu 2020

Wu, D. (2020). *Analysis on the work safety level in different provinces and regions of China*. *Process safety progress*, 39(1), e12120.

Wu et al. 2011

Wu, L., Jiang, Z., Cheng, W., Zuo, X., Lv, D., & Yao, Y. (2011). *Major accident analysis and prevention of coal mines in China from the year 1949 to 2009*. *Mining Science and Technology (China)*, 21(5), 693-699.

Wu (吴高盛) et al. 2012

Wu, G., Liu S. & Zhou J. (2012), *Interpretation of and Application Guidance to the Civil Procedure Law of People's Republic of China* (《中华人民共和国民事诉讼法》释义及实用指南), Beijing, China: China Democracy

and Law Press (中国民主法制出版社).

X

Xi (奚晓明) 2012

Xi, X. (ed.) (2012), *Understanding and Application of Revised Articles in the Civil Procedure Law of China* (《中华人民共和国民事诉讼法》修改条文适用解答). Beijing, China: People's Court Press (人民法院出版社).

Xi (奚晓明)& Wang (王利明) 2012

Xi, X. & Wang, L. (2010), *Interpretation and Commentary on the Major and Difficult Issues regarding the Tort Law of People's Republic of China* (《侵权责任法》热点与疑难问题解答). Beijing, China: People's Court Press (人民法院出版社).

Xia (夏军) 2011

Xia, J. (November 12, 2011). *China Dialogue, Letting Fishermen required administrative reconsideration regarding the Bohai accident* (乐亭渔民要求行政复议蓬莱溢油事故), *China Dialogue* (中外对话), available at <https://chinadialogue.net/zh/7/41051/> (accessed on April 10, 2022).

Xie Y. (谢玉娟) 2015

Xie Y. (July 2, 2015), *Procuratorates in 13 Provinces on PIL pilots while NGOs Remaining as Onlookers* (十三省份检察院试点公益诉讼 民间组织仍是看客), *Xiemian News* (界面新闻), available at <http://www.jiemian.com/article/317480.html> (accessed on April 15, 2022).

Xie (谢增毅) 2011

Xie, Z. (2011), *A Reconsideration on the relationship between Occupation Injury Insurance and Third Party's Compensation* (再论工伤保险与第三人侵权赔偿的关系). In You Quanrong (游功荣) (ed.), *The Comparative Study of the Labor Law and Social Security Law* (劳动与社会保障法律制度比较研究), Peking, China: People's Court Press (人民法院出版社).

Xin (信春鹰) 2014a

Xin C. (2014), *Understanding the Environmental Protection Law of the People's Republic of China* (中华人民共和国环境保护法释义). Beijing: Law Press (法律出版社).

Xin (信春鹰) 2014b

Xin C. (2014). *The Socialist Legal System with Chinese Characteristics and Its Significance* (中国特色社会主义法律体系及其重大意义). *Chinese Journal of Law* (法学研究), 36(6), 19- 26.

Xinhua 2011a

Xinhua News (November 12, 2011), *Experts of the investigation team explained the causes of Bohai case*, available at <https://www.yicai.com/news/1194107.html> (accessed on April 7, 2022).

Xinhua 2011b

Xinhua News (September 4, 2011). *The three major mistakes made by the COPC in the Bohai accident*, available at http://www.gov.cn/jrzq/2011-09/04/content_1939873.htm (accessed on April 7, 2022).

Xinhua 2012

Xinhua News (May 9, 2012), *China's First Deepwater Drilling Platform 'Hai Yang Shi You 981' Initiates the First Drilling Operation Successfully*, available at http://www.gov.cn/jrzq/2012-05/09/content_2132907.htm (accessed on April 7, 2022).

Xing (邢会强) 2012

Xing, H. (2012). *Growth of Policies and Emptiness of Law: from the Perspective of Economic Law* (政策增长与法律空洞化——以经济法为例的观察). *Law and Social Development* (法治与社会发展), 3, 117-132.

Xu (徐全兵) 2016

Xu, Q. (2016), *Relative Issues Concerning the Procuratorate Bringing Environmental Public-Interest Litigation* (检察机关提起公益诉讼有关问题), *Journal of National Prosecutors College* (国家检察官学院学报), 3, 156-168.

Xu (徐全兵) 2017

Xu, Q. (2017), *Functional Orientation and Systemic Construction of Procuratorial Organ Initiating Administrative Public Interest Litigation* (检察机关提起行政公益诉讼的职能定位与制度构建). *Administrative Legal Review* (行政法学研究), 5, 77-86.

Xu (许飞琼) & Zheng (郑功成) 2015

Xu, F. & Zheng, G. (2015), *Property Insurance* (财产保险), Peking, China: China Financial Publishing (中国金融出版社).

Xu (许林之)& Song (宋义葆) 1991

Xu, L. & Song, Y. (1991), Preliminary inquiry into counter-measures for prevention of marine pollution disasters (海洋污染灾害及防治对策初探), *Marine Environmental Science* (海洋环境科学), 10 (4), 65-68.

Xu 2005

Xu, X. (2005), Different Mediation Traditions: A Comparison between China and the US, *The American Review of International Arbitration*, 16, 515-546.

Xu (徐祥民)& Tian (田其云) 2004

Xu, X. & Tian, Q. (2004), *Environmental Right: Fundamental Study of Environmental Law* (环境权: 环境法学的基础研究). Beijing, China: Peking University Press (北京大学出版社).

Y

Yan (严厚福) 2010

Yan, H. (2010). *Construction and application regarding the forms to bear environmental liability* (环境法律责任承担方式的合理构建与适用). China: Peking University Press (北京大学出版社).

Yan (闫祥岭) 2017

Yan, X. (December 9, 2017), *The Qingdao Maritime Court dismissed the compensation claims initiated by 263 fishermen in Shandong Province*, Sohu, available at https://www.sohu.com/a/209394992_313745 (accessed on April 14, 2022).

Yan (燕云) 2011

Yan, Y. (August 4, 2011), why compensation for marine oil pollution is different in the Bohai case (油污海洋—赔偿为何大不同), *Outlook China* (瞭望中国), available at <http://www.outlookchina.net/html/news/201108/3321.html> (accessed on April 14, 2021).

Yang 2007

Yang, W. (2007). The River Runs Black: The Environmental Challenge to China's Future, *China's Environment and the Challenge of Sustainable Development. China Perspectives*, 1, 113.

Yang 2017

Yang, Y. (2017). Liability and compensation for oil spill accidents: International regime and its implementation in China. *Natural Resources Journal*, 57(2).

Yang (杨立新) 2004

Yang, L. (2004), *The Study of Tort Law* (侵权法论). Beijing, China: People's Court Press (人民法院出版社).

Yang (杨立新) 2010

Yang, L. (2010), Expert Proposal Concerning the Interpretation of the Supreme People's Court on the Application of the *Tort Law*, (中华人民共和国侵权责任法司法解释草案建议稿), *Hebei Law Science* (河北法学), 11, 2-22.

Yang (杨立新) 2011

Yang, L. (2011). *The Untold Story Behind the Tort Law and Its Difficulties* (侵权责任法: 条文背后的故事与难题), Beijing, China: Law Press (法律出版社).

Yang (杨立新) et al. 2011

Yang, L., Liu, D. & Huang, C. (2011), *Judicial Countermeasures of Labor and Social Security Disputes* (劳动争议与社会保险纠纷司法对策), Peking, China: People's Court Press (人民法院出版社).

