

Rethinking environmental salvage and salvage law

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**Rethinking Environmental Salvage and Salvage Law:
Towards an Efficient Mechanism for
Environmental Emergency Response in Maritime Accidents?**

Haiyang Yu

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**Rethinking Environmental Salvage and Salvage Law:
Towards an Efficient Mechanism for
Environmental Emergency Response in Maritime Accidents?**

DISSERTATION

to obtain the degree of Doctor at Maastricht University,
on the authority of the Rector Magnificus, Prof. dr. Pamela Habibović
in accordance with the decision of the Board of Deans,
to be defended in public
on Thursday 16 November 2023, at 10:00 hours

by

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To my parents.

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Haiyang Yu
Enschede, the Netherlands
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List of Abbreviations

BIMCO	Baltic and International Maritime Council
CMI	Comité Maritime International
EEZ	Exclusive Economic Zone
EMSA	European Maritime Safety Agency
H & M	Hull and Machinery
ICS	International Chamber of Shipping
IGP&I	International Group of P&I Clubs
IMO	International Maritime Organization
IOPC Funds	International Oil Pollution Compensation Funds
ISU	International Salvage Union
IUMI	International Union of Marine Insurance
IWG	International Working Group
LMCLQ	Lloyd's Maritime And Commercial Law Quarterly
LNG	Liquefied Natural Gas
LOF	Lloyds' Open Form; Lloyd's Standard Form of Salvage Agreement
LSAC	Lloyd's Salvage Arbitration Clauses
NGO	Non-Governmental Organization
P&I Clubs	Protection and Indemnity Clubs
SALVCON	International Salvage Union Lumpsum Sub-Contract
SALVHIRE	International Salvage Union Daily Hire Agreement
SCOPIC	Special Compensation Protection and Indemnity Clause
SCR	Special Casualty Representative
TOWCON	Ocean Towage Agreement (Lump Sum)
TOWHIRE	Ocean Towage Agreement (Daily Hire)
UK	United Kingdom
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
US/USA	United States of America
VLCC	Very Large Crude Carrier
WRECKFIX	International Wreck Removal and Marine Services Agreement (Fixed Price – No Cure No Pay)
WRECKHIRE	International Wreck Removal and Marine Services Agreement (Daily Hire)
YAR	York-Antwerp Rules

Legal Abbreviations : England & Wales

A.&E.	Adolphus & Ellis' Queen's Bench Reports
A.C.	Appeal Cases
Admlty	Admiralty

All. E.R.	All England Law Reports
App. Cas	Law Reports, Appeal Cases
Asp. M.L.C.	Aspinall's Maritime Cases
Co. Rep.	Coke's King's Bench Reports
Dod.	Dodson's Admiralty Reports
E.R.	English Reports
EWHC	England & Wales High Court
Hagg	Haggard's Admiralty Reports
HL	House of Lords
KB	Law Reports, King's Bench Division
L.J. (M.C.)	Law Journal Reports, Magistrates' Cases New Series
Ll.L.Rep.	Lloyd's List Law Reports
Lloyd's Rep.	Lloyd's Law Reports
Moo PC	Moore's Privy Council Cases
N.o.C.	Notes of Cases in the Ecclesiastical and Maritime Courts
P.	Law Reports, Probate Division
P.D.	Law Reports, Probate, Divorce & Admiralty Division
QB	Law Reports, Queen's Bench Division
S.A.	Saunders & Austin's Locus Standi Reports
Spinks E.&A.	Spink's English Ecclesiastical and Admiralty Reports
UKSC	United Kingdom Supreme Court
W.Rob.	William Robinson's Admiralty Reports
W.L.R.	Weekly Law Reports

Legal Abbreviations : United States of America

A.M.C.	American Maritime Cases
Cir.	Circuit
E.D.Va.	Eastern District of Virginia
F.	Federal Reporter
F. Supp	Federal Supplement
N.D.Cal.	Northern District of California
S.D.N.Y.	Southern District of New York
U.S.C.	United States Code

Note: The list of international and national legislations, containing their respective abbreviations, can be found at the end of this thesis.

Chapter 1 Introduction

1.1 Problem Definition

1.1.1 Benefits of Salvors' Services in Transition: A New Balance of Private and Public Interests

Maritime transport is essential to the world's trade and economy, given that over 80% of the volume of international trade is carried by sea and it is by far the most cost-effective way to move commodities and raw materials globally.¹ Its heart is the management, navigation, and operation of the ship; these arguably constitute the scope of international maritime law, which represents the framework of governance and legal order for trade and shipping.² Along with other services provided to the ship, salvage services are mainly provided by professional salvors who have the capacity to respond to global maritime casualties. Traditionally, salvage is concerned with the saving or preservation of recognized maritime property In peril at sea and it used to be the case that only the owners of such properties could benefit from a salvage service.³ Increasingly in modern times, with the development of different types of and larger vessels, such as oil tankers, as well as with the greater change in the scale of the shipping of potential hazardous cargoes, ships and their cargoes have an enhanced potential to cause harm to the environment. Disasters have indeed occurred since the 1960s, starting with the *Torrey Canyon* in 1967.

In the case of the *Torrey Canyon* disaster, it was estimated that the internal costs to the directly involved parties were £ 6.54 million, the external costs of Prevention and Control to the UK was £ 4.7 million and £ 3 million to France and Guernsey. Meanwhile, the external cost of damage, which requires the measurement of the loss to the third parties was determined to be 'extensive but unquantifiable'.⁴ In recent years, the figures for costs for such maritime casualties are rising. In the *Prestige* disaster in 2002, the estimated indirect losses in the year 2003 only to Galicia, Spain, amounted to € 2344.9 million, 42.8% of which consisted of non-market value including losses to recreation and biodiversity; however, it was still considered an underestimate of the actual loss, since the impact of a disaster on the environment and economy can last for a few decades.⁵ In 2006, it was submitted by the president of the International Salvage Union (ISU) that,

'[T]he salvage of the *Prestige* would have cost around USD 10 million. A localized clean-up might have cost another USD 30 million. The Spanish decision to deny refuge

¹ UNCTAD, '50 Years of Review of Maritime Transport, 1968-2018: Reflecting on the Past, Exploring the Future' (2018) <https://unctad.org/en/PublicationsLibrary/dtl2018d1_en.pdf> accessed 10 October 2019.

² Maximo Q Mejia and Proshanto K Mukherjee, *Selected Issues in Maritime Law and Policy: Liber Amicorum Proshanto K. Mukherjee* (Nova Science Publishers, Inc 2013) ix.

³ John Reeder (ed), *Brice on Maritime Law of Salvage* (5th edn, Sweet & Maxwell 2011) 397, para 6–01.

⁴ Paul Burrows, Charles Rowley and David Owen, 'The Economics of Accidental Oil Pollution by Tankers in Coastal Waters' (1974) 3 *Journal of Public Economics* 251, 258.

⁵ María Dolores Garza and others, 'Indirect Assessment of Economic Damages from the Prestige Oil Spill: Consequences for Liability and Risk Prevention' (2009) 33 *Disasters* 95, 106 para2.

to the Prestige turned a USD 40 million incident into a USD 1.5 billion pollution catastrophe.’⁶

The salvage industry provides services that save lives, protect the environment, mitigate risk and prevent loss.⁷ According to the statistics from the International Salvage Union (ISU)’s Annual Pollution Prevention Survey for 2021, ‘members of the ISU provided 226 services to vessels carrying 2.6 million tonnes of potentially polluting cargo and fuel during operations in 2021’.⁸

Table 1 ISU Pollution Prevention Survey Results in 2019-2021 (tonnes)

ISU Pollution Prevention Survey Results in 2019-2021 (tonnes)*			
	2021	2020	2019
Number of services	226	191	214
Bunker fuel	89,456	111,886	115,811
Crude oil	103,408	360,733	400,000
Refined oil products	182,232	112,096	278,046
Chemicals	24,126	133,150	70,944
Bulk polluting/ hazardous	424,719	744,246	961,061
TEU – tonnes equivalent	1,559,025 (103,935 TEU@nominal 15 tonnes/TEU)	502,845 (33,523 TEU@nominal 15 tonnes/TEU)	386,985 (25,799 TEU@nominal 15 tonnes/TEU)
Other pollutants	2,793	51,928	95,909
Totals of Pollutants	2,595,216	2,538,210	2,308,756
Bulk, non-polluting	209,457	521,326	229,731

⁶ Hans van Rooij, ‘Environmental Awards: Investing in Spill Prevention’ (2006) <http://www.marine-salvage.com/media_information/papers/oil%20pollution%202006.htm> accessed 23 September 2019.

⁷ ISU, ‘International Salvage Union Annual Review 2021’ (2022) 3 <<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwie1P7v-t39AhU0hP0HHcNxBfUQFnoECAwQAQ&url=https%3A%2F%2Fwww.marine-salvage.com%2Fwp-content%2Fuploads%2F2022%2F07%2FISU-Annual-Review-2021.pdf&usg=AOvVaw3XqsC-WqAq8ZUfONj0Twqt>> accessed 15 March 2023.

⁸ *ibid* 11.

* Note: This table contains survey results published by the International Salvage Union (ISU) and they can be found in the International Salvage Union Annual Reviews 2020 & 2021. The surveys were conducted by the ISU and the data were collected from members of the ISU from 1994 onwards.

It becomes increasingly apparent that promptly performed and successfully undertaken salvage services are not only beneficial to the parties involved but also to the ‘third party’ interests,⁹ i.e. the interests of governments and the public at large,¹⁰ who are the third parties to a salvage service. Governments and authorities may be anxious to ensure that salvage services are undertaken in such a way as to protect the paramount public interest. This leads to new challenges and risks to the salvage industry and to the maritime law of salvage. The question of how incentives could be given to the private sectors involved in maritime accidents so that salvor’s environmental services could be provided in a timely manner is indeed a societal challenge.¹¹

To recall what has already been recognized by States parties to the Salvage Convention 1989 after some major environmental disasters caused by shipping, the preamble of the Salvage Convention 1989 reads as follows:

‘The States parties to the present Convention,
Recognizing the desirability of determining by agreement uniform international rules regarding salvage operations,
Noting that substantial developments, in particular the increased concern for the protection of the environment, have demonstrated the need to review the international rules presently contained in the Convention for the Unification of Certain Rules of Law relating to Assistance and Salvage at Sea, done at Brussels, 23 September 1910’,
Conscious of the major contribution which efficient and timely salvage operations can make to the safety of vessels and other property in danger and to the protection of the environment,
Convinced of the need to ensure that adequate incentives are available to persons who undertake salvage operations in respect of vessels and other property in danger,
Have agreed as follows: [...]’

1.1.2 Provision of Salvage Services ‘in Danger’?

Provision of environmental services in salvage operations in a timely and proper manner is essential to prevent and minimize environmental damage in maritime accidents. An industrial

⁹ Edgar Gold, ‘Marine Salvage: Towards a New Regime’ (1989) 20 *Journal of Maritime Law and Commerce* 487, 489.

¹⁰ Reeder (n 3) 397, para.6–01.

¹¹ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996

report published in July 2022 showed recent empirical evidence that there had been a general decline in global professional salvage capacity and that there was potential for delays in the contracting and engagement of salvage services in marine casualties.¹² Traditionally, salvage services were provided by passing vessels and the decision maker in maritime casualties was usually the master of the distressed vessel. The development of communication technology has made it possible for the shipowner to be informed immediately when there is a maritime accident;¹³ also, in current times salvage services are usually rendered by professional salvors on salvage agreements. But this also make the decision-making process more complicated. On the demand side of salvage services, the decision-making is mainly down to the shipowner regarding which professional salvor(s) should be engaged and which type of contracts should be used.¹⁴ But most shipowners do not possess the necessary knowledge or experience in dealing with maritime accidents and not surprisingly, they rely on property underwriters and liability insurers' advice, which could be conflicting due to the divergence of interests.¹⁵ As the report argues, '[I]n a corporate world where financial risk is very important, some parties, including shipowners and their underwriters/insurers, seek to have greater predictability or certainty over costs and, consequently, delays are more likely to be incurred as they endeavour to minimize their financial exposure.'¹⁶ On the supply side of salvage services, it has been reported that the use of the age-old traditional LOF (Lloyd's Open Form) contracts has been continually declining over recent decades.¹⁷ The LOF contract is considered by the salvage industry to be the favorable choice as it is more financially attractive than its alternatives, e.g. daily-hire contracts (for more detailed analysis see Chapter 3).¹⁸ The danger of the decline in

¹² Hugh Shaw, 'Independent Review into the Potential for Delays in the Contracting and Engagement of Salvage Services in Marine Casualties' (2022) <https://static.igpandi.org/igpi_website/media/adminfiles/Delay_Report_-_July_2022.pdf> accessed 26 October 2022.

This industrial report was commissioned by the International Group of P&I Clubs (IGP&I), whose members provide liability cover for over 90% of the world's ocean-going tonnage. The report's findings provides practical insights and they reaffirm status quo of the salvage practice. These findings, incidentally, are in line with some research findings contained in this dissertation. For example, in Chapter 3, Paragraph 3.2, references are made to other industrial reports, conference proceedings and academic publications that contain similar findings and views.

¹³ Shaw (n 12) 21 para.4.2.4.

¹⁴ *ibid* 5 para.1.1.4.

¹⁵ *ibid* 53. For more discussions on the divergence of interests between property underwriters and liability insurers, see Chapter 4, especially Paragraph 4.5.3, and Chapter 5, Paragraph 5.3.3

¹⁶ Shaw (n 12) 52 para.6.1.3.

Stakeholders in the private sector include multiple sectors in the maritime industry, such as, shipowners (represented by the ICS, International Chamber of Shipping), salvage companies (represented by the ISU, International Salvage Union), P&I Clubs (who cover the shipowners' liability risks including environmental damage; some of them are represented by the IG P&I, International Group of P&I Clubs), property underwriters (who insure property including vessels and cargo; some of them are represented by IUMI, International Union of Marine Insurance).

¹⁷ Shaw (n 12) 5 para.1.1.5; Nigel Lowry, 'Who Killed LOF?' *Lloyd's List* (8 April 2017) <<https://informaconnect.com/who-killed-lof/>> accessed 24 October 2022; Lloyd's of London, 'LOF Statistics: Lloyd's Open Form Report 2015' <<https://www.lloyds.com/resources-and-services/lloyds-agency/salvage-arbitration-branch/lof-statistics>> accessed 6 October 2021.

The LOF refers to the Lloyd's Standard Form of Salvage Agreement (No Cure–No Pay) which is commonly known by its previous name, Lloyd's Open Form. More detailed discussions are in Chapter 3.

¹⁸ Shaw (n 12) 5 paras.1.1.6–1.1.9.

using the LOFs is two folded: firstly, there is a possibility that we may see even fewer salvors available to provide emergency responses as they may substitute away to other businesses (this is precisely the ‘substitution effect’¹⁹ identified by Landes & Posner in their analysis of salvage).²⁰ Secondly, larger vessels,²¹ challenging cargoes and more diverse fuel systems bring more challenges to emergency response;²² it is unlikely that salvors would have incentives to continue to invest in keeping state-of-the-art equipment and skills without adequate incentivization.²³ In summary, the relevant private stakeholders in the response to a maritime accident have different responsibilities and the divergence of interests would slow down the decision-making and lead to a decline in global salvage capacity as professional salvors found the business less profitable. As such, societal interests in the safety of navigation and the protection of the environment may not be taken into account to an optimal level by private interests.²⁴ Indeed, adequate incentivization to salvors for their environmental services in salvage operations is not only a problem for private stakeholders but also a societal challenge.

1.2 Academic Interest

1.2.1 The Maritime Law of Salvage

Salvage law is an ancient law, dating back to Roman law and possibly to the Rhodian law. It has developed independently in different jurisdictions but it shows great similarities because of the ubiquity of subject matter.²⁵ There was no international salvage law until a salvage convention was introduced in 1910, which substantially reflected English law;²⁶ this was effectively replaced by the 1989 Salvage Convention.²⁷ A salvage operation means any act or activity undertaken to assist a vessel or any other recognized maritime property in danger.²⁸ The word ‘salvage’ in maritime law can be seen as referring to either the right to a salvage reward, even though sometimes it is referred to as ‘remuneration’, or the salvage services a

¹⁹ William M Landes and Richard A Posner, ‘Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism’ (1978) 7 *Journal of Legal Studies* 83.

²⁰ Shaw (n 12) 36–37.

²¹ Boskalis, *The Salvage of the Ever Given: Refloating of the Grounded 20,000 TEU Container Vessel Ever Given in the Suez Canal* (Royal Boskalis Westminster NV 2021).

²² For example, see, William Boston and Patricia Kowmann, ‘Burning Electric-Vehicle Batteries Complicate Efforts to Fight Fire on Drifting Ship in Atlantic Ocean’ *The Wall Street Journal* (20 February 2022) <<https://www.wsj.com/articles/burning-electric-vehicle-batteries-complicate-efforts-to-fight-fire-on-drifting-ship-in-atlantic-ocean-11645385571>> accessed 15 March 2023; The Digital Ship, ‘Fuel Choice the Essential Decision in Shipping’s Decarbonisation, Finds DNV GL’ *The Digital Ship* (24 September 2020) <<https://thedigitalship.com/news/electronics-navigation/item/6814-fuel-choice-the-essential-decision-in-shipping-s-decarbonisation-finds-dnv-gl>> accessed 15 March 2023.

²³ Shaw (n 12) 36 para.4.7.5.

²⁴ See, *ibid* 53.

²⁵ See Chapter 2, Paragraph 2.2

²⁶ Convention for the Unification of Certain Rules of Law respecting Assistance and Salvage at Sea, adopted in Brussels in 1910; Reeder (n 3) 16 para.1–52.

²⁷ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996.

²⁸ *ibid* 1(a).

person renders to salvaging a recognized property of salvage. The salvor is not entitled to a reward if they are not successful or do not contribute to the ultimate success of the salvage efforts. This is the basic principle of ‘No Cure–No Pay’, which is incorporated into both the 1910 and 1989 salvage conventions.²⁹

1.2.2 Challenges to Salvage Law

Environmental consequences of salvage operations have presented substantial challenges for salvage, and it is well established that it should be ensured that adequate incentives are provided to the persons, i.e. the salvors, who undertake salvage operations in respect of vessels and other property in danger.³⁰ Environmental concerns have shaped the modern law of salvage: oil-spill disasters such as the *Torrey Canyon* (1967) and the *Amoco Cadiz* (1978) instigated the changing process of the salvage regime. In those salvage operations, the salvors found it rather difficult to save the property, which made it impossible for them to claim any salvage reward under the age-old ‘No Cure–No Pay’ principle. This so-called phenomenon of ‘environmental salvage’ has raised discussions of how to provide adequate incentives to salvors for their environmental services.³¹ The core issue is that the traditional salvage law and practice have been restricted by the ‘No Cure–No Pay’ principle while failing to provide incentives for salvors to provide environmental services.³² This difficulty for law reform might be explained by the theory of ‘path dependency’, which refers to the fact that choices made may to a large extent depend upon past decisions, and that the initial action may have put people on a path that cannot be left without some costs.³³

1.2.3 Overview of the Legal Regime

The societal challenge that this thesis examines is how the law and practice could provide adequate incentivization to salvors to provide their environmental services in salvage operations. This phenomenon of ‘environmental salvage’, at first sight, falls within the auspices of maritime law of salvage. Literature from both academia and practice has shown that the main legal instruments are the Salvage Convention 1989,³⁴ national laws of salvage, and

²⁹ See Chapter 2 for more detailed discussions.

³⁰ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 preamble.

³¹ Archie Bishop, ‘The Development of Environmental Salvage and Review of the London Salvage Convention 1989’ (2012) 37 *Tulane Maritime Law Journal* 65.

³² Geoffrey Brice, ‘Law of Salvage: A Time for Change? “No Cure–No Pay” No Good?’ (1998) 73 *Tulane Law Review* 1831; Michael G Faure and Haiyang Yu, ‘Is Environmental Salvage An Oxymoron? A Law and Economics Analysis’ (2023) 52 *Journal of Maritime Law and Commerce* 131. See Chapter 5, Paragraph 5.3

³³ See, Arthur W Brian, ‘Competing Technologies, Increasing Returns, and Lock-In by Historical Events’ (1989) 99 *The Economic Journal* 116; SJ Liebowitz and Stephen E Margolis, ‘Path Dependence, Lock-In, and History’ (1995) 11 *The Journal of Law, Economics, and Organization* 205; Michael G Faure and Hui Wang, ‘Financial Caps for Oil Pollution Damage: A Historical Mistake?’ (2008) 32 *Marine Policy* 592, 603.