Yang (杨立新) 2015

Yang, L. (2015), The Liability of Distribution in Handling Environmental Pollution Caused by A Third Party's Fault (第三人过错造成环境污染损害的责任承担——环境侵权司法解释第 5 条规定存在的不足及改进), *Research on Rule of Law* (法治研究), 6, 104-121.

Yang (杨立新) 2018a

Yang, L. (2018) *Tort Liability Law of China*. Vienna, Austria: Jan Sramek Verlag.

Yang (杨荣馨) 2012

Yang, R. (2012), *Interpretation of the Civil Procedure Law of People's Republic of China* (《中华人民共和国民事诉讼法

诉讼法》释义), Beijing, China: Tsinghua University Press (清华大学出版社).

Yang 2018b

Yang, W. (2018). Can the Introduction of Administrative Reconsideration Committees Help Reform China's System of Administrative Reconsideration, *University of Pennsylvania Asian Law Review*, 13, 107-136.

Yang & Taylor 2010

Yang, A., & Taylor, M. (2010). Relationship-building by Chinese ENGOs' websites: Education, not activation. *Public Relations Review*, 36(4), 342-351.

Yin (殷成团) et al. 2019

Yin C., Zhang, J. & Xiong, M. (2019), Trend Analysis of Typhoon and Storm Surge Disaster on the South China Sea Coast of China (我国南海沿海台风及暴潮灾害趋势分析), *Journal of Tropical Oceanography* (热带海洋学报), 38(1), 35-42.

Yin (尹一杰) 2013

Yin, Y. (August 7, 2013). *The payment of compensation was not in place after three years, while the SOA threatened the affected fishermen to remain silent* (渤海漏油赔偿款 3 年未到位 海洋局威逼渔民息事宁人), 21st Century Business Herald (21 世纪经济报), available at <http://finance.sina.com.cn/china/20130807/023416366294.shtml> (accessed on April 10, 2022).

Yin et al. 2017

Yin, W., Fu, G., Yang, C., Jiang, Z., Zhu, K., & Gao, Y. (2017). Fatal gas explosion accidents on Chinese coal mines and the characteristics of unsafe behaviors: 2000–2014. *Safety science*, 92, 173-179.

Ying (应松年) 2010

Ying S. (2010), Administrative Reconsideration Should Become the Main Forum of Resolution of the Administrative Disputes, (行政复议应当成为解决行政争议的主渠道), *Administration Reform* (行政管理改革), 12, 1- 49.

Yiu 2000

Yiu, E (December 6, 2000), *Oil giant CNOOC sets up in SAR*, South China Morning Post, available at <https://www.scmp.com/article/333225/oil-giant-cnooc-sets-sar> (accessed on April 6, 2022).

Yu (于化伟) 2001

Yu, H. (2001), Insurance of Marine Oil Exploitation and Development (海洋石油勘探开发保险), *Safety and Environmental Engineering* (安全与环境工程), 8 (4), 46-48.

Yu (余民才) 2000

Yu, M. (2000), A Discussion on the Legal Pattern of Marine Oil Exploitation and Development (论海洋石油勘探与开发的法律方式), *The Jurist* (法学家), 3, 35-41.

Yu (余耀军) et al. 2014

Yu, Y., Zhang, B. & Zhang, M. (2014). *Environmental pollution liability: controversies and cases* (环境污染责任: 争点与案例). Beijing, China: Law Press (法律出版社).

Yu (于洋) et al. 2018

Yu, Y., Su, Y. & Wang J. (2018), Problems and Countermeasures of the Classification of Severity of Disability Caused by Physical Injuries (人体伤残程度鉴定中存在的问题及对策分析), *Guangdong Security Science* (广东公安科技), 133, 63-65.

Yu (余俊) 2010

Yu, J. (2010), *The Cultural Perspective of Environmental Right* (环境权的文化之维). Beijing, China: Law Press (法律出版社).

Yuan et al. 2017

Yuan, X., Pongthanapanich, T., Zhang, Z., Jing X. & Ming, J. (2017). Fishery and aquaculture insurance in China, FAO Fisheries and Aquaculture Circular No. 1139, Rome, Italy, C1139.

Z

Zeng et al. 2004

Zeng, S. X., Tam, C. M., & Deng, Z. M. (2004). Construction site safety in China. In *Construction Safety Management Systems* (pp. 49-66). Spon Press.

Zeng (曾省存) et al. 2011

Zeng, X., Liu, F., Liu, M. & Lv, R. (2011). Study of the status and development mode of China's fishery insurance (中国渔业保险现状分析和发展模式探索). *China Fishery Economy* (中国渔业经济), 29 (3), 36-47.

Zeng (曾祥生) & Fang (方昀)

Zeng, X. & Fang, Y. (2013) Research on the Features and Types of Environmental Tort (环境侵权行为的特征及其类型化研究), *Wuhan University Journal (Philosophy & Social Science)* (武汉大学学报(哲学社会科学版)), 66(01), 22-26.

Zhai & Chang 2018

Zhai, T. & Chang, Y. (2018). Standing of Environmental Public-Interest Litigants in China: Evolution, Obstacles and Solutions. *Journal of Environmental Law*. 30(3), 369-397.

Zhan (占梦军) 2019

Zhan, M., Fan, F., Shi, L., Lu, T., Zhang, K. & Deng, Z. (2019). The Study on Relevant Matters of Clauses Concerning Disability of Certain Organs under the Classification of Severity of Disability Caused by Physical Injuries (《人体损伤致残程度分级》部分器官系统残疾条款相关问题的探讨), *Journal of Forensic Medicine* (法医学杂志), 35 (1), 105-110.

Zhang (张宝) 2016

Zhang, B. (2016). *The Interpretation of Environmental Torts* (环境侵权的解释论). China University of Political Science and Law Press (中国政法大学出版社).

Zhang (张辰扬) 2019

Zhang, C. (June 29, 2019). 2+1+1: China's Hierarchical Trial System for Civil Cases, China Justice Observer, available at <https://www.chinajusticeobserver.com/a/2-1-1-chinas-hierarchical-trial-system-for-civil-cases> (accessed on April 15, 2022).

Zhang (张聪) & Jiang (姜启军) 2010

Zhang, C. & Jiang, Q. (2010). Problems and Suggestions of current fishery mutual insurance in China (我国渔业保险存在的问题与建议), *Jiangsu Agriculture Science* (江苏农业科学), 3, 477-479.

Zhang (张靖) 2013

Zhang, D. (2013). Analysis of Individual Citizens' Standing for Environmental Public-Interest Litigation (公民个人作为环境公益诉讼原告资格辨析), *Academic Exchange* (学术交流), 2, 59-61.

Zhang 2002

Zhang, G. (2002). Chinese Product Liability Law: Can China Build Another Great Wall to Protect Its Consumers? *Washington University Global Studies Law Review*, 1, 581-602.

Zhang (张国臣) 2016

Zhang G. (2016). *Insurance-risk Management and Application in Petroleum Industry* (保险风险管理及石油行业应用). Peking, China: China Commerce and Trade Press (中国商贸出版社).

Zhang (张海涛) 2018

Zhang, H. (2018). A study on the safety production management of oil companies (油田企业安全生产管理研究及探讨), *Shandong Industrial Technology* (山东工业技术), 5, 78.

Zhang 2013

Zhang, J. (2013). Development trends and characteristics of devastating accidents in China. *Procedia-social and behavioral sciences*, 96, 123-129.

Zhang et al. 2019

Zhang, J., Xu, K., You, G., Wang, B., & Zhao, L. (2019). Causation analysis of risk coupling of gas explosion accident in Chinese underground coal mines. *Risk Analysis*, 39(7), 1634-1646.