³⁴ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996.

standard salvage agreements that have been developed by the industry, especially the most influential of these, LOF and its arbitration.³⁵

The purpose of environmental services in salvage operations is to prevent or minimize environmental damage caused by maritime accidents.³⁶ Due to the complicated components of (potential) pollutants in ship-source pollution cases that would cause environmental harm, some other international conventions are also relevant: the 1992 CLC and Fund Convention on liability and compensation for oil pollution,³⁷ the Bunker Convention 2001,³⁸ the HNS Convention 2010,³⁹ the Wreck Removal Convention 2007,⁴⁰ and the OPRC Convention.⁴¹

1.2.4 Research Gap

The incentive provided by the traditional salvage law is that it entitles a successful salvor to a certain percentage of salvaged property as the salvage reward. The age-old ‘No Cure–No Pay’ principle has been the governing principle. It was developed in the Admiralty jurisdiction of the UK and was later on embedded in the salvage conventions and the LOF. However, the use of salvage rewards does not provide adequate incentives for salvors to provide environmental services in salvage operations. Judicial innovations, contractual instruments and solutions in

³⁵ Bishop (n 31); Francis D Rose, *Kennedy & Rose : Law of Salvage* (9th edn, Sweet & Maxwell 2017) ch 6; John Reeder (ed), *Brice on Maritime Law of Salvage* (4th edn, Sweet & Maxwell, 2003) ch 6; Colin De La Rue and Charles B Anderson, *Shipping and the Environment* (2nd edn, Informa Law 2009) ch 14; Aleka Mandaraka-Sheppard, *Modern Maritime Law -- Volume 2: Management Risks and Liabilities*, vol 2 (3rd edn, Informa Law 2013) ch 10; Shaw (n 12) (on LOF and its arbitration).

³⁶ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 preamble.

³⁷ International Convention on Civil Liability for Oil Pollution Damage (CLC), Adoption: 29 November 1969; Entry into force: 19 June 1975; Being replaced by 1992 Protocol: Adoption: 27 November 1992; Entry into force: 30 May 1996; International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND), Adoption: 18 December 1971; Entry into force: 16 October 1978; superseded by 1992 Protocol: Adoption: 27 November 1992; Entry into force: 30 May 1996.

³⁸ International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER), Adoption: 23 March 2001; Entry into force: 21 November 2008.

³⁹ International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS), Adoption: 3 May 1996; Not in force; superseded by 2010 Protocol: Adoption: 30 April 2010; Not yet in force.

⁴⁰ Nairobi International Convention on the Removal of Wrecks, Adopted on 18 May 2007, entered into force on 14 April 2015.

‘[T]he convention provides a set of uniform international rules aimed at ensuring the prompt and effective removal of wrecks located beyond the territorial sea.’ See, International Maritime Organization, ‘Nairobi International Convention on the Removal of Wrecks’ <<https://www.imo.org/en/About/Conventions/Pages/Nairobi-International-Convention-on-the-Removal-of-Wrecks.aspx>> accessed 16 March 2023.

⁴¹ International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), Adoption: 30 November 1990; Entry into force: 13 May 1995. The OPRC convention provides ‘a global framework for international co-operation in combating major incidents or threats of marine pollution.’ See, International Maritime Organization, ‘International Convention on Oil Pollution Preparedness, Response and Co-Operation (OPRC)’ <[https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-\(OPRC\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-(OPRC).aspx)> accessed 16 March 2023.

the Salvage Convention 1989 have been developed in the paradigm of salvage law,⁴² but as shown in the recent industry report that was cited earlier in this chapter, current solutions cannot provide adequate incentives for salvors to provide environmental services in salvage operations. In the history of evolution of the Salvage Convention, there have been two failed attempts at law reform to break through the ‘No Cure–No Pay’ principle and to provide a separate remuneration for salvors’ environmental services in salvage operations. The two failed attempts relate to the judicial concept of ‘liability salvage’ that was made as a proposal to amend the Salvage Convention 1910 (in the 1980s, when the current Salvage Convention 1989 was introduced), as examined in Chapter 2, and the International Salvage Union’s proposal of an ‘Environmental Salvage Award’ to the Comité Maritime International (in the 2010s), as discussed in Chapter 4. There have been a number of academic discussions of this within the salvage law context, particularly during these two periods,⁴³ but the problem of providing adequate incentives to salvors remains unsolved. The literature recognizes that the issue cannot be resolved using traditional legal methods due to the polarized views among the private stakeholders who have conflicts of interests.⁴⁴ Some literature, then, avoids the problem of how to provide an adequate reward and suggests that the issue might be resolved by protecting salvors from pollution liability.⁴⁵ This research aims to enrich these academic discussions and, hopefully, to propose solutions for the problem using the helpful method of economic analysis of law.

1.3 Purpose and Research Questions

Traditionally, salvors’ services rendered after maritime accidents generate benefits both for private interests, as property has been saved, and to the public interest, as the safety of navigation is important to global trade and commerce as well. In modern times, salvors’ services, especially the environmental services in salvage operations carried out to prevent or minimize environmental damage,⁴⁶ have significantly been more beneficial to the society at

⁴² These solutions are examined in chapter 2 (the judicial concept of ‘Liability Salvage’); Chapter 3 (the LOF and SCOPIC clause); and Chapter 4 (Enhanced Reward under Article 13 and Special Compensation under Article 14 of the Salvage Convention 1989)

⁴³ See for example, Brice (n 32); Bishop (n 31); Colin De La Rue and Charles B Anderson, ‘Environmental Salvage – Plus Ça Change ... ?’ (2012) 18 *The Journal of International Maritime Law* 279; James T Shirley Jr., ‘Environmental and Liability Salvage in 2010’ (2010) ITS 2010 Day2 Paper7; Mišo Mudrić, ‘Liability Salvage - Environmental Award: A New Name for an Old Concept’ (2010) 49 *Poredbeno Pomorsko Pravo* 471; Michael Kerr, ‘The International Convention on Salvage 1989: How It Came to Be’ (1990) 39 *The International and Comparative Law Quarterly* 530; Brian F Binney, ‘Protecting the Environment with Salvage Law: Risks, Rewards, and the 1989 Salvage Convention Comment’ (1990) 65 *Washington Law Review* 639; Catherine Redgwell, ‘The Greening of Salvage Law’ (1990) 14 *Marine Policy* 142.

⁴⁴ See, Huiru Liu, *Environmental Protection Services and Salvage Law: Emerging Issues in Perspective* (WMU Publications 2020) 204.

⁴⁵ De La Rue and Anderson (n 43); Liu, *Environmental Protection Services and Salvage Law: Emerging Issues in Perspective* (n 44).

⁴⁶ Rose (n 35) 179 para.6–001.

large because of the environmental damage and the social loss therewithin that have been avoided.⁴⁷ This can be concluded on the basis of the above-mentioned statistics and economics papers. However, the independent report in 2022 indicates, firstly, that there is a divergence of interests among private parties which would affect and slow down the effective decision-making when engaging with a salvor; secondly, there is also a divergence between private interest and public interest. Private parties in the corporate world have different responsibilities from those of the public sector, and imperatives to meet their own goals, and they might not see the bigger picture, i.e. the public interest in the protection of the environment.⁴⁸ To rebalance private and public interests, the society needs to find solutions to provide sufficient incentives to those private parties involved in maritime accidents who make or affect the decisions regarding emergency response, so that salvors' environmental services can be provided in a timely manner.

This research aims to examine the current legal regime of salvage to determine how environmental consequences are governed and what suggestions can be formulated to providing salvors with incentives to prevent and remedy environmental harm. The main research questions are: what incentives are provided to salvors under the current legal regime to encourage them to provide environmental services? Are these incentives sufficient and can reform proposals be formulated?

To answer the main research questions, this dissertation will analyse whether the legal regime of salvage with respect to salvors' environmental services is adequate and provides enough incentives to salvors to prevent and remedy environmental harm. In specific terms, the constituent elements of this research which determine those incentives are the legal issues of i) the salvage reward and ii) the salvor's liability regarding the environmental services in salvage operations. The three sub-research questions that will be examined in this thesis are as follows:

7. Issues regarding the salvage reward

Sub-research question 1: What is the legal regime regarding fixing the salvage reward for the salvor's environmental services in salvage operations and how does it work?

Sub-research question 2: Is the salvage reward in the current legal regime a sufficient incentive for salvors to provide environmental services in salvage operations?

ii. Issues regarding the salvor's liability

Sub-research question 3: What are the salvor's liabilities in providing environmental services under the current legal regime and do they constrain the salvor from rendering environmental services?

⁴⁷ This point is discussed in details in Chapter 5, Paragraph 5.3.

⁴⁸ Shaw (n 12) 53 para.6.1.7.

1.4 Methodology

1.4.1 Historical Approach

The historical approach is used in this dissertation to help us comprehend the evolution and intellectual underpinnings of the legal rules and concepts.⁴⁹ In this investigation, it paves the way for doctrinal and economic analysis. Firstly, the study of the origins of salvage law (in Chapter 2, Paragraph 2.2) maps out the path that led to the status quo of salvage law and practice and most importantly, indicates the importance of English law for this thesis: English law took an important role in the maritime law of salvage due to its influence on the development of maritime commerce and seaborne trade; later on, this important role was affirmed through the unification of international rules via international conventions on salvage, which embedded the English law rules. Furthermore, this narrows down the scope of this thesis in terms of jurisdictions. Secondly, the origins of the Lloyd's Open Form (LOF), as seen in Chapter 3, Paragraph 3.2, show the reader that the development of LOF contracts and the Lloyd's salvage arbitration as designed by private interests was intertwined with the salvage law as developed by the courts; the innovations by private interests regarding environmental salvage did, in fact, pave the way for law reform.⁵⁰ Thirdly, the historical analysis of the judicial concept 'liability salvage', briefly mentioned in Chapter 1, and the detailed examination in Chapter 4 (Paragraph 4.5) of the ISU's proposal of an 'Environmental Salvage Award', contribute to our understanding of current views and the rationales.

1.4.2 Doctrinal Approach

The doctrinal approach is used to look inside the 'box', that is to 'identify, analyse and synthesise the content of law'⁵¹ from the internal perspective of law. The use of the doctrinal method is, firstly, to derive arguments from authoritative sources, such as existing rules, principles and precedents of salvage law in the common law (especially as developed in the English courts) and conventions, as well as scholarly publications, in particular the two authoritative books on salvage that have been consistently cited in court judgements.⁵² Due to the fundamental feature of common law's being that it is judge-made law, decisions in individual cases indicate how the rules and principles could be interpreted. Secondly, the doctrinal method then leads the reader to understand the whole picture of the current legal

⁴⁹ Reinhard Zimmermann, 'Lecture Three—A Change in Perspective: European Private Law and Its Historical Foundations' in Reinhard Zimmermann (ed), *Roman Law, Contemporary Law, European Law: The Civilian Tradition Today* (Oxford University Press 2001) 109–110 <<https://doi.org/10.1093/acprof:oso/9780198299134.003.0004>> accessed 17 March 2023.

⁵⁰ See also, Wayne T Brough, 'Liability Salvage - By Private Ordering' [1990] *Journal of Legal Studies* 95, 110–111; Huiru Liu, 'Environmental Salvage: 'No Cure–No Pay' in Transition' (2017) 23 *Journal of International Maritime Law* 280, 287.

⁵¹ Dawn Watkins and Mandy Burton, *Research Methods in Law* (2nd edn, Routledge 2017) 13 <<https://doi-org.mu.idm.oclc.org/10.4324/9781315386669>>.

⁵² I.e., Rose (n 35); Reeder (n 3).

regime, i.e. the coherent set of rules, principles and exceptions, governing salvage and its environmental consequences.⁵³ The doctrinal approach is employed to answer Sub-research Question 1 ‘*What is the legal regime regarding fixing the salvage reward for the salvor’s environmental services in salvage operations and how does it work?*’ and regarding the first half of Sub-research Question 3 ‘*What are the salvor’s liabilities in providing environmental services under the current legal regime [...]*’. The doctrinal analyses regarding salvage reward are in Chapters 2, 3 and 4 and those regarding the salvor’s liability are in Chapter 6.

1.4.3 Law and Economics

The main research question aims to examine the incentives provided to salvors under the current legal regime to encourage them to provide environmental services and furthermore, to ask whether they are sufficient. The law and economics analysis approach is the most suitable method of finding a way out of the ‘box’; it does so by evaluating the legal rules and current situations from an economic-efficiency perspective. Economics as a behavioural science examines incentives. The law and economics analysis applies economic concepts to the law, such as welfare maximization and efficiency, and as such it offers different insights in terms of analytically evaluating the legal instruments and institutions.⁵⁴

The starting point for the economic analysis in this dissertation is the famous Coase theorem, which states that in the absence of transaction costs (where bargains and negotiations may happen), an efficient allocation of resources will always follow, irrespective of the initial distribution of property rights.⁵⁵ In a paper on rescues and Good Samaritans, Landes and Posner argue that in traditional salvage law, the rules and principles have evolved in such a way so that the salvage awards may encourage rescues at sea in settings with high transaction costs by simulating the conditions and outcomes of a competitive market.⁵⁶ Furthermore, Shavell and Calabresi’s economic analysis of accident law, the costs of accidents and tort law are also important components of the foundation of the law and economics analysis framework.⁵⁷ Chapter 5 employs the law and economics analysis method to answer Sub-research Question 2, ‘*Is the salvage reward in the current legal regime a sufficient incentive for salvors*’

⁵³ See, Rob van Gestel and Hans-Wolfgang Micklitz, ‘Revitalizing Doctrinal Legal Research in Europe: What About Methodology?’ [2011] EUI LAW 26.

⁵⁴ See for example, Robert D Cooter and Thomas S Ulen, *Law and Economics* (6th edn, Addison-Wesley 2016) 2–4.

⁵⁵ The transaction costs include information (searching) costs, contracting (bargaining) costs and monitoring (enforcement) costs. See, Ronald H Coase, ‘The Problem of Social Cost’ (1960) 3 *The Journal of Law & Economics* 1.

⁵⁶ Landes and Posner, ‘Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism’ (n 19) 100.

⁵⁷ See, Steven Shavell, *Economic Analysis of Accident Law* (Harvard University Press 1987); Steven Shavell, ‘Strict Liability versus Negligence’ (1980) 9 *The Journal of Legal Studies* 1; Steven Shavell, ‘Liability for Harm versus Regulation of Safety’ (1984) 13 *The Journal of Legal Studies* 357; Guido Calabresi, *The Cost of Accidents* (Yale University Press 1970).

environmental services in salvage operations?’ The economic analysis in Chapter 6 answers the second half of Sub-research Question 3, ‘*do they (a salvor’s liabilities) constrain the salvor from rendering environmental services?’*

1.4.4 The Interplay of Research Methods

The historical analysis includes the investigations of treaties and their historical records, statutes, case law, legal commentaries, and literature from the time. The study on the development of salvage law and standard contracts reveals the patterns and trends in salvage law and practice. This historical analysis points out English law’s continuously vital role in shaping modern salvage law. Common law is essentially based on case law; the principles of salvage law are derived from piecemeal solutions in case law. Therefore, the doctrinal analysis deployed to identify and evaluate the legal principles and theories is essentially case-law based. The doctrinal analysis of salvage law needs to be done in conjunction with the facts in that case and the historical and economic background of the time. Furthermore, the law reform proposals should also take into account the current society’s economic situation and challenges. Other common law jurisdictions are deeply influenced by English law. The judgements from other common law jurisdictions, such as the United States, provide approaches that are choices made by judges and could, in turn, influence English law.

The historical analysis provides context’s of the historical moments when law reform attempts were made; it aids in understanding the lawmakers’ original intentions. These contexts reveal the conflicts of interest among commercial parties; they help to understand the rationales for the polarized views in both the industry and academia. As observed in Paragraph 1.2.4 Research Gap in this chapter, most literature and commentaries were written during the two periods of law reform attempts. Therefore, this investigation must keep an open mind in analysing the arguments presented in literature and commentaries, as bias in legal research is inevitable. For this reason, this research refrains from taking a side in the traditional doctrinal analysis. Nonetheless, the research method economics analysis of law in this dissertation provides insights from the societal goals’ perspective; it has the advantage of looking at the full picture regarding the phenomenon of environmental salvage, which is the safety of navigation and protection of the environment. Thus, this dissertation contributes to the ongoing debates in this field in a distinguishable and hopefully, valuable manner.

1.5 Structure

Chapter 1 sets the scene for this thesis by providing the problem definition, academic interest, research purpose and research questions, methodology and structure.

Chapter 2 examines the traditional principles of maritime law of salvage, most of which were developed in the UK Admiralty jurisdiction. In specific terms, it looks at the concept and terminology of salvage, what the origins and sources of law are, the general legal framework of the law of salvage and how the current (international) salvage regime works to provide incentives for salvors. Furthermore, the judicial concept of ‘liability salvage’ will be examined in order to help us understand the effects of pollution cases on the law of salvage. The developments in modern salvage law and practice are the subject of discussions in the following chapters, but they will be briefly addressed here.

Chapter 3 mainly analyses the contractual solutions that have been developed in salvage practice. Indeed, ‘[I]nnovations in the area (salvage) have not come from the courts [...] but from a wide range of distinct sources operating in a pluralistic environment who face the problem in the field first as a business risk. The market, not the courts, has driven innovation, and through arbitration has policed its consequences.’⁵⁸ The LOF is examined in detail because of its importance in salvage law and practice as explained in this chapter. How the LOF incorporates the Salvage Convention 1989, the SCOPIC clause, and the implications of the payment are explained. The law of wreck and wreck removal (the so-called ‘wet salvage’ by the salvage industry) is also examined to distinguish this field of the law from the subject of the present research, that is, the emergency response to maritime accidents (the so-called ‘dry salvage’: a casualty afloat or aground that is salvable).⁵⁹

Chapter 4 provides a detailed analysis of the law on the incentives for environmental salvage provided by the Salvage Convention 1989, being the enhanced reward under Article 13 and the special compensation under Article 14. This chapter explains the ineffectiveness of the current solutions in the Salvage Convention 1989 and it examines the contractual solution developed in the practice, the SCOPIC clause, which is used as a contractual supplement to the LOF to replace the special compensation under Article 14 of the Convention. The ISU proposal of an ‘Environmental Salvage Award’ is then discussed in order to understand the divergence of interests among private stakeholders that constrains law reforms. A hypothetical case study is also used to provide further explanations.

Chapter 5 rethinks the phenomenon of environmental salvage and proposes solutions based on economic analysis. The positive economic analysis of rescue at sea by Landes and Posner provides insights that help us understand how traditional salvage law and practice have developed in a way that provides incentives for efficient allocation of resources. Then a critical analysis presents the concept of environmental salvage as an oxymoron and it is suggested that

⁵⁸ Brough (n 50) 110–111.

⁵⁹ Wilco Alberda, ‘Lloyd’s Open Form - Smit Salvage Lectures: An Insight into Marine Salvage Casualty Response’ (London, October 2022) 3.

‘out-of-the-box’ thinking is needed to escape the path that traditional salvage law has led to. A normative economic analysis of environmental salvage is then conducted so as to propose a cost-effective mechanism that provides solutions in three aspects, namely, financing arrangements, payment arrangements and contractual arrangements.

Chapter 6 goes on to examine an additional problem: the salvor’s negligence in pollution cases and its consequences. Firstly, the liability of a negligent salvor in environmental salvage under the current legal regime will be examined. The problem of salvorial negligence is rather complicated as it involves a triangle of relationships: salvor – salvee (tort and/or contract), salvor – third party (tort), and salvee – third party (tort). The legal regime is composed not only of the legal regime of salvage but also the legal regime governing ship-source pollution which includes both national laws and international compensation regimes for ship-source pollution damage. The international compensation regime is composed of the 1992 CLC and Fund Convention, the Bunker Convention 2001, and the HNS Convention 2010. An economic analysis is used to assess whether the use of liability rules is efficient for the maximization of social welfare.

Chapter 7 concludes the thesis by summarising its findings, identifying its limitations, and proposing suggestions for further research.

Chapter 2 Traditional Principles of Salvage and Emerging Issues

2.1 Preliminary Remarks

Salvage may be defined as the act of rescuing a distressed vessel, cargo, freight, or any other recognized subject from peril at sea, undertaken by a person, the ‘salvor’, who is under no legal obligations to do so, and which confers benefits to the property if the act mentioned above is eventually successful.⁶⁰ The salvor is then entitled to a salvage reward, which is also referred to as remuneration, the amount of which may be determined based on the salvaged value of the property accessed at the date and place of the termination of the salvage operation,⁶¹ or may be determined in advance through a binding salvage agreement between the parties involved.⁶²

The underlying rationale of salvage law is to encourage salvors to render salvage services to distressed vessels, which most commonly equates to risking the loss of life and property. The salvor’s right to a salvage reward is a mixture of a private right and public policy.⁶³ The salvage reward is not merely a compensation or remuneration for the benefit conferred to the property by the salvor’s efforts.⁶⁴ However, it is well established as a matter of public policy that, salvors should be afforded adequate incentives so as to enable them to provide salvage services timely and efficiently.⁶⁵

Military salvage, which involves the rescue of property from the enemy in time of war,⁶⁶ falls outside the scope of this dissertation; civil salvage, which includes life salvage⁶⁷ and property salvage,⁶⁸ i.e. the preservation of life and of property of others respectively, is relevant, while property salvage is in the spotlight of discussion in this work.

In this chapter, firstly the historical evolution of the law of salvage will be addressed, in order to explain the origins and sources of law for salvage; following this, the concepts and principles for salvage law in the modern sense are set out, especially elements of salvage and the salvage reward and the effects of these principles in pollution cases where environmental salvage services are needed.

⁶⁰ Tjard-Niklas Trümper, ‘Salvage’ in Jürgen Basedow and others (eds), *Max Planck Encyclopedia of European Private Law* (Oxford University Press 2012) 1517.

⁶¹ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 1 (a) provides that, ‘Salvage Operation means any act or activity undertaken to assist a vessel or any other property in danger in navigable waters or in any other waters whatsoever’.

⁶² Laura Carpaneto, ‘Chapter S.2: Salvage’ in Jürgen Basedow and others (eds), *Encyclopedia of Private International Law* (Edward Elgar Publishing 2017) 1596–1596 <https://www.elgaronline.com/view/book/9781782547235/b-9781782547235-S_2.xml>; Reeder (n 3) 1 para 1–01; Francis Rose, *Kennedy & Rose: Law of Salvage* (8th edn, Sweet & Maxwell Ltd 2013) 10 para. 1–020.

⁶³ Mandaraka-Sheppard (n 35) 483.

⁶⁴ *Five Steel Barges, the* (1890) 15 PD 142.

⁶⁵ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 Preamble.

⁶⁶ Rose (n 62) 10 para.1–020.

⁶⁷ *ibid* 131.

⁶⁸ *ibid* 10 para.1–020.

2.2 Origins

The concept of salvage is of great antiquity, and its origins can be found in ancient law and legal systems.⁶⁹ The concept of maritime salvage can be found in the Rhodian sea code, which was applied in ancient Greece and the Mediterranean as far back as 900 BC. Under the Rhodian sea code, volunteer salvors were entitled to a reward for their services, and this was adopted in Roman law as a principle for salvage;⁷⁰ it was codified by the Byzantine Empire and became globally accepted in the Mediterranean during the 6th century.⁷¹

Between the 12th and the 19th century in Europe, two remarkable codifications of customary maritime law were widely accepted on the European Continent, namely the *Rôles d'Oléron* (*the Rules of Oleron*) and the *Llibre del Consolat de Mar* (*Book of the Consulate of the Sea*) of Barcelona.⁷² The *Rôles d'Oléron* was applied widely in western and northern Europe from the 12th to the 14th century, and this significantly influenced the law of salvage adopted by the Hanseatic League in the 16th century.⁷³ The *Rôles d'Oléron* (*the Rules of Oleron*) are generally recognized as the basis of modern maritime codes in Europe, including the maritime law in England.⁷⁴ The *Llibre del Consolat de Mar* had a corresponding importance in the Mediterranean in the 14th century.⁷⁵

During the 16th and 17th centuries, as a result of trade and expansionism, several powerful seafaring nations started to declare sovereignty over the seas, such as Spain, Portugal and Britain.⁷⁶ By the end of the 17th century, it was apparent that most governments were taking measures to control commerce within their jurisdictions. The merchants' communities were

⁶⁹ Mandaraka-Sheppard (n 35) 482.

⁷⁰ Reeder (n 3) 5 para. 1–12.

⁷¹ Trümper (n 60) 1518.

⁷² The *Llibre del Consolat de Mar* was in the Catalan or Provençal language.

Gordon W. Paulsen referred it as '*Consolato del Mare*', see Gordon W Paulsen, 'Historical Overview of the Development of Uniformity in International Maritime Law Admiralty Law Institute Symposium on American and International Maritime Law: Comparative Aspects of Current Importance' (1982) 57 *Tulane Law Review* 1065, 1070.

See also, Reeder (n 3) 5 para.1–12.

⁷³ Arthur Boyd Hibbert, 'Hanseatic League', *Encyclopaedia Britannica*

<<https://www.britannica.com/topic/Hanseatic-League>> accessed 1 October 2019.

'Hanseatic League, also called Hansa, German Hanse, organization founded by north German towns and German merchant communities abroad to protect their mutual trading interests. The league dominated commercial activity in northern Europe from the 13th to the 15th century.'

In Paulsen (n 13) 1072.

'[...]The league, which developed in spite of national diversities, resulted in a remarkable degree of uniformity in maritime law.'

⁷⁴ Proshanto K Mukherjee, 'Maritime Law And Admiralty Jurisdiction: Historical Evolution And Emerging Trends', *The Admiral*, vol VI (Ghana Shippers' Council 2012) 5

<<https://www.jtighana.org/links/trainingmaterials/Maritime%20Law%20&%20Admiralty%20Jurisdiction.pdf>> accessed 2 July 2020.

⁷⁵ Paulsen (n 72) 1069–1073.

⁷⁶ *ibid* 1073.

forced out of rule-making for maritime commerce as the governments were taking over the power of maritime legislation. In Europe, the principles of salvage law were enacted as part of national laws by different national states in a parallel fashion. Two examples of such unilateral national codification of salvage, which should be regarded as the foundations of modern salvage law for France and Germany respectively, were the *Ordonnance de la marine* of 1681 and the *General State laws for the Prussian States* of 1794. The former was followed by the *Code de commerce* of 1807 in France and the latter, in Germany, were followed by the *Allgemeines Deutsches Handelsgesetzbuch* of 1861 and the currently effective German Commercial Code the *Handelsgesetzbuch* of 1897.⁷⁷

In contrast, the common law which historically does not have the tradition of codification has the first clear suit for salvage in the modern sense in 1633, in which the ship in question was seized for the King of the United Kingdom and proceedings were taken in Admiralty.⁷⁸ Regarding the origin of salvage law, as part of English maritime law, it is recognized as broad and not rooted in common law or statute.⁷⁹ In the *Gaetano and Maria*,⁸⁰ English maritime law was defined as follows,

‘ [...] (English maritime law) is not the ordinary municipal law of the country, but it is the law which the English Court of Admiralty either by Act of Parliament or by reiterated decisions and traditions and principles has adopted as the English Maritime Law.’

The English Court of Admiralty has salvage jurisdiction, and in respect of claims for salvage in modern times, it has been treated exclusively.⁸¹ It is recognized by English statutes and the judges of the common law courts that the Admiralty Court is the proper forum for salvage questions.⁸² The exclusive salvage jurisdiction of the Admiralty Court became quite important after the end of the 18th century with the advent of steamships.⁸³ The fundamental principles of the law of salvage were established in the early part of the 19th century, and they were continually refined and developed by the judges of the English Admiralty Court.⁸⁴

It was also with the Increase In steamships that salvage started to be rendered by professional salvors on a ‘No Cure–No Pay’ basis as developed by the Lloyd’s Open Form (LOF)

⁷⁷ See, German Commercial Code (*Handelsgesetzbuch*) 1897; Trümper (n 60) 1518.

⁷⁸ Reeder (n 3) 6 para.1–16.

⁷⁹ *ibid* 7 para.1–18.

⁸⁰ *Gaetano and Maria*, *The* (1882) 7 P.D.t 143; approved in *Gas Float Whitton No2, The* (1896) P.42, 47; See Reeder (n 3) 7 para.1–18.

⁸¹ Reeder (n 3) 8 para.1–22.

⁸² *Atkinson v Woodall* (1862) 31 L.J. (M.C.) 174, 176.

⁸³ Reeder (n 3) 7 para.1–17.

⁸⁴ Mandaraka-Sheppard (n 35) 482.

agreements and since the latter half of the 20th century, the LOF form has been the most often-used salvage agreement for salvage services.⁸⁵ Under the LOF, unless agreed otherwise, English law will be the governing law by default.⁸⁶

As part of the rules for maritime commerce, salvage law, an essential part of maritime law, developed and grew with seaborne trade. The uniformity of maritime law that had existed in ancient times declined with the advent and growth of nationalism, and later was revived in the 19th century by lawyers and commercial men such as those who founded the *Comité Maritime International* (CMI); it now continues to grow, with supports from United Nations' affiliated organizations,⁸⁷ especially the International Maritime Organization (IMO), '[t]he United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships'.⁸⁸

The convention to establish the International Maritime Convention (IMO, changed from its original name, the Inter-Governmental Maritime Consultative Organization, or IMCO, in 1982) as one of the specialized agencies of the UN was adopted in 1948;⁸⁹ the IMO had 174 member states and three associate members by September 2019.⁹⁰ Concerning maritime law and policy, the function of the IMO is to provide for 'the drafting of Conventions, Agreements, or other suitable instruments for the benefits of governments and other intergovernmental organizations'.⁹¹ The competence of the IMO as an expert in the field of navigation, including on the issue of pollution from ships and by dumping, is acknowledged by the 1982 UNCLOS.⁹²

It should be noted that some industry organizations represent the different industries involved also play important roles in the legislative process of international maritime law. As far as the salvage industry was concerned, the International Salvage Union (ISU) was founded once

⁸⁵ *ibid* 483; Lloyd's of London, 'Salvage Arbitration Branch' <<https://www.lloyds.com/resources-and-services/lloyds-agency/salvage-arbitration-branch>> accessed 2 September 2020.

⁸⁶ 'Lloyd's Standard Form of Salvage Agreement (LOF 2020)' Clause J Governing Law <<https://assets.lloyds.com/assets/pdf-lloyds-open-form-lof-lof-2020/1/pdf-lloyds-open-form-lof-LOF-2020.pdf>> accessed 11 July 2022.

⁸⁷ Paulsen (n 72) 1065–1066.

⁸⁸ International Maritime Organization, 'Introduction to IMO' <<http://www.imo.org/en/About/Pages/Default.aspx>> accessed 7 October 2019. 9

⁸⁹ Convention on the International Maritime Organization, Adopted on 6 March 1948; Entered in force on 17 March 1958 (the IMO convention).

⁹⁰ International Maritime Organization, 'Member States, IGOS AND NGOS' <<http://www.imo.org/en/About/Membership/Pages/Default.aspx>> accessed 7 October 2019.

⁹¹ Convention on the International Maritime Organization, Adopted on 6 March 1948; Entered in force on 17 March 1958 (the IMO convention) art 2; Kofi Mbiah, 'The Role of the International Maritime Organization in the Development of Maritime Law and Policy' in Maximo Q Mejia and Proshanto K Mukherjee (eds), *Selected Issues in Maritime Law and Policy: Liber Amicorum Proshanto K. Mukherjee* (Nova Science Publishers, Inc 2013) 2–3 <<https://mu.idm.oclc.org/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=622948&site=ehost-live&scope=site>>.

⁹² United Nations Convention on the Law of the Sea, 10 December 1982, entered into force on 16 November 1994 (the 1982 UNCLOS) ANNEX VIII, Article 2(2).

salvage services had come to be mainly undertaken by professional salvors. The ISU, which has observer status at the IMO and the International Oil Pollution Compensation Funds (IOPC Funds), represents and safeguards its members' interests and it has actively worked in many legal and commercial developments concerning marine salvage, including the periodic review of the LOF agreements as well as the development of the Special Compensation Protection and Indemnity Clause (the SCOPIC).⁹³

The first attempt at unifying the principles of salvage law was the Brussels Convention 1910,⁹⁴ on the initiative of the IMO,⁹⁵ and it substantially reflected the then-existing English law of salvage.⁹⁶ The Brussels Convention 1910 was effectively replaced by the 1989 Salvage Convention,⁹⁷ which primarily governs the modern salvage law.⁹⁸

2.3 Sources of Modern Salvage Law

National laws, the international salvage conventions and contract law are vital sources of salvage law. The rights and duties of parties to salvage arise in principle from maritime law without the necessity of a contract,⁹⁹ which reflects the fact that the national domestic law is an important source of salvage; the salvage conventions do to some extent unify salvage law internationally, but they do not set out the law exhaustively.¹⁰⁰ It was mentioned by the CMI in its report to the IMO that, as for matters which had different solutions adopted in the various national laws, it would have reduced the acceptability of the convention if such matters were dealt with by provisions in the convention as uniform rules.¹⁰¹ Meanwhile, most of the provisions in the Salvage Convention 1989, dealing with the relationship with the salvor(s) and the owner(s) of the salvaged property, are plainly within the field of private law. The Salvage Convention 1989 allows parties to contract out of its provisions,¹⁰² except for circumstances in Article 7;¹⁰³ nowadays with prompt communication means and the increased use of steaming

⁹³ ISU, 'Membership'

<<https://www.marine-salvage.com/membership/#1570807047483-399ee42d-f431>> accessed 7 October 2019.

⁹⁴ Convention for the Unification of Certain Rules of Law respecting Assistance and Salvage at Sea, adopted in Brussels in 1910.

⁹⁵ Mandaraka-Sheppard (n 35) 484.

⁹⁶ Reeder (n 3) 16 para.1–52; Rose (n 62) 67 para.2–039.

⁹⁷ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996.

⁹⁸ Rose (n 62) 1 para.1–001.

⁹⁹ *ibid* 44 para.1–087.

¹⁰⁰ Reeder (n 3) 22 para.1–75.

¹⁰¹ Reeder (n 3) app 8 p. 902 para.16–04.

¹⁰² International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 6.

¹⁰³ *ibid* 7 provides that,

'A contract or any terms thereof may be annulled or modified if:

(a) the contract has been entered into under undue influence or the influence of danger and its terms are inequitable; or

and motor-driven vessels, salvage services are mostly provided by professional salvors and those services are governed, at least in part, by an agreement or contract.¹⁰⁴

It was only in 1875 that professional salvage contractors began to be founded and salvage started to be rendered by professional salvors on the basis of ‘No Cure–No Pay’ basis agreements, which developed into the most widely used form of LOF agreement.¹⁰⁵ The LOF as a ‘No Cure–No Pay’ based standard open form for salvage provided an arbitration scheme, so that the price would be determined after performance of the salvage services. It firstly came into use in the late nineteenth century and was soon to be superseded and improved during the twentieth century.¹⁰⁶ It culminated in the ‘LOF 2020’, which is the 13th version. In modern times, instead of litigation, it is more frequent that salvage claims are solved by arbitration as chosen by parties under LOF, the tribunal for which would be an arbitrator appointed by the Council of Lloyd’s in London;¹⁰⁷ however, the arbitrator’s function is to apply the law administered in the Admiralty Court.¹⁰⁸

With the emerging environmental concerns in salvage in the 1980s, it was the LOF 80 firstly moved beyond the traditional ‘No Cure–No Pay’ concept and introduced a ‘safety net’ for salvors to guarantee that their expenses would be paid for responding to laden, or partly laden, oil tankers requiring salvage services, cases for which the salvaged value of property may be insufficient to provide a normal salvage reward.¹⁰⁹ Meanwhile, revision work on the 1910 Salvage Convention was undertaken, and the model provided by the LOF 80 was taken and developed in the 1989 Salvage Convention.¹¹⁰ After the Article 14 Special Compensation was introduced into the 1989 Salvage Convention, the following versions of the LOF, including the latest, LOF 2020, gave immediate effect to Article 14. The Special Compensation later proved to be time-consuming and difficult to operate; therefore, the alternative system named Special Compensation Protection and Indemnity Clause (the SCOPIC), to be incorporated with LOF, was developed by salvors, P&I Clubs (the shipowners’ liability insurers), underwriters and shipowners, and took effect in 1999. It was quickly revised, at the same time as the LOF. Thus,

(b) the payment under the contract is in an excessive degree too large or too small for the services actually rendered’.

¹⁰⁴ Rose (n 62) 1 para.1–001.

¹⁰⁵ Mandaraka-Sheppard (n 35) 482.

¹⁰⁶ Reeder (n 3) 5 para.1–11.

¹⁰⁷ Michael Buckley, ‘The Origins of Lloyd’s Form’ <<https://www.marine-salvage.com/overview/the-origins-of-lloyds-form/>> accessed 19 April 2020; ‘Lloyd’s Salvage Arbitration Clauses 2020’ Clause 5.1 <<https://assets.lloyds.com/assets/pdf-lloyds-open-form-lof-lsac-2020/1/pdf-lloyds-open-form-lof-LSAC-2020.pdf>> accessed 9 March 2020.

¹⁰⁸ Rose (n 62) 6 para.1–014.

¹⁰⁹ ISU, ‘No Cure–No Pay’ <<http://www.marine-salvage.com/overview/no-cure-no-pay/>> accessed 7 October 2019; De La Rue and Anderson (n 35) 536.

¹¹⁰ De La Rue and Anderson (n 35) 537.

SCOPIC 2000 and LOF 2000 came into effect simultaneously in 2000, and they have subsequently been reissued as LOF 2020 and SCOPIC 2020.¹¹¹

Applicable law

When a salvage dispute is brought before a court or arbitration tribunal, determining the governing law is first of all subject to the rules of conflict of laws. Maritime disputes normally involve plenty of issues regarding conflict of laws because of the international characteristics; however, in practice, this is not the case for disputes on salvage. *Kennedy* submitted that,

‘To a large extent this must be because of London’s leading position as a forum for the settlement of issues of maritime law and the substantial practice, in modern times at least, of using Lloyd’s Form, under which it is agreed that issues will be determined by arbitration in London, and that the agreement and the arbitration will be governed by English law. Moreover, international unification of salvage law was promoted earlier in the twentieth century by widespread acceptance of the Brussels Salvage Convention 1910.’

The chances of potential conflict of laws in practice are reduced by using Lloyd’s Form and by the fact that the 1989 Salvage Convention has the force of law in the UK. The Merchant Shipping Act 1995 (MSA 1995) passed in the UK Parliament incorporated the 1989 Salvage Convention. In accordance with the MSA 1995, the Convention shall apply unless parties expressly or implicitly agree to exclude the Convention in the contract.

A further question arises in that, since rights and obligations of parties to a salvage service arise in principle from the maritime law of salvage independent of a contract, when there is in fact a contract, what should these rights and obligations be governed by? In specific terms, what is the role of the Convention? What is the relationship between salvage law and the contract? The 1989 Salvage Convention provides that, in article 6.1, ‘This Convention shall apply to any salvage operations save to the extent that a contract otherwise provides expressly or by implication.’ It is submitted in *Kennedy* that ‘Article 6.1 gives effect for most practical purposes to a general rule that the general maritime law of salvage, so far as it is contained in the Convention, prevails except to the extent that it is excluded (by the contract).’ In cases where there is a contract, the rules of general maritime law of salvage that are neither contained in the Convention, nor incorporated by the contract expressly or implicitly, they do not govern the rights and obligations of the parties; the terms of the contract, mostly based on Lloyd’s Form, govern the rights and obligations, and the terms of the contract must prevail so far as the contract makes express provision. Therefore, the terms of the Convention as modified by the contract in combination with the other terms of the contract will be a complete code governing

¹¹¹ Rose (n 62) 189 para.6–005.

the relationship of parties to a salvage operation. It should be noted that even though Lloyd's Open Form has been successively revised and increasing provisions have been made for the terms of the contract beyond the basic scheme for arbitration, it is not the intention that Lloyd's Open Form should supersede the common law entirely, nor is this the position in the common law.

2.4 Terminology

There is no exact unifying definition of the word 'salvage' in the legal sense, nor do the international conventions on salvage or even English law attempt to provide one; the latter reflects the flexible approach of the Admiralty Court to the practical problems arising under salvage law.¹¹² In English law, the word 'salvage' can refer either to the reward for the salvor, or the salvage services rendered.¹¹³ Even though it should in most cases be obvious which meaning is intended from the context, this dissertation will in most cases refer to them with the terms 'salvage reward' and 'salvage service' respectively.

In the full title of the Brussels Convention 1910,¹¹⁴ both the terms 'assistance' and 'salvage' are used, which reflects that in some jurisdictions there is a distinction drawn between assistance and salvage at sea, as two kinds of services that are rendered to still-manned distressed vessels and unmanned distressed vessels respectively.¹¹⁵ However, English law does not recognize the distinction, and as one commentator submits, 'salvage' is the successful result of 'assistance'.¹¹⁶ The Brussels Convention 1910 expressly states it shall apply without any distinction between these two services.¹¹⁷ It is interesting to note that the Brussels Convention 1910 is well recognized as embodying the principles of salvage law recognized by English law at the beginning of the 20th century.¹¹⁸ In the 1989 Salvage Convention, the distinction between assistance and salvage at sea is also not mentioned: the word 'assistance' is not used in the full title of the Convention, while Article 1 of the Convention provides that, 'For the purpose of the convention: (a) Salvage operation means any act or activity undertaken to assist a vessel or

¹¹² *Governor Raffles, The* (1815) 2 Dod.14 at 17, Lord Stowell held that, 'It has been said that no exact definition of salvage is given in any of the books. I do not know that it has, and I should be sorry to limit it by any definition now';

See also, Rose (n 62) 7 para.1-016.

¹¹³ Rose (n 62) 1 Footnote 1.

¹¹⁴ Convention for the Unification of Certain Rules of Law respecting Assistance and Salvage at Sea, adopted in Brussels in 1910.

¹¹⁵ Rose (n 62) 8 para.1-017.

¹¹⁶ Francesco Berlingieri, 'The Salvage Convention 1989' [2017] *Lloyd's Maritime and Commercial Law Quarterly* 26, 29.

¹¹⁷ Convention for the Unification of Certain Rules of Law respecting Assistance and Salvage at Sea, adopted in Brussels in 1910 art 1.