Zhang (张莉) & Li (李腾飞) 2020

Zhang, L. & Li, T. (2020). The application of information technology in safety management for petroleum and chemical companies (信息化技术在石油化工企业安全监督管理中的应用研究), *China Management Informationisation* (中国管理信息化), 23(4), 85-86.

Zhang 2010

Zhang, M. (2010). The Socialist Legal System with Chinese Characteristics: China's Discourse for the Rule of Law and Bitter Experience. *Temple International & Comparative Law Journal*, 24 (1), 1-64.

Zhang (张妮) 2013

Zhang, N. (2013). Empirical Research of Compensation for Emotional Damage in China (我国精神损害赔偿标准设立方式的实证研究). *Journal of Social Science of Hunan* (湖南社会科学), 2, 97-100.

Zhang (张千帆) 2003

Zhang, Q. (2003). The People's Court in transition: the prospects of the Chinese judicial reform. *Journal of Contemporary China*, Spring, 12(34), 69—101.

Zhang (张千帆) 2011

Zhang, Q. (2011). *Lectures on the Constitution* (宪法学讲义), Beijing, China: Peking University Press (北京大学出版社).

Zhang & Mayer 2017

Zhang, R., & Mayer, B. (2017). Public interest environmental Litigation in China. *Chinese Journal of Environmental Law*, 1(2), 202-228.

Zhang (张式军) 2011

Zhang, S. (2011). Standings for Environmental Public-Interest Litigation (环境公益诉讼原告资格研究), Jinan, Shandong, China: Shandong Arts Press (山东文艺出版社).

Zhang (张恩佳) 2015

Zhang, S. (December 30, 2015). *The Supreme People's Court Interpretation on to Whom the Compensation Indemnities through EPIL Should be Paid* (最高法释疑环境公益诉讼胜诉赔偿金归谁). Xinhua News, available at http://www.xinhuanet.com/politics/2015-12/30/c_128579643.htm (April 15, 2022).

Zhang (张文松) 2015

Zhang, W. (2015). The Function Orientation and Rule Construction on Civil Environmental Public Interest Litigation Filed by Prosecutors: from the Perspective of Breaking the 'Have a Direct Interest Rule.' (检察机关在提起环境民事公益诉讼中的职能定位与规则建构——以对“直接利害关系”规则的突破为视角). *The Symposium of National Environmental and Resources Law Seminar*, Shanghai, China (中国法学会环境资源法学研究会会议论文集), 354-352.

Zhang (张新宝) 2007

Zhang, X. (2007). The Relationship Between the Compensation Claim of Occupational Injury Insurance and Civil Compensation of General Personal Injury (工伤保险赔偿请求权与普通人身损害赔偿请求权的关系), *China Legal Science* (中国法学), 2, 52-66.

Zhang (张新宝) 2012a

Zhang, X. (May 30, 2012). A breakthrough of legal remedies for collective compensation claims: starting from the Bohai accident caused by the COPC (从康菲事件进展看大规模侵权损害救济方式的突破), *Journal of the Chinese People's Political Consultative Conference* (人民政协报).

Zhang (张棉棉) 2012b

Zhang, M. (May 9, 2012). *The first deepwater offshore drilling facility of China (HYSY 981) in the South China Sea has advanced safety system engineering* (中国首座深水钻井平台南海开钻 具备顶级安全系统), China Radio (中国广播网), available at http://china.cnr.cn/ygxw/201205/t20120509_509579794.shtml (accessed on April 18, 2022).

Zhang (张新宝)& Zhuang (庄超) 2007

Zhang, X. & Zhuang, C. (2014). Strengthening and Expansion: A General Adoption of Liability in Environmental Torts (扩张与强化:环境侵权责任的综合适用). *Social Science in China* (中国社会科学), 3, 125-141.

Zhang (张湘兰) 1997

Zhang, X. (1997). *Marine Insurance Law* (海上保险法), Peking, China: China University of Political Science and Law Press (中国政法大学出版社).

Zhao (赵婧) 2014

Zhao J. (October 31, 2014). Interpreting 'Measure Concerning Compensation of Marine Ecological Damage for the State': An Interview with the Lead of the Department of Ecological Protection (《海洋生态损害国家损失索赔办法》解读——专访国家海洋局生态环境保护司有关负责人), *China Ocean News* (中国海洋报), available at

<http://www.law-lib.com/fzdt/newshtml/21/20141104095238.htm> (accessed on April 6, 2022).

Zheng (郑敬高) & Tian (田野) 2007

Zheng J. & Tian, Y. (2007). From 'State Will' to 'the Rule of Law': Extensive Viewpoints of Law on the Relationship Between Law and Policy (从“国家意志”到“行政法治”:在法律与政策关系上的泛法律观). *Journal of China University of Geo-science (social science edition)* (中国地质大学学报(社会科学版)), 7(5), 99-103.

Zheng (郑学林) et al. 2015

Zheng, X., Lin, W. & Wang, Z. (2015). Understanding and Application of Interpretation of the SPC on Several Issues Concerning the Application of Law in Civil Environmental Public-Interest Litigation (《关于审理环境民事公益诉讼案件适用法律若干问题的解释》的理解和适用), *People's Judicature* (人民司法), 5, 22-27.

Zheng 2018

Zheng, Y. (August 18, 2018). A lasting and Struggling Lawsuit of Bohai Accident, Rfa, available at <https://www.rfa.org/mandarin/pinglun/zhengyi/zy-08082018101519.html> (accessed on April 6, 2022).

Zheng et al. 2018

Zheng H., Mu H. & Zhao X. (2018). Evaluating the demand for aquaculture insurance: an investigation of fish farmers' willingness to pay in central coastal areas in China, *Marine Policy*, 96, 152-162.

Zhong (钟宏京) 2014

Zhong, H., Xu, X., Yu, X. & Liu, W. (2014). The supervision and management system of safety marine oil production (海洋石油的安全监督管理体制), *China Petroleum and Chemical Standard and Quality* (中国石油和化工标准与质量), 1, 222-223.

Zhong (仲莹) 2020

Zhong Y. (2020). Optimization of Management Measures for Offshore Oil Drilling Platform Equipment (海洋石油钻井平台设备管理措施的优化), *Plant Maintenance Engineering* (设备管理与维修), 20, 17-19.

Zhou (周辰) 2017

Zhou, C. (July 31, 2017). *Doubts on the Court's Decision that Denied the Standing of Environmental NGOs in Marine Environmental Public Interest Litigation* (法院判决环保组织无权提起海洋环境公益诉讼遭质疑), Caixin News, available at <http://china.caixin.com/2017-07-31/101124496.html> (accessed on April 15, 2022).

Zhou (周小颀) 2015

Zhou, X. (July 29, 2015). The First Maritime Public-Interest Litigation for Oil Spill in Bohai Bay Was Accepted and Finally Supported by the Court (中国首例海洋公益诉讼立案 渤海溢油事件终获法院支持), Xiemian News (界面新闻), available at <https://www.jiemian.com/article/338574.html> (accessed on April 15, 2022).

Zhou (周训芳) 2003

Zhou, X. (2003). *Theory of Environmental Right* (环境权论). Beijing, China: Law Press (法律出版社).

Zhou et al. 2015

Zhou, Z.P., Goh, Y.M., & Li, Q. M. (2015). Overview and analysis of safety management studies in the construction industry. *Safety Science*, 72, 337-350.

Zhou et al. 2019

Zhou, X. H., Shen, S. L., Xu, Y. S., & Zhou, A. N. (2019). Analysis of production safety in the construction industry of China in 2018. *Sustainability*, 11(17), 4537.