¹¹⁸ Richard Shaw, 'The 1989 Salvage Convention and English Law' [1996] *Lloyd's Maritime and Commercial Law Quarterly* 202, 204.

any other property in danger in navigable waters or in any other waters whatsoever. [...]’. In a CMI report to the IMO,¹¹⁹ it was submitted that the substitution of the words ‘assistance and salvage’ in Article 1 of the Brussels Convention 1910 with ‘any act or activity undertaken to assist’ in Article 1 of the 1989 Salvage Convention is to be considered only as a redrafting of the principle, which is the same in both conventions, that ‘any act or activity can give rise to a salvage reward if it contributes to the saving of property in danger at sea’.¹²⁰

In English law, a salvage service may be defined as, ‘a service that confers a benefit by saving or helping to save a recognized subject of salvage when in danger from which it cannot be extricated unaided, if and so far as the rendering of such service is voluntary in the sense of being attributable neither to a pre-existing obligation nor solely for the interests of the salvor’.¹²¹

Given that specific requirements are met in a salvage service, which will be discussed in details later in this chapter, a right to salvage reward will arise under the law of salvage. Article 2 of the Brussels Convention 1910 provides that ‘[E]very act of assistance or salvage of which has had a useful result gives a right to equitable remuneration.[...]’. Article 12.1 of the 1989 Salvage Convention is an almost identical provision, although ‘right to equitable remuneration’ is changed to ‘right to reward’, which is a slight change in terminology.¹²² In English law, it is defined by one commentator as follows: ‘a right to salvage arises when a person, acting as a volunteer (that is without any pre-existing contractual or other legal duty so to act) preserves or contributes to preserving at sea any vessel, cargo, freight or other recognized subject of salvage from danger’.¹²³

2.5 Elements of the Law of Salvage

In modern salvage law, for an ‘act or activity undertaken to assist’ to be qualified as a salvage service which is governed by the maritime law of salvage, several essential elements are required. These elements are unified by the salvage conventions 1910 and 1989. The law of salvage applies when (i) a recognized subject of salvage is (ii) in a position of danger necessitating the use of a salvage service to prevent it from loss or damage, and a person falling within the classification of salvors provides (iii) a voluntary act of assistance, which contributes to (iv) the success in preserving the subject from danger.¹²⁴

¹¹⁹ CMI, ‘CMI Report to IMO16 Document LEG 52/4-Annex 2’, in CMI (ed), *The Travaux Préparatoires of the Convention on Salvage, 1989* (CMI 2003) 44; see also, Rose (n 62) app 8 p.903 para 16–06.

¹²⁰ CMI, *The Travaux Préparatoires of the Convention on Salvage, 1989* (n 119) 45 .

¹²¹ Rose (n 62) 7 para.1–016.

¹²² Berlingieri (n 116) 46.

¹²³ Reeder (n 3) 1 para.1–01.

¹²⁴ Rose (n 62) 1 para.1–001.

(i) Subject of Salvage

Salvage as a service rendered by the salvors may only be rewarded in respect of property salvage if such property is a recognized 'subject of salvage' in salvage law.¹²⁵ In principle, all interests which have benefited from the salvage service in question are liable to contribute to the payment of the salvage reward. Even if the owner of a particular property is not expressly made party to the salvage contract which in most cases would be concluded, he or she is also liable to make a contribution. Therefore, it is essential to determine whether a subject that is salvaged or has benefit conferred on it by a salvage service can be qualified as a subject of salvage. Only then would it be possible to ascertain, in respect of the payment of the salvage reward, for which items salvage shall be claimed, who is liable to contribute to the payment, and, what is the proportion of each contribution that is due.¹²⁶

The main rule is, as submitted by one commentator, that subjects of salvage recognized by the law include vessels and cargo being transported by sea, together with freight being earned for such carriage.¹²⁷ This rule was laid down by the Admiralty Court of England, and it is basically the same position as that adopted by the 1989 Salvage Convention, which can be found in article 1 of the Convention, which states:

‘For the purpose of this Convention:

(a) Salvage operation means any act or activity undertaken to assist a vessel or any other property in danger in navigable waters or in any other waters whatsoever.

(b) Vessel means any ship or craft, or any structure capable of navigation.

I Property means any property not permanently and intentionally attached to the shoreline and includes freight at risk.’

It should be further noted that, besides property ‘permanently and intentionally attached to the shoreline’, platforms, drilling units, and the like are excluded from the scope of the subject of salvage by the Convention.¹²⁸ As far as the definition of ‘property’ is concerned, the Convention does not provide a detailed description. According to one commentator, with reference to the relevant texts in the Montréal Draft and the word *bien* as used in the French text of the Convention, which means anything that may be owned, the definition of ‘property’ should include anything that may be the subject of property.¹²⁹

Alongside many discussions on the matter of the subject of salvage, there are two categories of subjects that are rather controversial and relevant to the current challenges caused by the

¹²⁵ Reeder (n 3) 39 para.1–128.

¹²⁶ Rose (n 62) 39 para.1–128.

¹²⁷ *ibid* 92 para.4–014.

¹²⁸ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 3.

¹²⁹ Berlingieri (n 116) 30.

nature of modern vessels and cargos, namely (a) liabilities towards third parties and (b) the environment, as in salvor's environmental services.

Concerning liability as a subject of salvage, it is related to the phenomena of 'liability salvage', which raises the discussions of whether avoidance of liability to a third party can be considered as a benefit conferred on the salvee's property. Discussions on 'liability salvage' can be found in various case laws in several common law countries; there was also an attempt to introduce liability salvage as a new category of salvage by a subcommittee for the revision of the 1910 Brussels Convention in the 1980s, especially during the discussions on environmental services; this was, however, not accepted in the final version of the 1989 Salvage Convention. Thus, under both case law and the Convention, liability remains outside the range of independent subjects of salvage, although it could be a factor to be taken into account while assessing the salvage reward.¹³⁰

When the vessels and their cargos may pose a threat to the environment, for example, if the vessel in question is an oil tanker carrying crude oil, the shipowner may risk substantial liability. It is apparent that salvor's services may prevent or minimize damage to the environment in such cases. However, under the traditional principles of salvage law, there is no manifest basis for such a service alone, if there is no value attached to the property salvaged, to be paid for either by the salvee or a third party who receives benefits resulting from such an environmental service. The LOF 1980 initially provided a solution by introducing a 'safety net', followed by Article 14 of Special Compensation in the 1989 Salvage Convention. Nevertheless, there are various points that deserved to be analysed, and solutions to the problem of providing a basis to reward for environmental services are still problematic. Further discussions on both liability salvage and environmental services will be carried out in the following sections where appropriate.

(ii) In a Position of Danger

The preservation of a recognized subject of salvage from danger is an essential element of a salvage service, and it is the foundation of the salvage claim following the rendered salvage service. In the definition of salvage operations in Article 1 of the 1989 Salvage Convention, reference is made to 'a vessel or other property in danger', while a clear indication that danger of loss or damage to the subject matter of the salvage service is the very foundation of a salvage claim can be found in Article 13(1)(d), which provides that 'the nature and degree of the danger'

¹³⁰ Rose (n 62) 153 para. 4-165.

is a criterion for fixing the reward. The degree of danger is said to be the most important element to consider for the assessment of the reward, as it is the foundation of salvage.¹³¹

As no general or abstract definition of ‘danger’ is provided by the Convention, as has been pointed out by one commentator, the concept is rather flexible, and it may be described as ‘exposure to harm’ generally.¹³² The existence of the element ‘danger’ as required for a service to found a salvage claim is analysed on a case-by-case basis, depends on the factual circumstances, type of ships involved, etc. and there are no rigid rules about it.¹³³

The test of the existence of danger is an objective one in common law,¹³⁴ meaning there must have been real and sensible danger¹³⁵ rather than a situation whereby the crew believed that there was danger. However, the views of the master, if *bona fide* and reasonable, will be strong evidence that the danger was a real one.¹³⁶ The inherent riskiness of shipping dictates that not every difficulty or risk encountered by a ship creates such a danger. The danger must exist at the time when the service is rendered.¹³⁷ It is to be appreciated at the moment when the decision to take salvage measures is decided; the danger can be said to exist in such a case where ‘no reasonably prudent and skilful person in charge of the venture would refuse a salvor’s help if it were offered to him upon the condition of his paying a salvage reward’;¹³⁸ however, no existence of danger can be found if the vessel can save herself by her own means. It should be noted that, in practice, agreement to be bound by a contract on LOF will normally be considered as a proof of danger, because it will be held that the shipowner accepted the ship was in danger; signing the LOF would estop the shipowner from denying that the service rendered was a salvage service meriting a salvage reward¹³⁹ and, therefore, the question of the existence of danger would be put beyond doubt.¹⁴⁰

¹³¹ *Perfective, The* (1949) 82 Lloyd’s Rep. 873, 82 Lloyd’s Law Report 875; Rose (n 62) 161 para.5–003; Convention for the Unification of Certain Rules of Law respecting Assistance and Salvage at Sea, adopted in Brussels in 1910 art 8.

¹³² Berlingieri (n 116) 30.

¹³³ Mandaraka-Sheppard (n 35) 494.

¹³⁴ *The owners of the tug Sea Tractor v the owners of Tramp (Tramp)* [2007] EWHC 31 (Admlty); [2007] 2 Lloyd’s Rep. 363 365 at para.19 per David Steel J.; Rose (n 62) 162 para.5–004; Mandaraka-Sheppard, (n 35) 494.

¹³⁵ Rose (n 62) 162 para. 5–004.

¹³⁶ *Hamton and St John, The* [1999] 1 Lloyd’s Rep. 883. (see ESL PPT P.27)

¹³⁷ *Ranger, The* (1845) 3 N.o.C. 589; *Batavier, The* (1853) 1 Spinks E. & A. 169, 171.

¹³⁸ *Phantom, The* (1866) L.R.1 A. & E. 58, 60; *The owners of the tug Sea Tractor v the owners of Tramp (Tramp)* (n 75) 365; Rose (n 3) 163 para. 5–004; Mandaraka-Sheppard (n 35) 494.

¹³⁹ Rose (n 3) 394 para.10–089.

¹⁴⁰ *Beaverford, The (Owners) v The Kafiristan (Owners)* (1937) 58 Ll.L.Rep. 317 ; [1938] A.C. 136 153 Lord Wright; 140 Lord Atkin.

Furthermore, while the danger cannot be fanciful or only vaguely possible,¹⁴¹ it is not necessary that the danger be absolute or imminent;¹⁴² a state of difficulty and reasonable apprehension of loss or damage if the service is not rendered is sufficient.¹⁴³ In other words, danger does not necessarily require damage; risk of substantial future damage if no adequate measures are taken by third parties will suffice.¹⁴⁴ The *Troilus*¹⁴⁵ is an exposé on what kind of future damage will be relevant for the courts to decide the existence of danger. The vessel in question was carrying cargo from Australia to the UK. Her tail shaft and propeller were broken when she was on the Indian Ocean. The damaged vessel was firstly towed to Aden where she anchored; this was admittedly to be a salvage service. However, because of a lack of facilities for repairs and storage of cargo at Aden, she was towed by another vessel to the UK for repairs. The vessel was not towed to the Mediterranean as although it would have been closer than the UK it would have been difficult and have caused considerable delay; the cargo owners contended that this service, that of the vessel being towed from Aden to the UK, constituted ocean towage instead of a salvage service. The vessel was in safety when she reached Aden. The Court of Appeal held that it was a salvage service, as the master of a damaged ship must do their best to preserve both the ship and cargo and bring them to their destination as cheaply and efficiently as possible. This decision was later approved by the House of Lords, and it was held that being in a particular position of physical safety (as the ship was in Aden) did not suffice, as the interests of both the cargo and the ship must be borne in mind.¹⁴⁶

A further Issue then follows: as far as future damage is concerned, whether it only refers to physical damage, or non-physical (immaterial) damage, such as liability towards third parties, such damage is also included. This again leads to the controversial concept of ‘liability salvage’ and salvors’ environmental services (i.e. the environment alone being a subject of salvage), as mentioned in the previous section.

The Issue in ‘liability salvage’ with regards to the danger is whether risks of liability to a third party as non-physical (future) damage can be considered as the danger required for a salvage service. Liability salvage was firstly dealt with by common law, in which it has long been the practice to take account of non-physical dangers in assessing the salvage reward as an enhancing factor, rather than a separate category of danger preservation which *per se* entitles the salvor to a salvage reward.¹⁴⁷ In common law, non-physical dangers that have been accepted as enhancing the salvage reward includes, for example, the potential loss of

¹⁴¹ *Mount Cynthos, The* (1937) 58 Lloyd’s Rep. 18 25.

¹⁴² *Aztecs, The* (1870) 3 Asp. M.L.C. 326, 326.

¹⁴³ Rose (n 62) 162 para.5-004.

¹⁴⁴ *ibid* 162 para.5-004.

¹⁴⁵ *Troilus, The* [1951] 1 Lloyd’s Rep. 467, [1951] AC 820.

¹⁴⁶ *ibid* 836. Mandaraka-Sheppard (n 35) 494.

¹⁴⁷ Rose (n 62) 169-171 paras 5-016, 5-021.

proprietary rights,¹⁴⁸ and the avoidance of tortious liability to third parties.¹⁴⁹ Nevertheless, one notable case, namely the *Whippingham*,¹⁵⁰ must be mentioned here. In the *Whippingham*, Bateson J. held that the ‘mere saving’ of a vessel from causing damage to other vessels might result in a salvage service.¹⁵¹ According to the *Whippingham* approach, risks of potential liability to third parties alone can be the danger as required for a service rendered to be qualified as a salvage service, which will entitle the salvor a right to reward.¹⁵² However, it should be noted that this view of law is rather exceptional, and no cases were cited either for or against the *Whippingham* approach.¹⁵³

Following the current view of law on non-physical danger, it is observed that in cases of environmental services provided by the salvor, it might be difficult for the sole environmental danger, i.e. the danger of pollution liability to the third party, to be accepted as meeting the requirement of danger, which means it would be problematic to argue that an environmental service is a salvage service.

(iii) A Voluntary Act of Assistance

The entitlement to a salvage reward demands the service rendered by the salvor, upon the basis of which they are making their claim, to be a voluntary act of assistance. In the law of salvage, this general principle means a person acting under a pre-existing legal obligation to assist, in particular, a contractual or public duty,¹⁵⁴ cannot claim a salvage reward.

The Brussels Convention 1910 did not incorporate the general rule but mentioned one example in Article 4: ‘A tug has no right to remuneration for assistance or salvage of the vessel she is towing or of the vessel’s cargo, except where she has rendered exceptional services which cannot be considered as rendered in fulfilment of the contract of towage.’

The 1989 Salvage Convention incorporates this general rule, not expressly but by implication, i.e. by laying down general rules for the recovery of salvage.¹⁵⁵ With regards to ‘services rendered under existing contracts’, no payment is due ‘unless the services rendered exceed what can be reasonably considered as due performance of a contract entered into before the danger arose.’¹⁵⁶ Besides pre-existing contractual obligations, a person acting under a legal

¹⁴⁸ *Societe Maritime Caledonienne v The ‘Cythera’ And Her Cargo (The ‘Cythera’)* [1965] Australia Supreme Court of New South Wales [1965] 2 Lloyd’s Rep. 454.

¹⁴⁹ Rose (n 62) 170 – 172, para.5-018 to para.5-022.

¹⁵⁰ *Whippingham, The* [1934] 48 Lloyd’s Rep 49.

¹⁵¹ *ibid* 52.

¹⁵² ‘Svitzer Salvage BV v Z Energy Ltd and Another – High Court in Admiralty (Goddard J) [2013] NZHC 2585 – 4 October 2013’ [2013] *Lloyd’s Maritime Law Newsletter*.

¹⁵³ Reeder (n 3) 399 para. 6–12.

¹⁵⁴ Rose (n 62) 237 para. 8–001.

¹⁵⁵ *ibid* 238 para. 8–003.

¹⁵⁶ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 17.

duty to assist, such as a coastguard, cannot claim a salvage reward, either. The Convention leaves ‘salvage operations controlled by public authorities’ to national laws, and the relevant rules regarding pre-existing legal duty can be found in Article 5 of the 1989 Salvage Convention.¹⁵⁷

While there are indeed many issues that may be discussed on this matter, those discussions lack direct relevance to salvors’ environmental services; therefore, the analysis done here is sufficient to this point.

(iv) The Success in Preserving the Subject from Danger

In terms of the salvor’s entitlement to a salvage reward for a rendered service which meets all the other elements required by the law of salvage, the success in preserving the subject from danger is crucial insofar as determining whether there will be a salvage reward and how much the reward will be. The general principle, i.e. the common law requirement of success, is established by the Admiralty Court of England, which states that ‘[s]uccess is necessary for a salvage reward in the proper sense of the term’.¹⁵⁸

In the *Tojo Maru*,¹⁵⁹ Lord Diplock held that ‘The first distinctive feature is that the person rendering salvage services is not entitled to any remuneration unless he saves the property in whole or in part. This is what is meant by “success” in cases about salvage.’¹⁶⁰ To qualify for the entitlement to a salvage reward, the service in question must contribute to the ultimate success. If after the service was rendered, the vessel was in as much danger as she was originally,¹⁶¹ or the distressed vessel was rescued from one danger but left to a position of as great or as nearly great a danger, though of a different kind,¹⁶² it would be held that it did not contribute to the ultimate success and no salvage reward will be given.¹⁶³

Thus, the common law requirement of success means, in general, property in the ship or cargo to which the service was rendered, or at least some part of it, must ultimately be preserved; and

¹⁵⁷ *ibid* 5 states that,

- ‘ 1. This Convention shall not affect any provisions of national law or any international convention relating to salvage operations by or under the control of public authorities.
2. Nevertheless, salvors carrying out such salvage operations shall be entitled to avail themselves of the rights and remedies provided for in this Convention in respect of salvage operations.
3. The extent to which a public authority under a duty to perform salvage operations may avail itself of the rights and remedies provided for in this Convention shall be determined by the law of the State where such authority is situated’.

¹⁵⁸ *Rose* (n 62) 327 para. 9–001; *Owners of the SS Melanie v Owners of the SS San Onofre* [1925] A.C. 246 262.

¹⁵⁹ *Tojo Maru, The* [1972] A.C.242.

¹⁶⁰ *ibid* 293.

¹⁶¹ *Cheerful, The* (1855) 11 PD 3.

¹⁶² *Owners of the SS Melanie v. Owners of the SS San Onofre* (n 158).

¹⁶³ *Mandaraka-Sheppard* (n 35) 508–509.

the salvor must provide a useful and effective service to that end.¹⁶⁴ In other words, the salvor must have conferred a ‘benefit’ in order to be entitled to a right to a salvage reward.¹⁶⁵

This was expressly embodied in the description of LOF as *Lloyd’s Standard Form of Salvage Agreement ‘No Cure–No Pay’*,¹⁶⁶ and also by the two salvage conventions using the phrase ‘useful result’.¹⁶⁷ Under the 1989 Salvage Convention, the meaning of ‘useful result’ can be concluded as saving vessels, cargo, or other property from peril at sea.¹⁶⁸ As submitted by one commentator concerning the distinction one may draw because of the different phrasing in the salvage conventions and the Admiralty Law, this conclusion is actually false, and the salvor is made no worse off under the conventions. The reason is simple; even in the rare cases where the property is preserved but is valueless, which means the salvage service may have been a success in meeting the common law requirement, but no useful result was achieved, which fails to meet the requirement in the conventions, no reward is recoverable in either case.¹⁶⁹ However, the implication from this distinction inherent in Article 12.1 of the 1989 Salvage Convention,¹⁷⁰ that a payment may be due even though the salvage service does not result in a salvage reward,¹⁷¹ may be important for environmental services provided by the salvors.

One issue that arises here is, again, the controversial concept of ‘liability salvage’. With regards to the common law requirement of success or the ‘useful result’ required by the salvage conventions, the question resulting from liability salvage is whether avoidance of liability claims from third parties against the salvage vessel constitute a ‘useful result’,¹⁷² or whether it

¹⁶⁴ Rose (n 62) 327–332 paras 9–001 to 9–011.

¹⁶⁵ Reeder (n 3) 102 para.1–356.

¹⁶⁶ *Star Maria, The* [2002] EWHC 1423 (Admlty.);[2003] 1 Lloyd’s Rep. 183 para.17; Rose (n 62) 328 para. 9–004.

¹⁶⁷ Article 2 of the Brussels Convention 1910 stated that,

‘Every act of assistance or salvage of which has had a useful result gives a right to equitable remuneration. No remuneration is due if the services rendered have no beneficial result.’

Article 12.1-12.2 of the 1989 Salvage Convention contains almost the same provisions which stated,

‘1. Salvage operations which have had a useful result give right to a right.

2. Except as otherwise provided, no payment is due under this Convention if the salvage operations have had no useful result.’

¹⁶⁸ Article 1 (a) of the 1989 Salvage Convention provides that,

‘Salvage operation means any act or activity undertaken to assist a vessel or any other property in danger in navigable waters or in any other waters whatsoever.’

Article 13.2 of the Convention states,

‘Payment of a reward fixed according to paragraph 1 shall be made by all of the vessel and other property interests in proportion to their respective salvaged values.[...]’

As far as the definition of property is concerned, it is discussed in the previous section ‘Subject of Salvage’ of this chapter.

¹⁶⁹ Rose (n 62) 329 para.9–005.

¹⁷⁰ Article 12.1 of the 1989 Salvage Convention stated,

‘1. Salvage operations which have had a useful result give right to a right.’

¹⁷¹ Rose (n 62) 329 para.9–006.

¹⁷² Mandaraka-Sheppard (n 35) 575 para.7.

can at least be a reason to award a higher salvage reward, according to 13.1.(c) of the 1989 Salvage Convention.¹⁷³

The exceptional case of *The Whippingham*, must be brought up here again; in this case, the salvors took control of a vessel, preventing her from colliding with other vessels.¹⁷⁴ It was held that preventing a vessel from causing damage to other vessels qualified as a salvage service which gave a right to a reward; in other words, avoidance of liability claims from third parties was a success or useful result.¹⁷⁵ Bateson J. said that,

‘[...] The mere saving of a vessel from damage to other ships which might result in claims is a service, to my mind, because although the claim may not be a good one, there is considerable damage attached to successfully defending a claim, because there is all the expense which you do not recover even when you are a successful defendant. I must think that in itself would be a ground of claim for salvage.’¹⁷⁶

Nevertheless, it should be borne in mind that *The Whippingham* is an exceptional law and under common law, it is not established in law to consider ‘avoidance of liability claims from third parties’ alone as a success or useful result, which would entitle the salvor a right to reward; it is only as a factor to be taken into account when fixing the reward.¹⁷⁷

Meanwhile, it is interesting to note that, in the United States, the courts have conflicting views on the matter of liability salvage. In *Wester Marine Services v. Heerema Marine Contractors S.A.*,¹⁷⁸ US District Judge Lynch concluded that there was nothing in the 1910 Brussels Convention or in the CMI Draft Convention 1981, which contains basically similar relevant provisions to the 1989 Salvage Convention, providing for a threat of claims or the damage to third-party property to be taken into account for the assessment of the reward.¹⁷⁹ However, the judge approved a passage from an article by Sheen, in which reference was made to three English cases related to liability salvage, namely *The Whippingham*, *The Buffalo*, and *The Gregerso*; the judge approved their impact on English law,¹⁸⁰ in the following statement:

‘[...] if it were not for the salvage services the shipowner might find himself liable in damages to others, that fact should have some bearing upon the amount of the salvage reward because it makes the services of greater benefit to the shipowner.’¹⁸¹

¹⁷³ Article 13.1.(c) provides that, ‘the measure of success obtained by the salvor’, shall be one criteria to be taken account into for fixing the reward.

¹⁷⁴ *Whippingham, The* (n 150).

¹⁷⁵ ‘Svitzer Salvage BV v Z Energy Ltd and Another – High Court in Admiralty (Goddard J) [2013] NZHC 2585 – 4 October 2013’ (n 152).

¹⁷⁶ *Whippingham, The* (n 150) 51–52. See also, Rose (n 62) 171 para. 5–020.

¹⁷⁷ See, *Buffalo, The* (1937) 58 Lloyd’s Law Report 302; *Gregerso, The* [1973] 1 QB 274.

¹⁷⁸ *Wester Marine Services v Heerema Marine Contractors SA* [1985] United States District Court, ND California 621 F. Supp. 1135 (N.D. Cal. 1985).

¹⁷⁹ Reeder (n 3) 401 para.6–17.

¹⁸⁰ Barry Sheen, ‘Convention on Salvage’ (1983) 57 Tulane Law Review 1387, 1405–1406.

¹⁸¹ Reeder (n 3) 402 para.6–18.

Judge Lynch further noted that ‘[...] the benefit to the shipowner is not currently one of the independent factors of which the (Brussels Convention 1910) allows considerations in making an award.’¹⁸²

In the *Allses Maritime v. Mimosa*,¹⁸³ the court refused to make a reward for liability salvage for the reason that it was believed that the shipowner could have limited his liability under the US law.¹⁸⁴ Later when it was cited by the US District Court for the Eastern District of Louisiana in 2008, it was held that there was no legal grounding for granting a right to reward based solely on liability salvage.¹⁸⁵

It has been suggested by one commentator that, underlying the whole concept of salvage law is a benefit conferred on the owner of the salvaged property, and notwithstanding the word ‘benefit’ from missing in the Article 13 ‘Criteria for Fixing the Reward’ of the 1989 Salvage Convention, a ‘benefit’ such as that referred by Sheen should be taken into consideration for assessment of the reward. It is further submitted by the same commentator that it is inappropriate in a salvage action to investigate in detail who would have been liable for damages to third parties and to what extent; detailed findings are beyond the scope of a salvage action.¹⁸⁶

Thus, liability salvage does not meet the common law requirement of success or the useful-result requirement in the salvage conventions; avoidance of liability to third parties or avoidance of liability claims from third parties alone do not constitute a ‘success’ or ‘useful result’, but they are factors to be taken into account when fixing the salvage reward.

During the revision of the Brussels Convention 1910 in the 1980s, Prof. Selvig proposed the ‘liability salvage’ in one report submitted to a conference in Montréal.¹⁸⁷ In his report, a special ‘pollution fund’ was proposed in order to compensate salvors for pollution control.¹⁸⁸ If the liability salvage had been accepted, potential pollution liability to a third party alone would have become a useful result under the 1989 Salvage Convention; however, it was abandoned. Instead, as a product of the Montréal Compromise, Article 13 (b) and Article 14 of the 1989 Salvage Convention were introduced. Further issues in these two provisions and in the law of salvage in general regarding to environmental services shall be discussed in the following

¹⁸² *Allses Maritime, SA v M/V Mimosa* [1987] United States Court of Appeals, Fifth Circuit 812 F.2d 243 (5th Cir. 1987) 1143; Reeder (n 3) 402 para.6–18.

¹⁸³ *Allses Maritime, S.A. v. M/V Mimosa* (n 182).

¹⁸⁴ Limitation of Vessel Owner’s Liability Title 46 US Code Chapter 8 §183.

¹⁸⁵ Shirley Jr. (n 43) ITS 2010 Day2 Paper7 p.1.

¹⁸⁶ Reeder (n 3) 402 – 403, paras.6–19 to 6–24.

¹⁸⁷ Erling Chr Selvig, ‘Report on the Revision of the Law of Salvage’ in CMI, *The Travaux Préparatoires of the Convention on Salvage, 1989* (n 119) 14–26.

¹⁸⁸ CMI, *The Travaux Préparatoires of the Convention on Salvage, 1989* (n 119) 22.

sections and chapters. Under current common law and the 1989 Salvage Convention, avoidance of pollution liability claims to a third party alone cannot meet the success or useful result requirement, but it may be taken into consideration as a factor in fixing the salvage reward; thus, for a salvor's environmental services *per se*, it is difficult to argue that it meets the success or useful-result requirement under the traditional law of salvage.

2.6 Salvage Reward

A salvage service which meets all the requirements for the elements of salvage discussed entitles the salvor to a right to reward; based on the success or useful result of the service rendered, the payment from interests that are salvaged or have benefits conferred on is due for the salvage service. In other words, if nothing were saved by the service rendered, there would be no reward. This is the well-known 'No Cure–No Pay' principle,¹⁸⁹ and it is incorporated by the 1989 Salvage Convention in Article 12.2 and Article 13.3 of the Convention.¹⁹⁰

The jurisdiction of the English Admiralty Court has long been said to have an equitable character, seeking to do what is just and fair, to both the salvors and owners of the salvaged property.¹⁹¹ In Admiralty law, the right to a salvage reward arises from the fact that the law of salvage has twin bases, namely (i) a private right of the salvor to get paid for benefits conferred,¹⁹² and (ii) the public policy of encouraging persons to become salvors by means of unduly liberal rewards, the motivations for which includes, for example, mercantile, proprietary and humanitarian considerations.¹⁹³

The following classic statement can be found in *The Five Steel Barges*:¹⁹⁴

'The jurisdiction which the court exercises in salvage cases is of a peculiarly equitable character. The right to salvage may arise out of an actual contract; but it does not necessarily do so. It is a legal liability arising out of the fact that property has been saved, that the owner of the property who has had the benefit of it shall make remuneration to those who have conferred the benefit upon him, notwithstanding that

¹⁸⁹ Reeder (n 3) 1 para.1–01.

¹⁹⁰ Article 12.2 of the 1989 Salvage Convention states that,

'Except as otherwise provided, no payment is due under this Convention if the salvage operations have had no useful result.'

Article 13.3 states that,

'The rewards, exclusive of any interest and recoverable legal costs that may be payable thereon, shall not exceed the salvaged value of the vessel and other property.'

¹⁹¹ *Five Steel Barges, The* (n 64) 146.

¹⁹² *ibid*; *Hamton and St. John, The* (n 136) 898.

¹⁹³ Rose (n 62) 13–14 para.1-026 to para.1-027.

¹⁹⁴ *Five Steel Barges, The* (n 64) 146.

he has not entered into any contract on the subject. I think that proposition equally applies to the man who has had a benefit arising out of the saving of the property.’

This statement was approved in *The Cargo ex Port Victor*,¹⁹⁵ the judgement of which was later affirmed by the Court of Appeal. In *the Meandros*,¹⁹⁶ Sir Henry Duke P. held the same, and he further stated that ‘[...]any persons whose interest in the property is real – though it falls short of ownership – may be liable in respect of salvage, and it has been said, further, in comprehensive terms, that “owner” includes all persons who are collectively or singly owners.’¹⁹⁷

The rights of the salvor under the law of salvage arise from the Admiralty law and are essentially independent of a contract, which is stated as the underlying principle that ‘the obligation on ship and cargo to pay for salvage services is imposed by law irrespective of any contract, express or implied, to that effect’.¹⁹⁸

In the *Tojo Maru*,¹⁹⁹ when Lord Diplock gave his reasons why he held that the express contract in LOF in question, under which the salvage services were performed, was ‘a contract for work and labour’, he pointed out that,

‘(Before 1875 professional salvage contractors did not exist and express contracts of this type were unknown. It is thus unlikely that any direct assistance as to the contractual liabilities arising under the contract under consideration in this appeal is to be found in decisions of the Court of Admiralty itself.) It is true that, except in the case of derelicts, the rendering of salvage services was consensual. It involved the acceptance by the owner of a vessel which was in peril of an offer by the salvor to try to save it for a reward upon a *quantum meruit* in the event of success. To twentieth-century English lawyers this has the essential characteristics of a contract. But to lawyers in the eighteenth and the first part of the nineteenth centuries the similarities between salvage services and contracts for work and labour were less apparent. There was no room for any consensual element in the case of derelicts; and even where there was a consensual element the implied promises lacked mutuality in that the salvor assumed no obligation to continue to provide his services. He could withdraw at any time, yet claim a reward if his services had contributed to the successful saving of the ship. One does not, therefore, find the judges of the Court of Admiralty before 1875 applying the concept of contract to salvage services.’

¹⁹⁵ *Cargo ex Port Victor, The* [1901] P.243.

¹⁹⁶ *Meandros, The* [1925] P.61, 48.

¹⁹⁷ Rose (n 62) 14–15, para.1-028 to para.1-030.

¹⁹⁸ *Troilus, The* (n 145) 110 per Denning L.J.; Rose (n 62) 15 para. 1–031.

¹⁹⁹ *Tojo Maru, The* (n 159) 292.

Since the demise of the ancient independent High Court of Admiralty in 1875 and the emergence of professional salvors in the latter half of the twentieth century,²⁰⁰ most salvage services nowadays are performed by professional salvors under salvage agreements using standard open forms such as the LOF, but the basic principles upon which the salvage law is founded remain *prima facie* applicable today.²⁰¹

The nature of the salvage reward is not simply a restitution for *unjust enrichment*, i.e. not just payment for the benefits conferred on the property from the rendered services;²⁰² nor is it a *quantum meruit* as available in the common law courts,²⁰³ i.e. not simply an exact quantum of the services rendered such as work and labour. It is, in fact, an incentive to encourage seamen to assist distressed vessels and especially to facilitate the establishment of professional salvors,²⁰⁴ and to encourage them to take risks for the purpose of saving property and to keep vessels of adequate size and dimensions ready to go out to perform salvage services at any time. This position was adopted by the 1989 Salvage Convention, the preamble of which states that,

‘THE STATES PARTIES TO THE PRESENT CONVENTION

[...]

CONSCIOUS of the major contribution which efficient and timely salvage operations can make to the safety of vessels and other property in danger and to the protection of the environment,

CONVINCED of the need to ensure that adequate incentives are available to persons who undertake salvage operations in respect of vessels and other property in danger,

Have agreed as follows:

[...]²⁰⁵

In *The Industry*,²⁰⁶ the policy underlying the amount of the salvage reward was examined,

‘[. . .] there are various facts for consideration – the state of the weather, the degree of damage and danger as to ship and cargo, the risk and peril of the salvors, the time

²⁰⁰ *ibid*; Rose (n 62) 15–16, para.1-031 to para.1-032.

²⁰¹ Rose (n 62) 16 para.1–032.

²⁰² *ibid* 16–18 para.1-033 to para.1-035.

²⁰³ Mandaraka-Sheppard (n 35) 507; Reeder (n 3) 31 para. 1–102.

²⁰⁴ Rose (n 62) 20 para.1–038; pp. 22–25, para. 1-042 to para. 1-048.

²⁰⁵ Besides the 1989 Salvage Convention provides the salvage reward as an incentive for the salvors, there are measurements contained in other maritime conventions with regards to the salvage reward. In specific terms, a claim for salvage reward is a maritime claim, for which the ship can be arrested (International Convention Relating to the Arrest of Seagoing Ships, Brussels, 1952 art 1. c.); it is not subject to ship owner’s right to limit liability (Convention on Limitation of Liability for Maritime Claims, London, 1976 art 3. a.), and it gives rise to a maritime lien, which has priority over all other liens attached to the vessel prior to the salvage operations. (International Convention for the Unification of Certain Rules relating to Maritime Liens and Mortgages, Brussels, 1967 art 4.1.(v), 5.2.)

²⁰⁶ *Industry, The* (1835) 3 Hagg 203 204.

employed, the value of the property; and when all these things are considered, there is still another principle – to encourage enterprise, reward exertion, and to be liberal in all that is due to the general interests of commerce, and the general benefit of owners and underwriters [. . .]’

With regards to the reward for salvor’s environmental services, which is well accepted as extremely important in protecting the environment from being damaged by distressed vessels like oil tankers, the underlying principles for fixing the reward are continually being questioned in terms of whether a proper reward may be granted if the nature of reward being an incentive to encourage the salvors to provide environmental services. As discussed in previous sections, it can be argued that salvor’s environmental services alone do not meet the requirements for the qualification of a salvage service. Furthermore, given that most salvage agreements are on a ‘No Cure–No Pay’ basis form like the LOF, the salvors receive no reward if no property is salvaged; even if some property is salvaged successfully by the salvor, they claim that the received rewards are not even enough to cover the expenses of their environmental services. This was why several concepts and mechanisms have been developed by the industry to remunerate salvors’ environmental services, such as the ‘safety net’ in the LOF 1980, and this was a major reason for revising the Brussels Convention 1910 and for the implementation of the 1989 Salvage Convention.²⁰⁷

2.7 Concluding Remarks

Modern salvage law was to some extent unified by the Brussels Convention 1910 and by the 1989 Salvage Convention, which virtually replaced the former, supported by efforts from lawyers and commercial men such as those who founded the CMI and support from the IMO; the 1910 Convention embodied the principles that had been, for the most part, established in Admiralty law by judges of the English Admiralty Court. It should be noted that though the salvage conventions unify the rules and principles of salvage law, the conventions are not mandatory in the sense that parties may contract out of the Convention, and they do not (nor do they intend to) list the law in an exhaustive manner; meanwhile, since the demise of the independent High Court of Admiralty and the emergence of professional salvors in the late twentieth century, while the principles upon which the law of salvage was founded remain *prima facie* applicable, most salvage services have been rendered on a ‘No Cure–No Pay’ basis standard open form, such as LOF, as salvage agreements. Thus, the sources of modern salvage law include the salvage conventions, national laws, and the contracts.

The underlying rationale of salvag” law’lh was recognized by the conventions is to provide a reward for benefits conferred resulting from the salvor’s rendered services, and that such a

²⁰⁷ Mandaraka-Sheppard (n 35) 484.

reward is not simply a restitution for *unjust enrichment* nor a *quantum meruit* for work and labour in the services, but an incentive to encourage seamen to provide assistance to distressed vessels and especially to facilitate the establishment of professional salvors.

The traditional principles of salvage law require several essential elements from a service in order for it to qualify as a salvage service meriting a reward. In specific terms, the law of salvage applies when (i) a recognized subject of salvage is (ii) in a position of danger that necessitates a salvage service to prevent it from loss or damage, and a person falling within the classification of salvors provides (iii) a voluntary act of assistance, which contributes to (iv) the success in preserving the subject from danger.²⁰⁸

The controversial concept of ‘liability salvage’ has been analysed by judges, and liability salvage is not a recognized separate category of salvage in Admiralty law, which means it alone cannot entitle the salvor to a right to reward; however, it is a factor to be taken into account for the assessment of the reward provided, that property has been salvaged successfully.

With regard to environmental services, based on its similarities to liability salvage and the law on liability salvage, under the traditional principles of salvage law it is problematic to argue that environmental services *per se* meet all the requirements for a service meriting a salvage reward. Theoretically, the traditional law of salvage does not provide the proper incentive to salvors for environmental services. This became a problem in practice, especially from the twentieth century, as a result of the large numbers of modern ships and their cargos such as crude oil and HNS (hazardous and noxious substance).

Following the introduction of the ‘safety net’ introduced by the LOF 80, ‘liability salvage’ was proposed to be a new category of salvage in a report submitted to a conference in Montréal during the revision of the Brussels Convention 1910 in the 1980s since it could provide a solution to the problem with environmental services; however, this proposal was abandoned. And instead, Articles 13(b) and 14 of the 1989 Salvage Convention were introduced to remunerate the salvor’s efforts and skills in preventing or minimizing damage to the environment. Article 14 of the Convention later turned out to be time-consuming and expensive to operate. Further analyses will be carried out in the following chapter(s).

²⁰⁸ See Section 2.5 of this chapter.

Chapter 3 Salvage Agreements and Salvage Award: the Rise and Fall of LOF

EMBARGOED

Chapter 4 Salvage Law Tackling Environmental Challenges

EMBARGOED

Chapter 5 Rethinking Environmental Salvage: A Law and Economics Analysis

5.1 Preliminary Remarks⁵⁸³

The debate on the phenomenon of environmental salvage is essentially on the question of how salvors should be adequately rewarded so that they would have incentives to provide environmental emergency responses that are highly integrated to salvage operations rendered to maritime casualties. As examined in previous chapters, the current salvage law and practice does not provide satisfactory solutions as the mechanism for salvage as such has been developed with saving property as the central focus and consequently, the ‘No Cure–No Pay’ is the governing principle for the salvor’s right to a salvage reward. The attempts at law reform via amending the Salvage Conventions, especially the abandoned concept of liability salvage in the 1980s and the rejected ISU’s proposal of ‘Environmental Salvage Awards’ in the 2010s, have been evolving as a departure from the ‘No Cure–No Pay’ principle. However, under the current salvage regime, Article 14 Special Compensation in the Salvage Convention 1989 turned out to be problematic as a way of providing adequate incentives to salvors: not only is it difficult and expensive to calculate the due amount from the perspective of practice but also from the legal perspective, since the House of Lords in the *Nagasaki Spirit* (1997) case held that Article 14 Special Compensation does not include a profit element. The industry has already reacted by circumventing the application of Article 14 Special Compensation via a contractual instrument, namely the SCOPIC clause (firstly introduced in 1999) that is to be used as a supplement to the LOF. The law reform is currently stuck largely due to opposition from the marine insurance industry which is essential as the marine insurers are the bill-payers; the law reform proposals which try to establish a legal basis for a separate reward within the salvage law regime create a divergence of interests among marine insurers, i.e. property underwriters and P&I Clubs.

A cost-effective mechanism for environmental salvage which provides adequate incentives for salvors to render environmental emergency responses in salvage operations is desirable for society, as without salvors’ prompt emergency response to maritime casualties, environmental disasters could easily occur. This chapter aims to provide new insights into the debate by designing a new efficient mechanism that is composed of financial and contractual arrangements for salvors’ rewards in environmental salvage using economic analysis. Law and economics analysis is chosen because it enables an evaluation of how particular legal and financial arrangements affect stakeholders’ incentives and the cost-effectiveness of such arrangements by a cost-benefit analysis.

⁵⁸³ This chapter is based on the main research findings contained in a paper published in the *Journal of Maritime Law and Commerce*, a law review devoted to maritime law in the United States. See, Faure and Yu (n 32).

This chapter proceeds by firstly examining the economic rationales of current salvage law and practice, which arguably focuses on property salvage, in the first section. The deficiencies of salvage law in dealing with the phenomenon of environmental salvage are then critically analyzed in the second section. This section challenges the loosely used term ‘environmental salvage’ and the compatibility of salvage law with dealing with the phenomenon of environmental salvage. The first two sections, i.e. the economic analysis of current salvage law and practice and the deficiencies hereof in the case of environmental salvage, underline the need to design a cost-effective mechanism for environmental salvage and the necessary components for such a mechanism. Then in the third section, the chapter examines the societal goals to be served and proposes a new cost-effective mechanism for environmental salvage, which is composed of financial and contractual arrangements.