Zhu (朱大奎) 1993

Zhu, D. (1993). *Maritime Technology, 1st edition* (海洋技术(第一版)), Jiangsu Science and Technology Press (江苏科学技术出版社).

Zhuang (庄庆鸿) 2012

Zhuang Q. (January 30, 2012). *The assessment of the compensation amount was unclear* (专家称康菲 10 亿赔偿存疑问: 数字计算不透明), *China Youth Daily*, available at <http://finance.sina.com.cn/chanjing/gsnews/20120130/045411268793.shtml> (accessed on April 15, 2022).

Zimmerman 2010

Zimmerman, J. M. (2010). *China Law Deskbook: a Legal Guide for Foreign-invested Enterprises (3ed)*. Chicago, IL, USA: Section of International Law, American Bar Association Book Publishing.

Zou (邹雄) 2010

Zou, X. (2010). *Difficulties in Laws Addressing Environmental Torts* (环境侵权法疑难问题研究). Xiamen, China: Xiamen University Press (厦门大学出版社).

Zou et al. 2021

Zou, Y. J., Huang, J. S., Xu, T., Zou, A., He, B., Tao, X., & Zhang, S. (2021). Prediction of Coal Mine Accidental Deaths for 5 Years Based on 14 Years Data Analysis. In *Proceedings of the 9th International Conference on Computer Engineering and Networks* (pp. 281-289). Springer, Singapore.

Appendix One: Legislation

China:

Accident Emergency Regulation, Regulation on Emergency Responses to Work Safety Accidents (《生产安全事故应急条例》) (April 1, 2019)

Administrative License Law, Administrative License Law of the People's Republic of China (《中华人民共和国行政许可法》) (August 27, 2003, amended April 23, 2019)

Administrative Litigation Law, Administrative Litigation Law of the People's Republic of China (《中华人民共和国行政诉讼法》) (April 4, 1989, amended June 27, 2017)

Administrative Reconsideration Law, Administrative Reconsideration Law of the People's Republic of China (in Chinese: 《中华人民共和国行政复议法》) (April 29, 1999, amended September 1, 2017)

Administrative Penalty Law, Law of The People's Republic Of China on Administrative Penalty (《中华人民共和国行政处罚法》) (March 17, 1996, amended September 1, 2017)

Arbitration Law, Arbitration Law of the People's Republic of China (《中华人民共和国仲裁法》) (August 31, 1994, amended September 1, 2017)

Measure of Vessel-induced Pollution Prevention, Administrative Measures of the People's Republic of China on the Prevention and Control of Marine Environmental Pollution by Vessels and Their Operations (《中华人民共和国船舶及其有关作业活动污染海洋环境防治管理规定》) (February 1, 2011)

Measure of Vessel-induced Pollution Compensation Fund, Administrative Measures Regarding the Implementation of the Compensation Fund for Vessel-induced Oil Pollution (《船舶油污损害赔偿基金征收使用管理办法》) (July 1, 2012)

Announcement Regarding Disability, Announcement of the Supreme People's Court, the Supreme People's Procuratorate, the Ministry of Public Security, and Other Departments on Issuing the Classification of Severity of Disability Caused by Physical Injuries (《最高人民法院、最高人民检察院、公安部等关于发布《人体损伤致残程度分级》的公告》) (April 18, 2016)

Civil Code, The Civil Code of the People's Republic of China (《中华人民共和国民法典》) (January 1, 2021)

Injured Employees' Classification Standard, Classification Standard of Injured and Dead Enterprise Employees (《企业职工伤亡事故分类标准》) (GB/ 6441-1986) (February 1, 1987)

Constitution, The Constitution of the People's Republic of China (《中华人民共和国宪法》) (December 4, 1982, last amended March 11, 2018)

Civil Procedure Law (CPL), Civil Procedure Law of the People's Republic of China (《中华人民共和国民事诉讼法》) (October 28, 2007) (January 1, 2022, amended for the fourth time in 2021)

Dangerous Factors Code, Dangerous and Toxic Factors and Codes During Industrial Production (《生产过程危险和有害因素分类与代码》) (GB/T 13861-2009) (December 1, 2009)

Decision of the First Session of the Ninth National People's Congress on the Plan for Restructuring the State Council and its appendix: Explanation of the Plan for Restructuring the State Council (《第九届全国人民代表大会第一次会议关于国务院机构改革方案的决定》) (March 10, 1998)

Decision of the Ministry of Agriculture on Amending and Repealing a Portion of Rules and Regulatory Documents (《农业部关于修改和废止部分规章、规范性文件的决定》) (November 11, 2017)

Decision of the Standing Committee of the National People's Congress on Amending the Civil Procedure Law of the People's Republic of China and the Administrative Litigation Law of the People's Republic of China (《全国人大常委会关于修改<中华人民共和国民事诉讼法>和<中华人民共和国行政诉讼法>的决定》) (June 27, 2017, amended July 1, 2017)

Decisions of the Standing Committee of the National People's Congress on the Establishment of Maritime Courts in Coastal Port Cities (《全国人民代表大会常务委员会关于在沿海港口城市设立海事法院的决定》) (November 14, 1984)

Decisions of the Standing Committee of the National People's Congress Concerning Providing an Improved Interpretation of Law (《全国人民代表大会常务委员会关于加强法律解释工作的决议》) (June 10, 1981)

Decision of the State Council on Amending the Regulations of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises (《国务院修改〈对外合作开采海洋石油资源条例〉的决定》) (September 23, 2001)

Environmental Guideline, *Technical Guidelines for Identification and Assessment of Eco-environmental Damage: General Principle* (《生态环境损害鉴定评估技术指南：总则》) (June 2016)

Environmental Emergency Measure, *Measures for Information Report of Environmental Emergencies* (《突发环境事件信息报告办法》) (May 1, 2011)

EPL, *Environmental Protection Law of the People's Republic of China* (《中华人民共和国环境保护法》) (December 26, 1989, amended January 1, 2015)

Fishery Law, *Fishery Law of the People's Republic of China* (《中华人民共和国渔业法》) (January 20, 1986, amended December 28, 2013)

Foreign Investment Law, *Foreign Investment Law of the People's Republic of China* (《中华人民共和国外商投资法》) (January 1, 2020)

GPCL, *General Principles of Civil Law of the People's Republic of China* (《中华人民共和国民法通则》) (August 27, 2009) [invalid since January 1, 2021]

Guide to Programming Overall Development Program for Oilfields (SY/T 10011-2006) (《油田总体开发方案编制指南》) (January 1, 2017)

Guiding Opinions on Building a Green Financial System (《关于构建绿色金融体系的指导意见》) (August 31, 2016)

Guiding Opinions of the Anhui Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases (《安徽省高级人民法院审理人身损害赔偿案件若干问题的指导意见》) (July 18, 2006)

Guiding Opinions of the Henan Higher People's Court on Several Issues Concerning the Trial of Civil Cases (《河南省高级人民法院关于当前民事审判若干问题的指导意见》) (November 2003)

Guiding Opinions of the Jiangsu Higher People's Court & Jiangsu Provincial Public Security Bureau on Several Issues Concerning the Compensation for Road Traffic Accidents (《江苏省高院、公安厅关于处理交通事故损害赔偿案件有关问题的指导意见》) (August 15, 2005)

Guiding Opinions of the Chongqing Higher People's Court on Several Issues Concerning Determination of the Amount of Compensation for Intellectual Property Torts (《重庆市高级人民法院关于确定知识产权侵权损害赔偿数额若干问题的指导意见》) (April 12, 2007)