5.2 Positive Economic Analysis of Property Salvage

5.2.1 Features of Property Salvage

Salvage or rescues at sea are emergency response services voluntarily rendered to maritime properties that are in danger. They confer benefits to the property owners, including the shipowner and cargo owners, and such benefits are in physical forms, i.e. salvaged maritime properties that are recognized subject of salvage by law. Services are rendered voluntarily in the sense that the salvors do not have pre-existing contractual or legal obligations to provide such services at the time of engaging and they may withdraw their services at their discretion. These three requirements, namely danger, success (i.e. No Cure–No Pay) and voluntariness, have been developed in the customary law of salvage, which itself developed in the Admiralty jurisdiction and are now embedded in the Salvage Convention 1989. An example of property salvage would be a vessel loaded with tons of cargo sailing on the high sea which has an engine failure in stormy weather; the master of the distressed vessel sends out an emergency signal via radar and a professional salvage company immediately sends out a salvage vessel with salvage experts to the casualty. Bearing this example in mind, the features of property salvage are sketched out as follows.

The first feature is that salvage is an emergency response to distressed vessels and time is of the essence to successful salvage operations, thus there would be little time for *ex ante* negotiations. The second feature is that neither the salvor nor the salvees can carry out proper *ex ante* risk assessments at the time when the salvor is engaged. In many cases, at the time when a salvor was engaged, the nature of the danger to the vessel would still be evolving and there would be a lot of uncertainties. Therefore, it would still be unclear what the efforts and skills required are, i.e. what kind of vessels, equipment and personnel should be deployed and for how long they should be deployed for in the salvage operations in question. This also

contributes to the difficulties in *ex ante* negotiations. The third feature is that in property salvage the setting is usually one of bilateral monopoly,⁵⁸⁴ which refers to the fact that there are usually only one or a few salvors that could offer services and the number of salvees that might want to use the salvors' services is very limited as well. The monopolist position on the salvee's side is simply that emergencies do not happen all the time. On the salvor's side, the monopolist position could be caused by the fact that the salvor in question is the only one that has the capability and availability to provide the required services. This is mostly caused by the problem of specific assets for salvage, as maintaining salvage tugs and equipment that are costly requires high upfront investment that only a few salvage companies can afford.⁵⁸⁵ The fourth feature is that, related to the fact that emergency only happen occasionally, the probability of repeating transactions with the same party is quite low in salvage. Therefore, due to the low probability of repeating transactions and specific assets in salvage, the problem of opportunism is inevitable on both salvors' and salvees' sides.⁵⁸⁶ In summary, there are prohibitively high transaction costs in salvage caused by the features of salvage; the bilateral monopoly setting leads to problems of opportunism and there is no competitive market in salvage leading to efficient resource allocation.⁵⁸⁷

5.2.2 Economic Rationales of the Salvage Reward: Landes & Posner's Positive Economic Analysis of Law

Salvage is normally a setting of prohibitively high transaction costs and there is no competitive market. Landes and Posner argue that the purpose of the salvage reward is to provide incentives for efficient resource allocation.⁵⁸⁸ The salvage law requirements for the right to a reward and the criteria to fix the amount of salvage reward as developed in the Admiralty jurisdiction simulate the conditions and outcomes of a competitive market to encourage salvage.⁵⁸⁹

The economic significance of the danger requirement, namely that the subject of salvage must be in danger, is that of delimiting situations in which the loss is likely to be substantial without salvage services and the salvee is unlikely to purchase the services in a competitive market.⁵⁹⁰

The voluntariness requirement means that there should be no pre-existing contractual or legal obligations on the salvor to provide salvage services. On the one hand, it prevents the crew members of the distressed vessel or a tug on a towage contract to claim a reward for performing

⁵⁸⁴ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 101.

⁵⁸⁵ Brough (n 50) 98–99.

⁵⁸⁶ *ibid* 99.

⁵⁸⁷ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 102.

⁵⁸⁸ *ibid* 100,102.

⁵⁸⁹ *ibid* 100.

⁵⁹⁰ *ibid*.

their existing contractual duties; on the other hand, it does not impose on the parties higher contracting costs by forcing them to negotiate *ex ante* over low-probability events when salvage services are needed.⁵⁹¹ Furthermore, an important implication of the voluntariness requirement is that a salvage reward can be awarded without a contract. In property salvage, there is normally a situation of bilateral monopoly, which refers to the scenario where only one or a few salvors could offer services and the number of customers that want to use their services is also very limited. A contract with unfair terms that is entered into at the time of peril may be set aside by the court and then a non-contractual salvage reward may be awarded.⁵⁹² In doing so the court may *de facto* safeguard the efficient allocation of rescue resources.⁵⁹³

The success requirement contains two dimensions: one is that it determines whether there will be a reward or not, i.e. the ‘No Cure–No Pay’ principle as the payment arrangement; and the other is that the list of criteria is to fix the amount of reward.⁵⁹⁴ Although there is no exact formula to decide the amount, the criteria to fix the amount can be interpreted as an attempt by the legal system to reconstruct the salvage contract that could not be negotiated *ex ante* due to high transaction costs in property salvage.⁵⁹⁵ These criteria contain relevant information for a legal system to estimate the market value of salvor’s inputs utilized in the salvage operations from an *ex post* perspective.⁵⁹⁶ Furthermore, in line with the public policy of encouraging the creation of a class of professional salvors, the reward must be sufficient to cover the costs of maintaining stand-by capacity and investment in such capacity, without which the delay in mobilising salvage capacity could defeat successful salvage operations.⁵⁹⁷ This provides an economic explanation that the court normally grants a generous reward to successful salvor and such a reward is not based on the *quantum meruit*.⁵⁹⁸

5.2.3 Financial and Contractual Arrangements

i. Preliminary Remarks

As will be examined in this section, the financial and contractual arrangements in salvage law and practice have *de facto* reduced transaction costs in property salvage, especially monitoring costs and negotiation costs. Furthermore, Brough argues that in property salvage there is the

⁵⁹¹ *ibid* 100, 101.

⁵⁹² *ibid* 101.

⁵⁹³ *ibid*.

⁵⁹⁴ The list of criteria refers to the ‘material circumstances’ recorded by the book *Kennedy* that are to be taken into account in assessing salvage rewards; these criteria have been developed in the Admiralty jurisdiction in the UK and consequently embedded in Article 8 of the Brussels Salvage Convention 1910 and Article 13 of the Salvage Convention 1989. Besides, it is similar to the list in the American case *the Blackwall* 77 U.S. (10 Wall.) (1869).

⁵⁹⁵ Landes and Posner, ‘Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism’ (n 19) 102.

⁵⁹⁶ *ibid*.

⁵⁹⁷ *ibid*.

⁵⁹⁸ *ibid* 101. The salvage reward is not simply an exact quantum of the services rendered such as work and labour but an incentive to encourage salvage operations. See Chapter 2, Paragraph 2.6 Salvage Reward

opportunism problem.⁵⁹⁹ The salvor's incentive is to maximize his reward; meanwhile, the owners of property will seek to minimize the loss, that is the difference between the salvaged value of property and the reward paid to the salvor. Normally property salvage takes place in a setting of bilateral monopoly: the salvor's skills and efforts are very specific and the probability of repeating the contract between the same parties is rather low. Game theory suggests that in the absence of repeated contracting, cheating may be the most rational strategy.⁶⁰⁰ Both sides in property salvage would have incentives to cheat on the contract: the salvors may have incentives to reduce their efforts or spend more time on them than is necessary; the salvees may have incentives to avoid paying a part or the whole payable amount of the reward. As will be examined in this section, salvage law and practice has *de facto* invented solutions to the opportunism problem in property salvage: for example, the 'No Cure–No Pay' principle corrects the potential cheating behaviours of the salvors; salvors' remedies that are either invented by the Admiralty court or provided in salvage contracts correct the potential cheating behaviours of the salvees.

ii. Payment Arrangement

'No Cure–No Pay' Model

The payment arrangement is the 'No Cure–No Pay' model which means the reward is contingent on the salvaged value of the property. The 'No Cure–No Pay' model can be seen as efficient because it may reduce litigation costs as it reduces the number of legal proceedings, while the courts can compensate the salvors for their unsuccessful attempts by adjusting the award in successful salvage. However, it is noted that the difficulties for the Court in determining how large the risk premium must be to compensate salvors fully for successful salvage may defeat the efficiency of the 'No Cure–No Pay' model.⁶⁰¹ Besides, there might be (but this is not necessarily so) an information asymmetry in salvage operations between the salvor as the agent and the salvees as the principal, and in salvage, the principal cannot easily control the efforts of the agent.⁶⁰² As a result, the agent may wish to perform the services with the lowest costs but still gain the highest reward. Making the salvage reward contingent on success realigns the interests of the salvor and the salvees and it discourages the salvor from reducing his or her efforts for a given quantity of salvage inputs. As a result, it may reduce the high monitoring costs of the salvor's efforts and energy by fixing the reward *ex post*.⁶⁰³

⁵⁹⁹ Brough (n 50) 99.

⁶⁰⁰ Law and Economics literature suggests that the game theory can offer insights to understand how laws affect the way people behave. Game theory may be applied in situations where there are few decision makers and where the optimal action for each of them to take depends on what another actor chooses. These situations are like games in which people must decide upon a strategy, i.e. a plan for acting that depends on other people's reactions. It is noted that the word 'cheating' is normally used in game theory. See

⁶⁰¹ 'Calculating and Allocating Salvage Liability' (1986) 99 Harvard Law Review 1911–1913.

⁶⁰² For 'Agency theory', see Michael C Jensen and William H Meckling, 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure' (1976) 3 Journal of Financial Economics 305.

⁶⁰³ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 104.

Amount of Reward Fixed Ex post by the Tribunal

In most cases, parties may negotiate and agree on the amount of the reward, but inevitably in some cases where there are disputes, they will bring the disputes to the arbitration tribunals, such as Lloyd's Salvage Arbitration, or rather seldomly, to Admiralty/maritime courts. In salvage disputes, the amount of the salvage reward is fixed *ex post* by the tribunal, which could be an Admiralty Court or an arbitration tribunal, in accordance with the list of criteria developed in the Admiralty jurisdiction and embedded in the Salvage Convention 1989. It is inappropriate and contrary to practice and principle for the parties to suggest a figure for the salvage reward to the Tribunal.⁶⁰⁴ Due to the opportunism problems associated with the bilateral monopoly in salvage, salvors may be in a more powerful bargaining position, which they could abuse by entering into unfair terms in salvage agreements. By moving the price determination from the parties to independent and unbiased judges or arbitrators sitting on the tribunals, the potential for opportunism on the salvor's side is to a large extent eliminated;⁶⁰⁵ besides, the tribunal may set aside unfair terms in salvage agreements.⁶⁰⁶ Furthermore, on the one hand, one of the criteria for fixing the amount is salvor's misconduct, which includes refusing to allow a more efficient salvor to render salvage services,⁶⁰⁷ and on the other hand, salvors could be held liable for negligence,⁶⁰⁸ both of which would lead to a deduction from or even forfeiture of the salvage reward.⁶⁰⁹ As a result, the tribunal is able to discourage inefficient salvage services in a bilateral monopoly setting and also it may further eliminate the potential for opportunism on the salvor's side.⁶¹⁰

iii. Financing Arrangement

Pro-Rata Rule

In property salvage, the pro-rata payment rule has been well established; this means every interest who receives benefits from salvage operations should pay an amount that is proportional to their respective salvaged values towards the total salvaged fund,⁶¹¹ then the salvage reward will be made out of this fund to the salvor. The implications of the pro-rata rule are that on the one hand, the salvaged property is chargeable with salvage by an action *in rem*; on the other hand, every person who has an interest in that salvaged property at the time of the casualty,

⁶⁰⁴ *Keynvor Morlift Ltd, Seawide Services Ltd, The Falmouth Docks and Engineering Company (Formed Under the Falmouth Docks Act 1959) v The Vessel 'Kuzma Minin', Her Bunkers Stores and Freight at Risk (If Any) v PJSC Sberbank of Russia, (The Kuzma Minin, The)* (n 422) [38].

⁶⁰⁵ Brough (n 50) 99.

⁶⁰⁶ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 Article 7; Rose (n 35) 401. See also Chapter 3, Paragraph 3.3.3

⁶⁰⁷ Rose (n 35) 596 para.16–007.

⁶⁰⁸ D Rhidian Thomas, 'Salvorial Negligence and Its Consequences' (1977) 2 LMCLQ 167.

⁶⁰⁹ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 Article 18.

⁶¹⁰ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 102–103.

⁶¹¹ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 Article 13 (2).

i.e. every recipient of a legally recognizable benefit,⁶¹² is liable to contribute by action *in personam*.⁶¹³ In practice it could be the shipowner who makes the full payment and then recovers the funds from the other liable interests for the payment made on their behalf.⁶¹⁴

Salvor's Remedies: Action in Rem, Maritime Lien and Salvage Security

Due to the opportunism problem in property salvage, the salvor's claims may be assured through two unique mechanisms in the Admiralty courts, namely the action *in rem* and the maritime lien. The theory of maritime liens evolves with the concept of actions *in rem* in a intertwined manner.⁶¹⁵

Action in Rem

The distinctive feature of the Admiralty jurisdiction is its ability to proceed directly against the *res*, i.e. the ship or even her cargo and freight. Such action *in rem* is a unique proceeding directly against the ship⁶¹⁶ to compel the appearance of the shipowner,⁶¹⁷ since a ship is perhaps a shipowner's most valuable asset. The advantage reveals itself in cases where the defendant is domiciled in a different country.⁶¹⁸ It is, however, not a procedural device to gain *in personam* jurisdiction over the owners.⁶¹⁹

Therefore, the salvor may request the court to arrest the tangible property, i.e. the ship and cargo, to secure his or her claim against any interests benefiting from the salvage services; such interests include both a tangible interests, i.e. salvaged ship and cargo, and an intangible interests, i.e. salvaged freight.⁶²⁰ The arrested vessel and cargo may not be released until either salvage security has been put up or the court orders a sale of the arrested property.⁶²¹

Salvage/Maritime Lien

The Admiralty court invented the maritime lien that must be registered with the court by the salvaged vessel in order to mitigate the cheating behaviour on the salvees' side;⁶²² the maritime lien is a useful mechanism that assures that the payment is made to the salvor. The salvage claim is one of the few maritime claims that enjoy the status of a maritime lien in English law (or so-called 'maritime privilege' in civil law jurisdictions such as the Netherlands). Lord Tenterden defined the maritime lien as 'a claim or privilege upon a thing to be carried into

⁶¹² Rose (n 35) 656 para.17–038.

⁶¹³ *Josefina Thorden, The* [1945] 1 All. E.R. 344 347; Rose (n 35) 643.

⁶¹⁴ Rose (n 35) 647.

⁶¹⁵ Frank L Wiswall Jr., *The Development Of Admiralty Jurisdiction And Practice Since 1800* (CUP 1970) 155.

⁶¹⁶ *ibid* 158.

⁶¹⁷ *Bold Buccleugh, The* [1851] 7 Moo PC 267 890.

⁶¹⁸ Christopher Hill, *Maritime Law* (6th edn, Informa Law 2014) 89.

⁶¹⁹ Wiswall Jr. (n 615) 158.

⁶²⁰ Rose (n 35) 646.

⁶²¹ Brice (n 306) 28.

⁶²² Brough (n 50) 99.

effect by legal process’; Mr Justice Story further explained that such a legal process was to be a proceeding *in rem*, and wherever a lien or claim was given upon the thing, then the Admiralty would enforce it by a proceeding *in rem*, and indeed the Admiralty Court was the only Court competent to enforce it.⁶²³ It was held in the *Bold Buccleugh* case that, ‘[...] a maritime lien does not include or require possession, but being the foundation of proceedings *in rem* (a process requisite only to perfect a right inchoate from the moment the lien attaches), such lien travels with the thing into whosoever possession it may come, and when carried into effect by a proceeding *in rem*, relates back to the period when it first attached ...’.⁶²⁴ Christopher Hill notes that ‘the purpose behind the original granting of Admiralty jurisdiction was the protection and promotion of the shipping industry’.⁶²⁵ Salvage could be the foundation for the creation of a maritime lien and it could attach to all property salvaged including the ship, cargo and freights.⁶²⁶ It is observed in the *Kennedy* that a maritime lien is enforceable by an action *in rem*, thus either its threatened or actual exercise acts as an inducement to the defendant to put up security for the salvage claims, and a maritime lien confers a high priority over other claims.⁶²⁷ D. Rhidian Thomas observes that a salvage maritime lien attaches to any recognized subject of salvage that has benefited from the salvage services, as the benefit conferred upon property is the source of the salvage maritime lien.⁶²⁸ Mere service without benefit as in the preservation of property creates no maritime lien.⁶²⁹ The salvage maritime lien provides a salvor with a security for his or her claim under *sui generis* salvage and it is a remedy that is independent of the availability and solvency of the *res* owner; it underpins the public policy of encouraging salvor’s salvage services.⁶³⁰

*Salvage Security*⁶³¹

The Salvage Convention 1989 Article 21 imposes a duty to provide salvage security upon request of the salvor for the payment due under the Convention; the shipowner of the salvaged vessel is responsible for collecting the security from cargo owners, and the salvaged vessel or property cannot be removed from the port or place where salvage services have been completed if there is a failure to provide a satisfactory security for a salvage claim.⁶³² What is more, the Lloyd’s Salvage Arbitration Clauses 2020, which are integrated as part of the LOF in

⁶²³ *Bold Buccleugh, The* (n 617) 890.

⁶²⁴ *ibid* 883.

⁶²⁵ Hill (n 618) 89.

⁶²⁶ Rose (n 35) 525 para.14–028.

⁶²⁷ *ibid*.

⁶²⁸ D Rhidian Thomas, *Maritime Liens*, vol 14 (Stevens & Sons 1980) 153 para.272.

⁶²⁹ *India, The* (1842) 1 W. Rob. 406; *Cheerful, The* (n 161); *The English Reports: Ecclesiastical, Admiralty, And Probate And Divorce, Volume 166* (W Green & Son, Stevens & Sons 1924) 625; Thomas, *Maritime Liens* (n 628) 153 para.272.

⁶³⁰ Thomas, *Maritime Liens* (n 628) 152 para.270.

⁶³¹ More details on salvage security have been examined in Chapter 3, Section 3.4.4

⁶³² International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 Article 21.

accordance with Clause I of the LOF 2020, also contains clauses on salvage security that should be provided to the Lloyd's Salvage Arbitration.⁶³³ The economic rationale of security clauses in salvage agreements such as the LOF is similar to that of the maritime lien invented by the Admiralty courts, that is to mitigate cheating by the salvees by registering a security with the arbitration tribunal.⁶³⁴ In practice, usually the property insurers of the vessel and cargo put up the salvage security so that the arrested property may be released.⁶³⁵

iv. Contractual Arrangement

Ex post price determination and Lloyd's arbitration

Due to the features of property salvage, the high transaction costs could be prohibitive and thus, ⁶³⁶ *ex ante* negotiations for optimal contractual conditions for salvage are usually impossible. In salvage practice, the use of 'No Cure–No Pay' salvage agreements such as the LOF is not an attempt to agree on detailed conditions to determine the amount of the reward or the exact price for salvage award *ex ante*.⁶³⁷ Instead, the main function of the LOF is to provide an *ex post* dispute resolution mechanism to facilitate the price determination *ex post*,⁶³⁸ i.e., the Lloyd's salvage arbitration which is provided by independent salvage experts. Furthermore, a general rule is that agreement to be bound by a LOF agreement estops the contracting parties from claiming the rendered services were not salvage services,⁶³⁹ and this also contributes to efficiency as it reduces the number of disputes and therefore it reduces litigation costs. As far as the SCOPIC clause is concerned, it also provides a method to calculate the due amount that cannot be determined *ex ante* because *ex ante* risk and costs assessment are not possible, thus it reduces transactions costs which otherwise would be so prohibitively high that services could not be provided in a timely manner.

Master's authority to bind shipowner and cargo owners into a salvage agreement

As the payment of the salvage reward is made *pro rata* by all interests which receive benefits from the salvage operations, it would lead to huge negotiation costs if a salvage agreement had to be signed by all potential salvees; it would defeat the object of a successful salvage, as time is of the essence. In salvage, the master of the vessel in danger acts as the agent of the properties to be salvaged and the master will enter into a salvage agreement with the salvor, who is a third party. There are two sets of relationships involved as there are two types of properties: firstly, the master as the agent for the shipowner, and the salvor as the third party (it should be noted

⁶³³ 'Lloyd's Salvage Arbitration Clauses 2020' (n 107) Clause 4; 'Lloyd's Standard Form of Salvage Agreement (LOF 2020)' (n 86) Clause I; Importance Notice 1.

⁶³⁴ Brough (n 50) 99.

⁶³⁵ Brice (n 306) 28.

⁶³⁶ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 118.

⁶³⁷ Rose (n 35) 333 para.10–001.