Judicial Authentication Rules on Calculating and Estimating the Economic Loss Caused by Environmental Pollution Accidents Related to Agriculture (SF/Z JD 0601001—2014) (《司法鉴定技术规范：农业环境污染事故司法鉴定经济损失估算实施规范》) (March 17, 2014)

Implementation Measures for Pilots of People's Procuratorates Initiating Public Interest Litigation (《最高人民法院、最高人民检察院关于检察公益诉讼案件适用法律若干问题的解释》) (March 2, 2018)

Implementation Measure for Pilots on People's Procuratorates Initiating Public Interest Litigation (《人民检察院提起公益诉讼试点工作实施办法》) (December 16, 2015)

Integrated Reform Plan for Promoting Ecological Progress (《生态文明体制改革总体方案》) (September 11, 2015)

Interim Regulations on Registration Administration of Private Non-enterprise Units (《民办非企业单位登记管理暂行条例》) (October 25, 1998)

Law of the People's Republic of China on Chinese-foreign Equity Joint Ventures (《中华人民共和国中外合资经营企业法》) (March 15, 2001) [invalid since January 1, 2020]

Law of the People's Republic of China on Chinese-foreign Cooperative Joint Ventures (《中华人民共和国中外合作经营企业法》) (November 5, 2017) [invalid since January 1, 2020]

Law of the People's Republic of China on Wholly Foreign-Owned Enterprises (《中华人民共和国外资企业法》) (October 31, 2000) [invalid since January 1, 2020]

Legislation Law, *The Legislation Law of the People's Republic of China* (《中华人民共和国立法法》) (March 15, 2000, amended March 15, 2015)

Marine Guideline, *Technical Guidelines for Marine Ecological Damage Assessment* (GB/T 34546.1 -2017) (《海洋生态损害评估技术导则》) (February 1, 2018)

Maritime Traffic Law, *Maritime Traffic Safety Law of the People's Republic of China* (《中华人民共和国海上交通安全法》) (September 2, 1983, amended November 7, 2016)

Maritime Law, *Maritime Law of the People's Republic of China* (《中华人民共和国海商法》) (November 7, 1992, amended July 1, 1993)

Measures for the Administration of the Allocation of Aid Devices Covered by the Work-related Injury Insurance (《工伤保险辅助器具配置管理办法》) (April 1, 2016, amended December 14, 2018)

Measure for Oceanic Hearings (《海洋听证办法》) (August 1, 2008, amended November 7, 2016)

Measure of Ecological Compensation Fund, *Administrative Measure Concerning Compensation Funds for Ecological Environment Damage (Trial)* (《生态环境损害赔偿资金管理办法(试行)》) (March 11, 2020)

Measure of Vessel-induced Pollution Insurance, *Measure of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-induced Oil Pollution Damage* (《中华人民共和国船舶油污损害赔偿民事责任保险实施办法》) (August 19, 2010, amended August 31, 2013)

Measure of the MRC, *Administrative Measure for the Implementation of the Mineral Resources Law of the People's Republic of China* (《中华人民共和国矿产资源法实施细则》) (March 26, 1994)

Measure for Licensing and Registration of Aquaculture in Waters and Tidal Flats (《中华人民共和国水域滩涂养殖发证登记办法》) (July 1, 2011)

Measures on the Certificate of Accreditation Entities on Environmental Impact Assessment (《建设项目环境影响评价资格证书管理办法》) (March 17, 1999)

Measures on the Judicial Qualification for investigation on the Fishery Pollution Accidents (《渔业污染事故调查鉴定资格管理办法》) (April 12, 2000)

Meeting Minutes of the Guangdong Higher People's Court on Several Issues Concerning the Application of Compensating Emotional Damage in the State Compensation Cases (《广东省高院关于在国家赔偿工作中适用精神损害抚慰金若干问题的座谈会纪要》) (March 22, 2016)

Meeting Minutes of the Yunnan Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases (《云南省高级人民法院《关于审理人身损害赔偿案件若干问题的会议纪要》) (August 1, 2009)

MEPL, *Marine Environmental Protection Law of the People's Republic of China* (《中华人民共和国海洋环境保护法》) (on March 1, 1983, amended November 4, 2017) (The previous versions are the MEPL of 1983, 1999, 2013, 2016)

MRL, *Mineral Resources Law of the People's Republic of China* (《中华人民共和国矿产资源法》) (March 19, 1986; last amended August 27, 2009)

Occupational Diseases Law, *Law of the People's Republic of China on the Prevention and Control of*

Occupational Diseases (《中华人民共和国职业病防治法》) (October 27, 2001, amended November 4, 2017)

Occupational Insurance Regulation, Regulation of the People's Republic of China on Occupational Injury Insurance (《中华人民共和国工伤保险条例》) (April 27, 2003, amended January 1, 2011)

Offshore Cooperation Regulation, Regulation of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises (《中华人民共和国对外合作开采海洋石油资源条例》) (January 30, 1982, last amended July 18, 2013) (The previous versions are the *Offshore Cooperation Regulation* of 1982, 2001, 2011)

Offshore Emergency Plan, Emergency Response Plan of the State Oceanic Administration for Oil Spills During Offshore Exploration and Development (《国家海洋局海洋石油勘探开发溢油应急预案》) (April 3, 2015)

Offshore Engineering Regulation, Regulation on the Prevention and Treatment of the Pollution and Damage to the Marine Environment by Marine Engineering (《防治海洋工程建设项目污染损害海洋环境管理条例》) (September 19, 2006, amended March 1, 2017)

Offshore Exploitation Regulation, Regulation Concerning Environmental Protection in Offshore Oil Exploration and Exploitation (《中华人民共和国海洋石油勘探开发环境保护管理条例》) (December 29, 1983)

Offshore Safety Provision, Provision on Offshore Oil Work Safety of the People's Republic of China (《中华人民共和国海洋石油安全生产规定》) (February 7, 2006, amended May 29, 2015)

Offshore Safety Rule, Detailed Rules for the Administration of Offshore Oil Safety of the People's Republic of China (《中华人民共和国海洋石油安全管理细则》) (September 7, 2009, amended May 26, 2015)

Opinions of the Fujian Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases (《福建省高级人民法院关于审理人身损害赔偿案件若干问题的意见》) (December 19, 2001)

Opinions of the Shandong Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases (《山东省高级人民法院关于审理人身损害赔偿案件若干问题的意见》) (February 22, 2001)

Opinions of the Shandong Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases (《山东省高级人民法院关于审理人身损害赔偿案件若干问题的意见》) (February 22, 2001)

Opinions of the Beijing Higher People's Court on Several Issues Concerning the Trial of Personal Injury Cases (《北京高级人民法院关于审理人身损害赔偿案件若干问题的意见》) (July 11, 2000)

Organic Law of Courts, Organic Law of the People's Courts of the People's Republic of China (《中华人民共和国人民法院组织法》) (January 1, 1980, amended January 1, 2019)

Property Law, Property Law of the People's Republic of China (《中华人民共和国物权法》) (October 1, 2007) [invalid since January 1, 2021]

Provision II of Sea Areas, Provisions on Several Issues concerning the Trial of the Relevant Cases Occurring in Sea Areas under the Jurisdiction of China (II) (《2016 最高人民法院关于审理发生在我国管辖海域相关案件若干问题的规定(二)》) (August 2, 2016)

Provisions of the Supreme People's Court on the Judicial Interpretation Work, No.12 [2007] (《最高人民法院发布关于司法解释工作的规定》) (March 23, 2007)

Regulation on Foundation Administration (《基金会管理条例》) (March 8, 2004)

Regulations on the Administration of Construction Project Environmental Protection (《建设项目环境保护管理条例》) (November 29, 1998, amended July 16, 2017)

Regulation on the Administration of the Registration of Social Associations (《社会团体登记管理条例》) (February 6, 2016)

Regulation of the People's Republic of China Governing the Registration of Ships (《中华人民共和国船舶登记条例》) (January 1, 2015)

Regulation on the Prevention and Control of Vessel-induced Pollution to the Marine Environment (《防治船舶污染海洋环境管理条例》) (March 1, 2010, amended March 19, 2018)

RID Regulation, *Regulations on the Reporting, Investigation and Disposition of Work Safety Accidents* (《生产安全事故报告和调查处理条例》) (April 9, 2007)

Risk Guideline, *Guideline on the Classification of Risk Units of Insured Property* (《财产保险危险单位划分方法指引》) (first part- June 2006, second part- November 2006, third part- December 2016)

Safety Insurance Measure, *Measures for the Implementation of Safety Liability Insurance* (《安全生产责任保险实施办法》) (January 1, 2018)

Sea Areas Law, *Law of the People's Republic of China on the Administration of Sea Areas* (《中华人民共和国海域使用管理法》) (January 1, 2002)

Several Provisions on the Work of People's Mediation (《人民调解工作若干规定》) (November 1, 2002)

Social Insurance Law, *Social Insurance Law of the People's Republic of China* (《中华人民共和国社会保险法》) (October 28, 2010, amended December 29, 2018)

State Compensation Law, *State Compensation Law of the People's Republic of China* (《中华人民共和国国家赔偿法》) (May 12, 1994, amended April 29, 2010)

SPC Interpenetration of Environmental Torts, Interpretation of the Supreme People's Court of Several Issues on the Application of Law in the Trial of Disputes over Liability for Environmental Torts (《最高人民法院关于审理环境侵权责任纠纷案件适用法律若干问题的解释》) (June 3, 2015)

SPC Interpretation on ED, *Interpretation of the Supreme People's Court on Problems regarding The Ascertainment of Compensation Liability for Emotional Damage in Civil Torts* (《最高人民法院关于确定民事侵权精神损害赔偿责任若干问题的解释》) (February 26, 2001)

SPC Interpretation on PI, *Interpretation of the Supreme People's Court of Some Issues concerning the Application of Law for the Trial of Cases on Compensation for Personal Injury* (《最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释》) (December 4, 2003, amended January 1, 2021)

SPC Interpretation on WI, *Provisions of the Supreme People's Court on Several Issues concerning the Trial of Administrative Cases on Work-Related Injury Insurance* (《最高人民法院关于审理工伤保险行政案件若干问题的规定》) (September 1, 2014)

SPC Opinion on Mediation, *The Supreme People's Court sought to strengthen judicial mediation by issuing the Opinion on Further Increasing the Positive Role of Mediation (in Litigation) in Constructing Socialism and a Harmonious Society* (《关于进一步发挥诉讼调解在构建社会主义和谐社会中积极作用的若干意见》) (March 7, 2007)

SPC Provision on Vessel- induced Pollution, Provisions of the Supreme People's Court on Several Issues Concerning the Trial of Cases of Disputes over Compensation for Vessel-induced Oil Pollution Damage (《最高人民法院关于审理船舶油污损害赔偿纠纷案件适用法律若干问题的解释》) (July 1, 2011)

Specifications on Spot Location of Monitoring Sites Related to Coastal Area Environment (HJ 442-2008) (《近岸海域环境监测规范》) (January 1, 2009)

Standardization Law, *Standardization Law of the People's Republic of China* (《中华人民共和国标准化法》) (December 29, 1988, amended November 4, 2017)

Supreme People's Court on Issuing the Opinions on Several Issues concerning the Implementation of the General Principles of the Civil Law of the People's Republic of China (For Trial Implementation) (《最高人民法院关于贯彻执行《中华人民共和国民事诉讼法通则》若干问题的解释(试行)》) (April 2, 1988)

SPC Opinion on State Compensation, *Opinions of the Supreme People's Court on Issues concerning the Application of Compensating Emotional Damage in the State Compensation Cases Heard by the Compensation Committees of the People's Courts* (《最高人民法院关于人民法院赔偿委员会审理国家赔偿案件适用精神损害赔偿若干问题的解释》) (July 29, 2014)

SPC Provision on Evidence, Provision of the Supreme People's Court on Evidence in Civil Procedures (《最高人民法院关于民事诉讼证据的若干规定》) (December 6, 2001, amended May 1, 2020)

Three-Concurrency Measure, Interim Measures for the Supervision and Administration of 'Three-Concurrency' for Safety Facilities of Construction Projects (《建设项目安全设施“三同时”监督管理办法》) (December 14, 2010, amended April 2, 2015)

Tort Law, Tort Law of the People's Republic of China (《中华人民共和国侵权责任法》) (July 1, 2010) [invalid since January 1, 2021]

Work Safety Law, Work Safety Law of the People's Republic of China (《中华人民共和国安全生产法》) (June 29, 2002, amended August 31, 2014)

WPCL, Water Pollution Prevention and Control Law of the People's Republic of China (《中华人民共和国水污染防治法》) (May 11, 1984, amended June 27, 2017)

1988 SPC Opinion, Opinions of the Supreme Court on Several Issues concerning the Implementation of the General Principles of the Civil Law of the People's Republic of China (For Trial Implementation)(《最高人民法院关于贯彻执行《中华人民共和国民事诉讼法》若干问题的意见(试行)》) (April 2, 1988)

1996 Rule, Rules on Calculating Fishery Losses Caused by Water pollution Accidents(《水域污染事故渔业损失计算方法规定》) (October 8, 1996) [invalid June 1, 2018]

2002 Standard, 2002 Standard on the Assessment of Disability for Injured Victims in Road Traffic Accidents (GB 18667-2002) (《道路交通事故受伤人员伤残评定》) [invalid since January 1, 2017]

2006 Opinion, Opinions of the State Council on the Reform and Development of the Insurance Industry (《国务院关于保险业改革发展的若干意见》) (June 15, 2006)

2008 Opinion, Opinions on Deepening the Reforms of Economic Structure in 2008 (《关于2008年深化经济体制改革工作的意见》) (July 22, 2008)

2007 Guideline, Guideline on Environmental Pollution Liability Insurance (《关于环境污染责任保险工作的指导意见》) (December 4, 2007)

2008 Standard, Calculation Methods on the Economic Loss of Fishery Pollution Accident (GB/T 21678-2018) (《渔业污染事故经济损失计算办法》) (January 1, 2019)

2011 Calculation Methods, Recommended Calculation Methods for Damages of Environmental Pollution (《环境污染损害数额计算推荐方法》) (January 2011)

2011 Opinion, Opinions of the State Council on Strengthening Major Environmental Protection Work (《国务院关于加强环境保护重点工作的意见》) (October 17, 2011)

2013 Guideline, Guidelines on the Pilot Program of Environmental Pollution Liability Insurance (《关于开展环境污染强制责任保险试点工作的指导意见》) (February 2013)

2014 Measure, Measure of the People's Republic of China Concerning Compensation for Marine Ecological Damage for the State (《海洋生态损害国家损失索赔办法》) (October 21, 2014)

2014 Recommendation Methods, Recommendation Methods of Assessing Environmental Damage (II) (《环境污染损害数额计算推荐办法(二)》) (2011)

2014 Disability Standard, 2014 Standard on the Assessment Criteria and Codes for Injuries and Disability in Personal Insurance (JR/T 0083-2013) (《人身保险伤残评定标准及代码》) (January 17, 2014)