⁶³⁸ Lloyd's of London, 'Lloyd's Open Form (LOF)' (n 214). See also Chapter 3, Paragraph 3.3

⁶³⁹ Rose (n 35) 370–373.

that the master is also usually an employee of the shipowner); secondly, the master as the agent for the cargo owners, and the salvor as the third party.⁶⁴⁰ The issue of whether the master has the authority to enter into a salvage agreement on behalf of both the shipowner and the cargo owners was firstly dealt with in English law by the theory of ‘agency of necessity’, but it became problematic after a few disputes regarding the master’s authority to bind cargo interests to a salvage agreement.⁶⁴¹ As a result, the problem has now been resolved by Article 6(2) of the Salvage Convention 1989, which provides that the master shall have authority to enter into a salvage agreement on behalf of the shipowner; the master and the shipowner shall have authority to enter into a salvage agreement on behalf of the property owners (including cargo owners).⁶⁴²

Table 2 Property Salvage: Some Main Financial and Contractual Arrangements in Salvage Law and Practice

Property Salvage: Some Main Financial and Contractual Arrangements in Salvage Law and Practice			
Demand	Offered by salvors to shipowner / Demand by shipowner		
Financing	<i>Pro rata</i> by all salvaged interests (Shipowner, cargo owners, charterer...)		
Salvage Law and Practice Arrangements	Payment Structure:	Financing Arrangement:	Contractual Arrangement:
	No Cure–No Pay • Reward contingent on success • Salvor’s misconduct & salvorial negligence leads to deduction or forfeiture of reward	Salvor’s Remedies • Action in rem • Salvage/maritime Lien • Salvage security in law and contracts	<i>Ex post price</i> determination through Lloyd’s salvage arbitration by Courts Master’s Authority to Bind Shipowner and cargo owners

⁶⁴⁰ Mandaraka-Sheppard (n 35) 516.

⁶⁴¹ For detailed discussions on the master’s authority, the Agency of necessity and related case law, see *ibid* 516–524; Rose (n 35) 339–356.

⁶⁴² International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 Article 6 (2).

Deficiencies Solved	Bilateral Monopoly: Opportunism Cheating behaviours on salvor's side	Bilateral Monopoly Opportunism: Cheating behaviours on salvees' side	Monitoring & Costs (Salvor's skills and effort) & Litigations Costs	Negotiation costs (pro-rata rules)
Landes & Posner's Positive Economic Analysis	<ul style="list-style-type: none"> • Salvage: Prohibitively high transaction costs • The purpose of salvage reward: To provide incentives for efficient resource allocation for salvage. • Salvage law and practice arrangements: To simulate the conditions and outcomes of a competitive market to encourage salvage. 			

5.3 Salvage Law in Environmental Salvage: A Critical Analysis

5.3.1 Deficiencies in Salvage Law and Practice

The salvage reward fixed under the 'No Cure–No Pay' principle does not provide adequate incentives in environmental salvage and the industry has been making attempts to breach the 'No Cure–No Pay' through law reform. The most recent attempt was the ISU's 'Environmental Salvage Awards' proposal which was rejected at the CMI 2012 Beijing Conference. The reason might be that creating a separate reward for environmental salvage will break the balance of interests in the industry that the current salvage law represents.

Traditional law and economics analysis literature suggests that although in salvage operations transaction costs may be prohibitively high, the affected parties may contract around the inefficient legal doctrines. In the history of international maritime commerce, there was no central authority to impose an inefficient rule on its subjects and thus, the nation that adopted the most efficient admiralty rules would increase its share of the market.⁶⁴³ There has been enough time for an efficient maritime law of salvage to evolve with saving property as its central focus. The purpose of salvage reward is to provide incentives for efficient resource allocation.⁶⁴⁴

The advent of the phenomenon of environmental salvage is relatively recent and as Brough rightly pointed out, innovations in salvage law and practice regarding environmental salvage

⁶⁴³ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 118

⁶⁴⁴ *ibid.* 102.

have mainly come from a wide range of distinct sources operating in a pluralistic environment in which economic agents take environmental salvage as business risks; it is the market instead of the courts has driven innovations and through arbitration has policed its consequences.⁶⁴⁵ The question here is why salvage law is inefficient in environmental salvage from an economic analysis perspective. To answer this question, this section firstly examines the nature (section 5.3.2) and the features (section 5.3.3) of environmental salvage; then it critically presents the inefficiencies of salvage law and practice in dealing with the phenomenon of environmental salvage (in section 5.3.4).

5.3.2 The Nature of Environmental Salvage

i. Benefits Conferred: Intangible Avoidance of Costs

The phenomenon of environmental salvage has pushed the law reform in salvage law and practice in a way that would be a departure from the ‘No Cure–No Pay’ principle for property salvage, however, currently, the solutions are still restricted by the salvage law regime and more specifically the ‘No Cure–No Pay’ model with saving property as the central focus.⁶⁴⁶ It is noted that the rationales of the two rejected proposals of law reform, namely the ‘liability salvage’ and the ‘environmental salvage award’, are almost identical in solving the problem of environmental salvage. Both proposals attempted to establish a separate legal basis for a reward that would have the potential to provide incentives for salvors to engage with environmental salvage. Recall that under the salvage regime the salvor is entitled to a reward for the benefits conferred on the salvaged subject of salvage, which includes the vessel, cargo and freight. The salvage reward is then assessed based on the salvaged value of the property. Both proposals challenged this fundamental principle of salvage law.

To find a way out of the jungle of environmental salvage, the nature of this phenomenon should be examined. The term ‘environmental salvage’ does not feature in any legal instruments used in salvage law and practice; it is a colloquial jargon that has been used for decades,⁶⁴⁷ referring to environmental services rendered by salvors in salvage operations and the salvor’s claim of reward for such services.⁶⁴⁸ ‘Environmental salvage’ was used by Lord Mustill in the *Nagasaki Spirit* case without giving any definitions.⁶⁴⁹ However, the term ‘environmental salvage’ is in fact an oxymoron.⁶⁵⁰ ‘Environmental salvage’ has two meanings, namely (a) prevention or mitigation of environmental harm in maritime accidents by salvors at the time when they are

⁶⁴⁵ Brough (n 50) 111

⁶⁴⁶ See Chapter 2, Paragraph 2.5 for ‘Liability Salvage’; Chapter 3, Paragraph 3.4 & Chapter 4, Paragraph 4.4 for Special Compensation and SCOPIC clause; Chapter 4, Paragraph 4.5 for ISU’s proposal of ‘Environmental Salvage Awards’.

⁶⁴⁷ Mukherjee, ‘Salvage at Crossroads: Some Idle Thoughts and Reflections’ (n 533).

⁶⁴⁸ ‘Environmental Services’ is used in the book *Kennedy & Rose Law of Salvage*. See Rose (n 35) ch 6.

⁶⁴⁹ *Semco Salvage & Marine Pte Ltd v Lancer Navigation Co Ltd (The Nagasaki Spirit)* (n 323) 327, 332.

⁶⁵⁰ Faure and Yu (n 32) 167.

preserving maritime property which is the main purpose of salvage operations,⁶⁵¹ and (b) the reimbursement for the avoidance of social costs and shipowner's potential liability towards third parties that would have been caused by pollution in maritime accidents. However, the two meanings of the term 'salvage' are (a) preservation of property from losses and damage in maritime accidents and b) the reward for benefits conferred on the salvaged property. The essences referred to as 'environmental salvage' and 'salvage' are distinguishable in nature. Furthermore, in property salvage the salvaged value would be a proper reference for determining the reward as it would be tangible property; but for environmental salvage, the tangible salvaged value, if any, would not be able to provide a proper reference for determining an adequate price that would incentivize the salvor to provide cost-effective environmental salvage, because the tangible salvaged value cannot reflect the intangible benefits conferred on the environment, i.e. the avoided social costs, nor the benefits conferred to the shipowner, i.e. avoided pollution liability to third parties. It is noted that the avoided costs could include not only internal costs to the parties directly involved in the maritime accident but also external costs to third parties; such external costs include both the prevention and control of environmental damage that could be quantified and the external costs of damage to the environment that cannot be quantified.⁶⁵² Coincidentally, it is interesting to notice that one main argument against adopting the liability salvage or 'environmental salvage awards' proposals in the Salvage Conventions was that the determination of such an award 'would be based on a hypothetical assessment of the damage that has been prevented'.⁶⁵³ The nature of benefits conferred by environmental salvage is, in fact, the avoidance of costs that are intangible.

ii. Services Rendered: Ex Post Environmental Emergency Response

There are several explanations why 'environmental salvage' became the chosen colloquial jargon in salvage law and practice. Firstly, 'environmental services' in salvage operations are highly integrated into salvage rendered by salvors from the viewpoint of salvage practice;⁶⁵⁴ secondly, the Admiralty Courts normally have jurisdiction over disputes regarding environmental salvage as they are an integrated part of salvage and thus, disputes are governed by the maritime law of salvage. But the legal proceedings developed for salvage in the Admiralty Courts such as action *in rem* and maritime lien have roots in the fact that there would be maritime property salvaged. These features may to some extent contribute to path dependency in both the industry and academia.⁶⁵⁵ Nevertheless, the confusion in the concept of

⁶⁵¹ One author proposes replacing the term 'environmental salvage' with the term 'environmental protection services'. See Liu, *Environmental Protection Services and Salvage Law: Emerging Issues in Perspective* (n 44) 201–203.

⁶⁵² Brough (n 50) 101.

⁶⁵³ CMI, 'Report of the International Working Group on Review of the Salvage Convention - For Consideration by Delegates to the CMI Conference: Beijing 2012', *Yearbook 2011-2012 Annuaire - Beijing I Documents for the Conference* (2012) 151.

⁶⁵⁴ Howard (n 566) 441.

⁶⁵⁵ Faure and Yu (n 32) 134.

‘environmental salvage’ leads to difficulties in finding a way out of the jungle, thus, it is important to understand the features of the phenomenon of ‘environmental salvage’ through ‘out-of-the-box’ thinking. This means that a broad perspective that is not restricted by the salvage regime is needed to find a cost-effective mechanism for environmental salvage.

The situation confronted by the society in environmental salvage is how to deal with the environmental emergencies in maritime accidents from an *ex post* perspective. Environmental harm may occur following a maritime accident. This could happen in many scenarios, such as the spill of bunker oil onboard the distressed vessel or cargo containing toxic substances that are floating on the sea. It is desirable for actions to be taken to prevent or mitigate environmental harm in maritime accidents in order to protect the environment. Noted that according to Dari-Mattiacci and Faure, actions aiming at environmental harm prevention can be roughly taken at roughly three stages:⁶⁵⁶ The *ex ante* stage, where environmental emergency has not occurred and parties and stakeholders take measures to prevent environmental harm from occurring; the *ex post* mitigation stage, where the environmental emergency has occurred and actions are taken immediately to mitigate the environmental harm; the *ex post* recovery stage, where the nature of the environmental danger is not urgent anymore but further measures are still needed to protect the environment in the long term.



Figure 1 Three Stages of Environmental Harm Prevention Actions

Services rendered in salvage operations by the salvors that fall under the loosely-used term ‘environmental salvage’ are primarily those actions aiming at environmental harm prevention at the *ex post* mitigation stage. But it is not a clear-cut job to distinguish actions at the *ex ante* stage and the *ex post* mitigation stage; this is especially true in salvage as moving one oil tanker from the casualty to a safe place in salvage operations can be seen as *ex ante* preventing environmental harm as well as *ex post* mitigating environmental harm in maritime accidents. Meanwhile, it is somewhat easier to distinguish *ex post* recovery measures in maritime accidents, these are usually the clean-up measures after maritime accidents or removing the wrecks and they usually happen in not-so-urgent situations. Furthermore, these situations are no longer qualified as salvage anymore. In conclusion, the services rendered under the term ‘environmental salvage’ are environmental emergency responses that are coincident with

⁶⁵⁶ Giuseppe Dari-Mattiacci and Michael Faure, ‘The Economics of Disaster Relief’ (2015) 37 Law & Policy 180.

salvage operations which they are highly integrated, aiming at preventing environmental harm at an *ex post* mitigation stage.⁶⁵⁷

5.3.3 Features of Environmental Salvage

The nature of what is referred to as the phenomenon of ‘environmental salvage’ is environmental emergency responses provided by salvors in maritime accidents that aim at preventing or mitigating environmental harm *ex post*, and the problem is how reimbursement for such should be awarded to salvors so that they will provide a cost-efficient environmental emergency response. To design a cost-effective mechanism, the features of ‘environmental salvage’ need to be examined.

Firstly, salvors who render (property) salvage services to the maritime accident are usually first responders to an environmental emergency that occurs in the maritime accident in question. This is clear, as ‘environmental salvage’ is highly integrated into property salvage.⁶⁵⁸ The salvors in question are already there and coincidentally have the efficient equipment and skilled personnel needed to prevent or mitigate environmental harm. This feature determines that it is important to make use of the existing expertise of the salvors and to incentivize them to keep investing, considering the alternative would be to let governments keep expensive equipment available to deal with low-probability events; this would not be cost-effective and furthermore, not all coastal states could afford such costs.

Secondly, because of the emergency nature of ‘environmental salvage’, time is of the essence as any delay could prevent success.⁶⁵⁹ There is often no time to negotiate for optimal contractual conditions.⁶⁶⁰

Thirdly, the nature of the danger is still evolving at the time when the salvor is engaged with ‘environmental salvage’, thus assessment of costs and risks *ex ante* is rather difficult as information is not available.⁶⁶¹ There are huge information costs for price determination *ex ante*.

Fourthly, various parties and stakeholders are involved.⁶⁶² On the supply side, the asset-specificity problem also exists in environmental salvage: high upfront investment and huge

⁶⁵⁷ One author proposes to replace the term ‘Environmental Salvage’ with ‘Environmental Protection Services’ to avoid the confusion caused by the word ‘salvage’ and to distinguish the established legal notions and principles in salvage law. See Liu, *Environmental Protection Services and Salvage Law: Emerging Issues in Perspective* (n 44) ch 8.

⁶⁵⁸ Howard (n 566) 441.

⁶⁵⁹ Shaw (n 12) 8.

⁶⁶⁰ *ibid* 24.

⁶⁶¹ See *ibid* 11 para.2.5.3, para.2.5.4.

⁶⁶² See *ibid* 9 para.2.4.1.

daily expenses are required to provide timely environmental emergency response in maritime accidents, thus, only a few salvage companies can afford to invest in and maintain the capability and capacity. This may create a situational monopoly on the salvor's side,⁶⁶³ which means that there are only a few salvors who are able to provide the required environmental emergency responses. On the demand side, normally the shipowner has an incentive to engage salvors for environmental salvage as it is integrated with property salvage, but they would lose interest if the salvaged value of the property were lower than the fees paid to the salvor. Marine insurers can intervene in the shipowner's decision-making process as they are bill-payers for both property salvage and shipowner's third-party liabilities. Public authorities can also intervene in the environmental salvage. Due to their concern of environmental damage to their territorial waters they may refuse to grant a place of refuge for salvors to provide an environmental emergency response and this would also prevent success. In some cases, the salvors may be left with no option but to tow the vessel to be sunk in the ocean.

Fifthly, as revealed in attempts at law reform to create a separate reward for environmental salvage through the liability salvage and 'environmental salvage awards' proposals, environmental salvage creates a divergence of interests between property underwriters and the liability insurers, i.e. the shipowners' P&I Clubs. Traditional salvage operations, i.e. property salvage, are paid for by property underwriters who insure the hull of the ship and cargo, as the benefit conferred in property salvage is the preservation of property. Creating a separate reward for environmental salvage would in effect impose such financial exposure on the liability insurers since in this instance the benefit conferred is the avoidance of the shipowner's liability. This issue deserves to be noted as support from the insurance industry is essential due to its roles in financial arrangements for environmental salvage.

Lastly, environmental emergencies in maritime accidents could come in various forms and situations. This is closely related to the fact that various parties and stakeholders are involved. An environmental emergency could be caused by a distressed ship; in that case it would be possible to identify the polluter, but it could also be caused by cargo such as crude oil or toxic chemical products. Furthermore, public authorities may also demand an environmental emergency response for the public's interest (or under pressure from the media).

5.3.4 Salvage Law and Practice Inefficient in Environmental Salvage

The purpose of salvage reward is to provide incentives for efficient resource allocation.⁶⁶⁴ The salvaged value which is used to determine the salvage reward contains information that could estimate the level of salvor's skills and effort that would be devoted to property salvage in a

⁶⁶³ Faure and Yu (n 32) 140.

⁶⁶⁴ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 102.

competitive market.⁶⁶⁵ But from an economic analysis perspective, the salvage reward and ‘No Cure–No Pay’ model fails to provide incentives for salvors to provide a cost-effective environmental emergency response in maritime accidents. Pollution in maritime accidents now produces huge negative externalities in salvage.⁶⁶⁶ In many cases the skills and effort devoted to preventing or minimizing environmental damage in maritime accidents would not be estimated based on the salvaged value of property. The reason is simply that the ‘salvaged value’ is in the form of intangible avoidance of costs. The special compensation in Article 14 of the Salvage Convention cannot be used to estimate the skills and effort devoted to preventing or minimizing environmental damage and as examined in the previous chapter, Article 14 has been proved to be problematic. As a result, the salvage law fails to reconstruct the conditions and outcomes of a contract that would have been negotiated *ex ante* if a competitive market transaction had been feasible. Under current salvage law, the resource allocation for environmental services is not efficient. These inefficiencies in salvage law and practice call for a reform in law and practice that will provide incentives for efficient resource allocation for environmental emergency response in maritime accidents. As the concept of environmental salvage is an oxymoron, the reform in law and practice, i.e. the new mechanism that is to be proposed in the next section, needs to be taken from a board perspective that is outside the box of salvage law and practice.

5.4 Normative Economic Analysis of Environmental Salvage: Towards a Cost-Effective Mechanism

5.4.1 Societal Goals and Principles: Towards A New Mechanism

i. Economic Efficiency Perspective in Instrument Choice

From the society’s perspective, the goal to be achieved is an environmental emergency, to be prevented at the *ex ante* stage. Regarding instrument choice with a view of social welfare maximization, Shavell argues that the use of safety regulation is more desirable than the use of tort liability in controlling the generation of pollutants and environmental risks.⁶⁶⁷ According to Shavell, the measure of social welfare is equal to the benefits that parties derive from the activities they are engaged in, less the sum of the costs of precautions, the harms done and the administrative costs associated with the means of social control,⁶⁶⁸ i.e. the legal system. There are four criteria to determine the choice between safety regulation and liability rules, namely, differential knowledge about risky activities between the private parties and the regulatory

⁶⁶⁵ *ibid* 104.

⁶⁶⁶ Brough (n 50) 110.

⁶⁶⁷ Shavell, ‘Liability for Harm versus Regulation of Safety’ (n 57) 368; Michael G Faure and Roy A Partain, *Environmental Law and Economics: Theory and Practice* (Cambridge University Press 2019) 182–210 <<https://www.cambridge.org/core/books/environmental-law-and-economics/CB28DD96BDCC81D140126E6E761E1F88>>.

⁶⁶⁸ Shavell, ‘Liability for Harm versus Regulation of Safety’ (n 57) 358–359.

authority, risk of private parties' insolvency, the possibility of not facing lawsuits for harm done, and the administrative costs incurred by the private parties and the public in the tort system or regulation.⁶⁶⁹ In controlling environmental risks in maritime accidents, safety regulations should play the primary role, as these would prevent the environmental emergency occurring in the first place, while liability rules only play a role to supplement particular lacunae in safety regulation.⁶⁷⁰

However, from an economic efficiency perspective, safety regulation should aim at optimal standards of prevention of environmental risks by weighing marginal costs and benefits. The activity in question that creates environmental risks is maritime transport, especially the carriage of goods by sea. Maritime transport is essential for the world's economy and it is an essential component of sustainable development.⁶⁷¹ Thus, even if the regulatory instruments such as the MARPOL convention and OPRC convention could set optimal standards of prevention,⁶⁷² environmental risks may still apply in maritime accidents. As examined in the previous section that in the phenomenon of 'environmental salvage', society is confronted with environmental risks from an *ex post* perspective, which occur after *ex ante* prevention of environmental risks failed. Thus, the question is how incentives can be provided to effectively deal with environmental emergencies if maritime accidents occur in maritime transportation. As safety regulation fails, liability rules should play a role and the question should be asked of who should shoulder the obligation to take care of environmental emergencies in maritime accidents. Law and economics literature suggests the answer should be the party who can affect the risk of accident, who would be the 'cheapest cost avoider'.⁶⁷³ According to Calabresi, the chosen instrument, i.e. tort law rules, should provide incentives to avoid or minimize all accident costs, including the cost to the tortfeasors of avoiding accidents, the cost to the victim of damages and injuries, and the costs to society of managing the legal system.⁶⁷⁴ In maritime accidents, it is usually the shipowner who makes the decision to engage salvors for salvage services. Since environmental salvage is highly integrated in salvage services, the party who affects the environmental risks in maritime accidents should usually be the shipowner. Besides, imposing the obligation of taking care of the environmental risks on the shipowner would provide an *ex ante* incentive for the shipowner to invest in the *ex ante* prevention of environmental risks in the first place.⁶⁷⁵

⁶⁶⁹ *ibid* 358–365.