2014 SPC Opinion, Opinion of the SPC on Fully Strengthening Environmental Resources Trial Work to Provide Judicial Safeguards for Promoting Eco-Civilization Construction (《最高法关于全面加强环境资源审判工作为推进生态文明建设提供有力司法保障的意见》) (June 23, 2014)

2015 SPC Interpretation, *Interpretation of the SPC on Several Issues Concerning the Application of Law in Civil Environmental Public-Interest Litigation* (《最高法关于审理环境民事公益诉讼案件适用法律若干问题的解释》) (January 6, 2015)

2015 Work-related Injury Standard, *Standard for Identification Work Ability-Gradation of Disability Caused by Work-related Injuries And Occupational Diseases* (GB/T 16180—2014) (《劳动能力鉴定职工工伤与职业病致残等级》) (January 1, 2015)

2016 Measure, *Measure for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation* (《海洋石油勘探开发环境保护管理条例实施办法》) (September 20, 1990, amended January 5 2016)

2016 SPC Opinion, *Opinion of the SPC on Giving Full Play to the Functions of Trial Work in Order to Provide Judicial Service and Safeguard for the Construction of Ecological Civilization and Green Development* (《最高人民法院关于充分发挥审判职能作用为推进生态文明建设与绿色发展提供司法服务和保障的意见》) (May 26, 2016)

2016 Travel Allowance Standard, *2016 Standard Travel Allowance of Business Trip for Civil Servants of the Central Government* (《中央和国家机关差旅费管理办法》) (April 1, 2016)

2017 Disability Standard, *Classification of Severity of Disability Caused by Physical Injuries* (《人体损伤致残程度分级》) (January 1, 2017)

2017 Draft, *Measures of Compulsory Liability Insurance of Environmental Pollution (draft document)* (《环境污染强制责任保险管理办法 (征求意见稿)》) (June 9, 2017)

2018 Interpretation, *Interpretation of the Supreme People's Court on Several Issues concerning the Trial of Cases of Disputes over Compensation for Marine Natural Resources and Ecological Damage* (《最高人民法院关于审理海洋自然资源与生态环境损害赔偿纠纷案件适用法律若干问题的解释》) (January 15, 2018)

2020 Specification, *Specifications for Accident Prevention Technical Service on Work Safety Liability Insurance* (AQ 9010-2019) (《安全生产责任保险事故预防技术服务规范》) (January 1, 2020)

Australia

Australia Petroleum Act, Offshore Petroleum and Greenhouse Gas Storage Act 2006-SECT 775D

Offshore Petroleum and Greenhouse Gas Storage Amendment (Titles Administration and Other Measures) Bill 2021

Canada

Canada Oil and Gas Operations Act (R.S.C., 1985, c. O-7) (amended February 26, 2020)

Denmark

Danish Subsoil Act, Consolidated Act on the Use of the Danish Subsoil, No.1533, (September 21, 2018, amended May 1, 2019)

European Commission

COM/2002/0681 final, *Communication from the commission to the European parliament and to the council on improving safety at sea in response to the Prestige accident* (December 3, 2002)

Directive 2013/30/EU of the European Parliament and of the Council of June 12, 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC Text with EEA relevance (July 18, 2013)

Implementation of Directive 2009/31/EC on the Geological Storage of Carbon Dioxide, Guidance Document 4, Article 19 financial Security and Article 20 Financial Mechanism (June 15, 2012)

Norway

Norwegian Petroleum Activities Act, Petroleum Act (Act of 29 November 1996 No. 72 relating to petroleum activities)

United Kingdom

Petroleum (Current Model Clauses) Order 1999, No. 160, Schedule 2 (current model clauses for controlled waters or seaward production licenses deriving from schedule to the petroleum (production) (continental shelf and territorial sea) regulations 1964) (1999)

DECC Guidance Note, *Guidance Note to UK Offshore Oil and Gas Operators on the Demonstration of Financial Responsibility before Consent May Be Granted for Exploration and Appraisal Wells on the UKCS* (January 1, 2013)

Decommissioning of Offshore Oil and Gas Installations and Pipelines (November 2018)

OPL Regulations 2015, *Offshore Petroleum Licensing (Offshore Safety Directive) Regulations 2015*, No. 385 Petroleum (July 19, 2015)

Petroleum Regulation 2008, *The Petroleum Licensing (Production) (Seaward Areas) Regulations 2008* (SI 2008/225)

UK National Standard for Marine Oil Spill Response Organisations (June 8, 2018, amended February 10, 2022)

United States

C.F.R., *Code of Federal Regulations*

F.S. 2021, *The 2021 Florida Statutes*

L.A. Rev Stat, *Louisiana Laws Revised Statutes* (2011)

OPA 90, *Oil Pollution Act as of 1990* (August 18, 1990)

TCAS, *Texas Health and Safety Code* (2005)

U.S.C., *United States Code*

International conventions and treaties

OPOL Agreement, *Offshore Pollution Liability Agreement* (effective as of 21 June 2017)

UNCLOS, *United Nations Convention on the Law of the Sea* (signed on December 10 1982, effective on November 16, 1994)

1969 CLC Convention, *International Convention on Civil Liability for Oil Pollution Damage*

1971 Fund Convention, *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage*

1973/78 MARPOL Convention, *International Convention for the Prevention of Pollution from Ships* (October 2, 1983)

1992 CLC Convention, *International Convention on Civil Liability for Oil Pollution Damage*

1992 Fund Convention, *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage*

2003 Protocol, *Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage* (enacted May 16, 2003, effective March 3, 2005)

Appendix Two: Cases

China

China Biodiversity Conservation and Green Development Foundation v. Ningxia Ruitai Tech Ltd. regarding environmental public interest related dispute, No. 75 Guiding Case of the SPC (中国生物多样性保护与绿色发展基金会诉宁夏瑞泰科技股份有限公司环境污染公益诉讼案, 最高人民法院指导案例75号), Supreme People's Court, 2016.

Cao Hongsheng v. Suizhong Government of Environmental Pollution Settlement (曹洪升诉绥中县人民政府行政纠纷), Liaoning Higher Court, 2016.

Dou, Xingdao, et al. v. COPC & CNOOC regarding marine pollution dispute settlement (都兴涛与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案一审民事判决书), Qingdao Maritime Court, 2015.

He Yecai et al. v. Conoco Phillips China& CNOOC regarding marine pollution settlement (贺业才与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案), Qingdao Maritime Court, 2015.

Luan et al. v. COPC & CNOOC- Luan Shuhai, Liu Mingwei, et al. v. Conoco Phillips China& CNOOC on the dispute of compensating marine pollution (栾树海、刘明炜等与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案), Tianjin Higher Court, 2016.

Shuangle Aquaculture Farm of Cao Feidian District v. COPC & CNOOC Regarding Marine Pollution Dispute Settlement (曹妃甸区七农场双乐育苗场与康菲石油中国有限公司、中国海洋石油集团有限公司海上、通海水域污染损害责任纠纷一案), Tianjin Maritime Court, 2016.

Wang Changhong v. Suizhong Government of Environmental Pollution Settlement (王长红诉绥中县人民政府环境保护行政管理纠纷), Liaoning Higher Court, 2017.

Xizhong Aquaculture Co. of Tangshan City v. COPC & CNOOC Regarding Marine Pollution Dispute Settlement (唐山市希忠水产有限公司与康菲石油中国有限公司、中国海洋石油集团有限公司海上、通海水域污染损害责任纠纷一案一审民事判决书), Tianjin Maritime Court, 2016.

Yifa Eco-sightseeing Agricultural Garden Co. of Tangshan City v. COPC & CNOOC Regarding Marine Pollution Dispute Settlement (唐山曹妃甸区益发农业生态园有限公司、康菲石油中国有限公司海上、通海水域污染损害责任纠纷一案), Tianjin Higher People's Court, 2018.

Zeng Qinglin v. Ondimar Transportes Maritimos Insurance Association Ltda. Regarding the Dispute of Marine Pollution Settlement (曾青林与昂迪玛海运有限公司、博利塔尼亚船舶保险协会海上污染损害责任纠纷一案一审民事判决书), Dalian Maritime Court, 2005.

Zhang Guodong et al. v. Conoco Phillips China regarding the Losses Arising from Marine Pollution (张国东、康菲石油中国有限公司海上、通海水域污染损害责任纠纷一案), Tianjin Maritime Court, 2016.

Zhang Huiqing v. Conoco Phillips China& CNOOC regarding Marine Pollution Settlement (张慧庆与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案), Qingdao Maritime Court, 2015.

Zhao Lecheng et al. v. Conoco Phillips China& CNOOC regarding the Losses Arising from Marine Pollution (赵乐成与康菲石油中国有限公司、中国海洋石油总公司海上、通海水域污染损害责任纠纷一案), Qingdao Maritime Court, 2015.

Qinhuangdao Economic & Technological Development Zone Power Company v. Qinhuangdao Development Zone State-owned Asset Operation Co. Ltd Regarding Liability Dispute for Marine Pollution Settlement (秦皇岛经济技术开发区港务有限公司、秦皇岛开发区国有资产经营有限公司海上、通海水域污染损害责任纠纷一案), Supreme People's Court, 2017.

United States

Bon Secour Fisheries v. BP 2012- Bon Secour Fisheries, Inc., et al., on behalf of themselves and all others

similarly situated, v. BP Exploration & Production Inc. (May 5, 2012); *BP America Production Company; BP p.l.c.*, MDL No. 2179, In re Oil Spill by the Oil Rig 'Deepwater Horizon' in the Gulf of Mexico, available at https://www.deepwaterhorizonsettlements.com/Documents/Economic%20SA/Settlement_Agreement.pdf (accessed on April 9, 2022).

Impact Statement

For such a socially relevant matter as compensation and prevention arising from oil pollution, it is of great significance to reflect upon the (potential) impact that this study may have on a social or economic level. The following paragraphs briefly outline how this research contributes to this process.

Research findings

In the past four decades that China has devoted to its offshore oil exploration and production, a model of joint development between the China National Offshore Oil Corporation (CNOOC) and foreign operators has been used. Drilling for oil offshore is a challenging task with multiple hazards, as oil spills from daily operations and offshore accidents endanger the marine ecosystem of nearby waters. In addition to traditional damage (i.e., personal injury and property damage) via the environment, tort liabilities resulting from marine ecological damage require special attention due to its particular features. The *Bohai Bay Oil Spill* in 2011 demonstrated that China was in urgent need of dealing with this issue in practice.

Against this background, the questions of how victims are eventually compensated and how potential polluters are incentivised to prevention become relevant and important. Accordingly, the research question in this thesis is: does China have a legal system in place to remedy the damage arising from offshore drilling, providing adequate compensation and incentives for prevention to risk creators?

The answers to the question are a mixed blessing. Currently (2022), there are applicable rules in China regarding the compensation and prevention of offshore oil damage, which involve major matters of the offshore oil business, liability attribution, tort damages, claims process, financial security, and safety regulation. Hence, China has a legal framework on paper that governs offshore oil damage and there is also a set of procedural methods and rules to implement the remedy as well. From a law and economics perspective, the existing system has advantages in handling offshore oil damage. In general, the strict liability system with no financial caps in China, leaving aside the insolvency issue, is theoretically favourable to tackle offshore oil damage.

Moreover, victims with personal injury or economic loss are granted to pursue compensation awards, while marine administrative organs, legally mandated NGOs and procuratorates are entitled to require ecological restoration. In addition, offshore oil companies can voluntarily purchase financial tools or count on self-insurance. Finally, a set of safety standards and a specific internal compliance mechanism within the companies are also formulated to regulate and monitor offshore oil operations. Meanwhile, the study critically analysed the strengths and weaknesses of the applicable rules based on economic theory. It provides China with a fresh insight into the evaluation of the existing legal system. The study of the compensation mechanism of offshore drilling reflected that the legislation and the implementation of laws are prompted with Chinese characteristics. Some issues deviate from the economic theory, creating an insolvency risk associated with under-compensation and under-deterrence: (i) the liability is exclusively channelled to operators, while the joint developer CNOOC bears no liability; (ii) there is no mandatory financial security to offshore oil companies; and (iii) the current claims procedure relies heavily on the public administration and is thus not independent enough compared with other types of oil spill settlement solutions, such as the ADR mechanism or the judicial system.

Social relevance

After the major incident with the *Deepwater Horizon* in the Gulf of Mexico, western legislators and legal scholars have shown great interest in the compensation mechanism for offshore oil pollution, but mainly from the perspectives of the US and the EU. In China, although the exploration and production of oil in the offshore industry grow rapidly, and this leads to significant potential risks, legislators and scholars rarely concentrate on the legal remedies for offshore oil damage.

When it comes to marine oil pollution, most literature pays attention to vessel-induced damage. Moreover, legislators have formulated several regulations aiming at vessel-source pollution in recent years, and these specific legal documents have entered into force. The rules related to offshore-related damage are scattered in dozens of legal documents, while quite a few relevant provisions are either unclear or unspecific.

Although the *Bohai Bay Oil Spill* in 2011 triggered a heated discussion about compensation for oil spill related damage, the focus was on the accident response

rather than digging into the legal arrangement of this particular type of damage. In academia, there has so far not been any comprehensive study on how China legally remedies the damage arising from offshore drilling. This study, therefore, is formulated to fill in the blank spots on this research map.

Target audience and proposals

As China becomes a major country in the offshore oil business and this simultaneously brings tremendous risks, the legal system that governs this environmentally sensitive industrial sector and the way it is implemented in practice deserve special attention. After all, studying the applicable rules is not merely a necessity for China to prepare for the hazards *ex ante* and to tackle them *ex post*; moreover, offshore oil operators worldwide need clear and specific legal guidance for their business activities in Chinese waters. Moreover, people closely related to offshore oil activities (i.e., offshore oil operators, potential victims of offshore oil risks, fishermen en tourism providers, environmental NGOs, etc.) will find useful legal guidance in this book.

Regarding the proposals to the government, although we have offered three pieces of advice based on the limitations of the current system, it is not an easy task to implement these particular policy recommendations in the context of China. We need to come down to earth when modifying the current legal regime; we also need to tailor each suggestion according to actual circumstances. After all, whether and when these policy recommendations will be introduced or not largely depends on political necessity. Despite all kinds of problems discussed above, the existing system in China can largely deal with the compensation associated with oil spills. The fact that the public administration has a powerful impact on nearly every aspect of offshore drilling seems to be continued in the near future. However, from an economic perspective, we could prefer and suggest a more structured and systematic solution in line with the policy recommendations mentioned above.

Curriculum vitae

Minzhen Jiang was born in 1992 in Jinan, China. She obtained the degree of Bachelor of Laws and Bachelor of Arts from Shandong University in 2015. Subsequently she got the degree of Master of Laws from Wuhan University in 2018. Minzhen joined the Maastricht Institute of Transnational Legal Research (METRO) and started her doctoral research in September 2018. Her research interests concern environmental law, tort law, insurance law, and law and economics.