⁶⁷⁰ Faure and Partain (n 667) 182–210.

⁶⁷¹ International Maritime Organization, 'Maritime Transport Policy' <<https://www.imo.org/en/OurWork/TechnicalCooperation/Pages/NationalMaritimeTransportPolicy.aspx>> accessed 15 August 2022.

⁶⁷² International Convention for the Prevention of Pollution from Ships (MARPOL); International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), Adoption: 30 November 1990; Entry into force: 13 May 1995.

⁶⁷³ Calabresi (n 57) 143–152.

⁶⁷⁴ Faure and Partain (n 667) 147.

⁶⁷⁵ Faure and Yu (n 32) 156.

ii. A Cost-Effective Mechanism to Achieve Societal Goals

Social welfare maximization in environmental salvage implicates the need for efficient allocation of the resources used for environmental emergency responses in maritime accidents. Thus, it is socially desirable to establish an efficient mechanism consisting of a financial and contractual structure for environmental salvage that will provide incentives for salvors to provide cost-effective environmental emergency response in maritime accidents. It should be pointed out that the mechanism still provides incentives to salvors, because taking use of salvors' existing resources is more effective. The alternative would be that public authorities would have to invest and maintain expensive resources. This alternative would be unaffordable for some states and is unlikely to be cost-effective. Besides, as environmental emergency responses in maritime accidents are highly integrated with the property salvage provided by salvors, it might be difficult to engage a different salvor in practice.

The proposed new mechanism should be composed of a financing arrangement and a contractual arrangement that are both economically efficient. The financing arrangement is composed of three components: demanding, financing, and a payment model for environmental emergency response from salvors. The starting point is to identify which party should demand the environmental emergency response from salvors, a question which will be examined based on law and economics literature on instrument choice for assignment of liability; then the second step is to find the optimal financing arrangement, i.e. which parties shall provide the financial means; the third step is to examine which payment model would be most efficient. The contractual arrangement is composed of both an *ex ante* bargaining perspective and an *ex post* dispute resolution perspective.

5.4.2 Financing Arrangements

i. Identifying the Liable Polluter in Different Scenarios

The first-best option is to impose the obligation of taking care of an environmental emergency in a maritime accident on the shipowner because the shipowner is the 'cheapest cost avoider' for environmental emergencies in maritime accidents, and as such the shipowner would also be incentivized to invest in *ex ante* prevention of environmental risks in the first place.

The question arises here of in which scenarios it would be economically efficient to hold the shipowner liable as the polluter. The pollutants in ship-source pollution cases arguably either come from the ship, such as the bunker oil, or the cargo, such as crude oil carried by oil tankers or hazardous or noxious substances contained in the cargo.

Scenario i: The pollutants are bunker oil or hazardous or noxious substances contained in parts of the vessel and the vessel is chartered (leased) by the shipowner to the charterer on a time charter, meaning that the vessel is chartered for a period of time, or voyage charter, meaning

that the vessel is chartered for some specific voyages.⁶⁷⁶ Under both time charter and voyage charter, the shipowner retains control of the equipping and managing of the vessel.⁶⁷⁷ In this scenario, it is clear that the shipowner should bear the environmental risks and be held liable as the polluter.

Scenario ii: The pollutants are bunker oil or hazardous or noxious substances contained in parts of the vessel and the vessel is chartered (leased) by the shipowner to the charterer on a bareboat charter, which is not a carriage charter but a lease of the vessel transferring not only the possession but also the management and navigation to the charterer.⁶⁷⁸ In this scenario, it should be the bareboat charterer who bears the environmental risks and be held liable as the polluter.

Scenario iii: The pollutants are oil or hazardous or noxious substances contained in the cargo. In such cases, the most efficient solution would be to hold both shipowner (or bareboat charterer) and the cargo owner as liable polluters under joint and several liability. The first advantage of the joint and several liability rule is that it relieves victims of the burden of proof and thus reduces the transaction costs in this regard. The second advantage is that it gives incentives for mutual monitoring among potential injurers. In many maritime accidents, the cause of emergency is the cargo owner(or shipper)'s failure to disclose information regarding the nature of cargo to the carrier, for example, the cargo contains batteries or other components that require certain storage conditions for safe transportation, and thus the joint and several liability rules will incentivize both the shipowners (including bareboat charterers) and the cargo owners to take due care. This rule might incentivize the cargo owners to choose a shipowner (or bareboat charterer) that takes due care of the environmental emergency in maritime accidents. However, in shipping practice it might not be possible to identify the liable cargo owners. In container shipping, for example, it is simply not possible to identify every cargo owner but it might be easier if the vessel only carried oil cargo from one company. Thus, in this particular case, the advantage of joint and several liability seems not to be so obvious. The shipowner should still be identified as the liable polluter.⁶⁷⁹

Scenario iv: The pollutants are oil or hazardous or noxious substances contained in the cargo, but no specific shipowner or cargo owner can be held liable for pollution. Or the pollutants are oil or hazardous or noxious substances contained in parts of the vessel but the shipowner cannot be held liable or identified, for example the shipowner disappeared (single ship company). In

⁶⁷⁶ For definitions of time charter, voyage charter and bareboat (demise) charter, see, for example, Julian Cooke and others, *Voyage Charters* (4th edn, Informa Law from Routledge 2014) 3.

⁶⁷⁷ John F Wilson, *Carriage of Goods by Sea* (7th edn, Pearson 2010) 4.

⁶⁷⁸ *ibid* 7–8.

⁶⁷⁹ This does not affect the shipowner's remedy (i.e. right to recourse) to get compensation from the particular cargo owners.

such cases it could be that the environmental emergency is caused by an unidentifiable floating cargo containing hazardous substances, or it could be that the public authorities have intervened because of the potential environmental damage to their territorial waters and consequently, the shipowner has been replaced in his or her decision-making position by the public authorities. In this scenario the shipowner cannot be held liable as the polluter. Consequently, the public authority needs to step in to take care of the environmental emergency in maritime accidents. But public intervention in salvage could be problematic because the public authorities may not be in a better position to gather information and thus make decisions than private parties; besides, this would not provide sufficient incentives to the shipowner to invest in *ex ante* prevention of environmental risks. Furthermore, the public intervention will affect salvors' interest in engaging with environmental response in maritime accidents because the public authorities may intervene in the salvors' decision-making or they may refuse to grant a place of refuge in their territorial waters, and this may prevent success in environmental emergency responses to maritime accidents because then the salvor has to tug the vessel to the high seas and this will inevitably cause delay. Therefore, imposing the obligation to take care of an environmental emergency in maritime accidents on the public authorities is the second-best option, and it should only be chosen in scenarios where no private parties can be held liable as the polluters.

ii. Shipowner as the Liable Polluter: First Best

Liability Rules: Strict liability

In scenarios i. to iii., the shipowner can be held as the liable polluter. The question then is whether the efficient liability rule should be negligence or strict liability. The starting point of the answer from law and economics literature is that it categorizes torts as either 'unilateral' torts, where only the tortfeasor is able to make decisions regarding how to deal with risky activities, or 'bilateral' torts, where both the tortfeasor and the victim are able to make decisions regarding how to cope with risky activities. Such a categorization is based on the decision-making paradigm.⁶⁸⁰ Furthermore, based on the way tort law has evolved in the courts, law and economics literature recognizes behaviours that are taken into account by the courts are called 'precautionary' and behaviours that are not taken into account in the judicial setting are called 'activity'.⁶⁸¹

Since an environmental emergency in a maritime accident that occurs in maritime transportation is a unilateral setting, the tortfeasor is the liable polluter, i.e. the shipowner, and the victim is the public who have interests in the protection of the environment. It is a unilateral setting because only the shipowner is in a decision-making role regarding how to deal with the

⁶⁸⁰ Faure and Partain (n 667) 179.

⁶⁸¹ *ibid* 180.

environmental emergency in a maritime accident, as it is an integrated part of property salvage. The strict liability rules would require the shipowner both to take optimal precautions in taking care of environmental emergencies in maritime accidents and to remain at an optimal activity level in providing maritime transportation.⁶⁸² From a public policy perspective, it could be added that this arrangement is socially desirable as it takes into account the public's interest in both the protection of the environment and the need for a safe and efficient international shipping industry.

Limitation of Liability: No Financial Caps

In maritime law, a shipowner may invoke the right to limitation of liability against maritime claims. The concept of limitation of liability is ancient and it is not based on tort law principle, i.e. *restitutio in integrum* which means the victim shall receive full compensation,⁶⁸³ but on the basis of public policy. There are several justifications for the limitation of liability: Firstly, the aim is to encourage the provision of international trade by way of sea carriage.⁶⁸⁴ It is argued that limited liability enables uniform and cheap freight rates. Although a relevant critique is that it constitutes a subsidy to the shipping industry at the cost of the injured party, nevertheless, nations would want to provide a competitive advantage against other nations' shipping industry.⁶⁸⁵ Secondly, it is often argued that limitation of liability is necessary to obtain insurance. The sustainability of a viable insurance system facilitates trade and boosts a nation's employment rates and prosperity and thus, it is no surprise that nations would have incentives to reach a consensus and sign up for conventions in favour of limitation of liability.⁶⁸⁶ Thirdly, limitation of liability for carriers would improve procedure efficiency and reduce litigation costs. There usually are many parties asserting claims; once a person made a claim against the limitation fund, he or she would be barred from making such claims against any other assets of a person by or on behalf of whom the fund has been constituted.⁶⁸⁷ Last but not least, it is noted that the limitation of liability in maritime law applies in a contractual context where the potential victims, i.e. cargo owners, stand in a Coasean bargaining situation with the injurer, i.e. the shipowner; in ship-source pollution cases, however, such a relationship does not usually exist between the injurer, who would be the tank owner and the victim that is usually a third party.⁶⁸⁸

⁶⁸² Shavell, 'Strict Liability versus Negligence' (n 57) 11.

⁶⁸³ Mandaraka-Sheppard (n 35) 740; Faure and Wang (n 33) 593.

⁶⁸⁴ *CMA v Classica Shipping* [2004] 1 Lloyd's Rep 249.

⁶⁸⁵ Faure and Wang (n 33) 598–599.

⁶⁸⁶ Mandaraka-Sheppard (n 35) 740.

⁶⁸⁷ Convention on Limitation of Liability for Maritime Claims, London, 1976 art 13; Force (n 412) 144–145

⁶⁸⁸ Faure and Wang (n 33) 603.

Under the oil pollution compensation regime,⁶⁸⁹ the limitation of liability for oil pollution damage was also established in the CLC 1969 and its protocols.⁶⁹⁰ Under the 1992 CLC, the shipowner has a strict liability to pay compensation for ship-source oil pollution damage, but the shipowner can limit such liability to an amount determined by the tonnage of the vessel in question.⁶⁹¹ Similar justifications for limitation of liability are also applicable to the financial caps for oil pollution damage compensation. However, the use of financial caps has been criticized: one effect is that a limitation of liability on the tank owner's strict liability will lead to underdeterrence, as the tanker owner will only consider the accident as one where the limited amount of liability is the maximum damage and the tanker owner will only take precautions accordingly. Another effect is that limitation of liability can lead to under-compensation of the victim.⁶⁹²

Regarding the shipowner's strict liability for taking care of environmental emergencies in maritime accidents, there should be no limitation of liability. The first reason is that it would lead to an under-compensation effect because the limitation of liability would jeopardize the victim's rights to full compensation. The second reason is that it would lead to an underdeterrence effect. From an economic perspective, there is a direct relationship between the magnitude of the accident risk and the amount spent on optimal care by the potential polluter. If there is a limitation of liability, the shipowner would only take the precaution level necessary to avoid an accident to the statutory limited amount and as such he or she would not spend the amount necessary to reduce the total accident costs.⁶⁹³ As a result, there would be no full internalization of the externality.

Mandatory Solvency Guarantees

If the shipowner is not able to pay the full amount of compensation for the damage due to insolvency, this could also lead to under-compensation and underdeterrence. This so-called

⁶⁸⁹ The old regime for oil pollution damage compensation is composed of the International Convention on Civil Liability for Oil Pollution (1969 CLC) and a sister convention, the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (the 1971 Fund Convention). Over time due to the need to increase the amount of compensation in major incidents, several protocols have been introduced to these two conventions.

As a result, the current regime for oil pollution damage compensation is composed of the 1992 Civil Liability Convention (the 1992 CLC), the 1992 Fund Convention, and the Protocol to the 1992 Fund Convention (the 2003 Supplementary Fund Protocol). There are also two voluntary agreements to indemnify the 1992 Fund and the 2003 Supplementary Fund, namely, STOPIA (Small Tanker Oil Pollution Indemnification Agreement) 2005 and TOPIA (The Tanker Oil Pollution Indemnification Agreement) 2006.

See, IOPC Funds, 'Legal Framework' <<https://iopcfunds.org/about-us/legal-framework/>> accessed 20 August 2022.

⁶⁹⁰ Faure and Wang (n 33) 595–598; International Convention on Civil Liability for Oil Pollution Damage (CLC), Adoption: 29 November 1969; Entry into force: 19 June 1975; Being replaced by 1992 Protocol: Adoption: 27 November 1992; Entry into force: 30 May 1996.

⁶⁹¹ Mandaraka-Sheppard (n 35) 830.

⁶⁹² Faure and Wang (n 33) 601–602.

⁶⁹³ *ibid* 600.

‘judgment proof problem’⁶⁹⁴ has been analysed in law and economics literature and it is argued that mandatory solvency guarantees such as a compulsory liability insurance can restore proper incentives to injurers who are unable to pay the full amount of the damages.⁶⁹⁵

A mandatory solvency guarantee could also have the function of improving the salvor’s confidence in getting payment for environmental emergency response in maritime accidents.⁶⁹⁶ A mandatory solvency guarantee, such as a compulsory liability insurance purchased from a P&I Club, could reduce the chance of cheating on the shipowner’s side.

iii. Public Intervention: Second Best

Demanding by Public Authorities

In Scenario iv there is no liable polluter that could be identified or the shipowner is not identified as the liable polluter because of public intervention from the public authorities. In Scenarios I to iii, if the casualty is on the high seas where there are no national public authorities and if the total cost for salvage and repairment outweighs the potential salvaged values of the property, the shipowner would abandon the ship.⁶⁹⁷ Once the notice of abandonment sent to the property insurers is accepted, the shipowner could then claim for a constructive total loss from the property insurers and then the insurers may obtain the title of the property at their discretion. The shipowner would then not be in a position nor would have the incentives to take care of the environmental emergency. The reasons are that on the one hand, the shipowner does not have an economic incentive to recover property at costs that would outweigh the salvaged value and on the other hand, even if he or she could be held liable under the new legal regime, he or her would escape lawsuits in most cases since there is no public authorities nor NGOs representing the victim (i.e. ocean animals and the environment) to bring a law suit against him or her, furthermore, which court has the jurisdiction would also be an issue.

Public intervention, i.e. the public authorities or NGOs demanding an environmental emergency response in maritime accidents from the salvors, is needed in those scenarios. This is the second best option because firstly, this arrangement will not incentivize shipowners to invest in *ex ante* prevention of environmental risks because they do not bear the full cost;⁶⁹⁸

⁶⁹⁴ Steven Shavell, ‘The Judgment Proof Problem’ in Georges Dionne and Scott E Harrington (eds), *Foundations of Insurance Economics: Readings in Economics and Finance* (Springer Netherlands 1992) <https://doi.org/10.1007/978-94-015-7957-5_17>.

⁶⁹⁵ Peter-J Jost, ‘Limited Liability and the Requirement to Purchase Insurance’ (1996) 16 Symposium on Economic Analysis of International Law 259, 270.

⁶⁹⁶ See Saul Levmore, ‘Waiting for Rescue: An Essay on the Evolution and Incentive Structure of the Law of Affirmative Obligations’ (1986) 72 Virginia Law Review 879, 886.

⁶⁹⁷ ‘Abandon’ as used in the context of marine insurance, which means that the owners renounce all their rights in the vessel except the right to recover insurance. See *Court Line Ltd v The King* [1944]; Özlem Gürses, *Marine Insurance Law* (2nd edn, Routledge 2016) ch 9 Constructive Total Loss.

⁶⁹⁸ Louis Kaplow, ‘Incentives and Government Relief for Risk’ (1991) 4 Journal of Risk and Uncertainty 167, 172; See also, Levmore (n 103) 886.

secondly, public intervention could be problematic because the public authorities might refuse to grant a place of refuge for the salvor's salvage operations and environmental emergency response out of the fear of environmental damage to their coastal waters, or what's worse, the public authorities may give orders to destroy the vessel.⁶⁹⁹ This happened in the *Teorrry Canyon* diester where the British government ordered the vessel to be tugged to the ocean and later on gave orders to bomb the wreck hoping that could burn the estimated 40,000 tons of oil remaining onboard.⁷⁰⁰ But in those scenarios, a demand by public authorities or NGOs is the only option, and thus the next issue is the financing arrangement, that is who should pay for salvor's environmental emergency response in maritime accidents.

Sources of Financial Means

As it is difficult to identify a liable polluter to provide financial means, salvors' environmental emergency response could either be paid by the general taxpayers financing the public authority or through a levy on the activity that led to the environmental emergency, for example, a levy on all oil-receiving facilities within a particular harbour.⁷⁰¹

Problems with financing via a levy on all parties that engages in activities that could cause environmental harm are that there will be huge administrative costs and collection problems in collecting the levy from all the companies in the same industry globally, such as the oil companies. Besides, in terms of container shipping, it could be rather difficult to identify the pollutants that caused the environmental damage. There are way too many different kinds of cargos in various containers onboard a vessel.⁷⁰² Furthermore, there might be a 'rent-seeking' problem, as the companies may lobby the governments to be able to pay a lower amount of levy collected by port authorities within their jurisdictions. Therefore, there is a need for an international convention on collecting this levy on an international level.

The financing arrangement via a levy is better than that via general taxation because at least the activity that leads to the environmental emergency contributes to the fund that is used to finance the environmental emergency response. In ideal scenarios, this would create mutual monitoring among contributing companies because the actual liable polluter would be free-riding on the levies paid by others. Therefore, this might still have an incentivizing effect that

⁶⁹⁹ Proshanto K Mukherjee, 'Refuge and Salvage' in Aldo Chircop and Olof Linden (eds), *Places of Refuge for Ships: Emerging Environmental Concerns of a Maritime Custom* (Brill | Nijhoff 2006) 272 <<https://mu.idm.oclc.org/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=202919&site=ehost-live&scope=site>>.

⁷⁰⁰ De La Rue and Anderson (n 35) 10.

⁷⁰¹ Faure and Yu (n 32) 159.

⁷⁰² See, Lloyd's of London, 'The Challenges And Implications of Removing Shipwrecks in the 21st Century' (n 422).

would potentially lead to the prevention of environmental emergencies.⁷⁰³ Meanwhile, financing arrangements via general taxation would have no incentive effect.⁷⁰⁴

Table 3 Financing Arrangement for Environmental Emergency Response in Maritime Accidents

Financing Arrangement for Environmental Emergency Response in Maritime Accidents			
	First Best: Shipowner As The Liable Polluter	Second Best: Public Intervention (No Liable Polluter)	
Demand	Shipowner	Public Authority	
Financing	Shipowner	General Taxpayer	A Levy on Activity
Potential Deficiencies	Optimal Precaution? Optimal Activity Level?	No Incentives	Positive Administrative Costs & Collection Problems
Solutions	Strict Liability + No Financial Caps + Compulsory Insurance	N/A	A new Convention. Mutual monitoring (Ideally) may provide incentives

5.4.3 Payment Arrangements

i. General Arrangement: Information Costs for Price Determination

The starting point of the normative economic analysis on the payment arrangement is Landes & Posner's positive economic analysis on the purpose of salvage reward which is governed by the 'No Cure–No Pay' principle: to simulate the conditions and outcome of a competitive market for salvage that would have been feasible if transaction costs were not prohibitively high. In doing so the legal system would provide incentives for an efficient resource allocation in salvage. In property salvage, the success requirement for a right to salvage reward requires success in salvage ('No Cure–No Pay') and the amount of the reward is fixed based on the salvaged value of the property. However, for environmental salvage or environmental emergency

⁷⁰³ Faure and Yu (n 32) 159; Michael G Faure and Ton Hartlief, 'Compensation Funds versus Liability and Insurance for Remedying Environmental Damage' (1996) 5 *Review of European, Comparative & International Environmental Law* 321.

⁷⁰⁴ Comparing the following two papers, Richard A Epstein, 'Catastrophic Responses to Catastrophic Risks' (1996) 12 *Journal of Risk and Uncertainty* 287; Kaplow (n 698).

response in maritime accidents, one main feature is that the danger is still evolving at the time when a salvor is engaged with salvage; assessment of costs and risks *ex ante* is mostly impossible. The salvage reward cannot simulate the conditions and outcomes that would be feasible if there were a competitive market. The reason is that while in property salvage the benefits conferred are tangible properties which can constitute the reference to fix the amount of reward, in environmental salvage the benefits conferred are environmental harm that is prevented and intangible avoidance of costs for environmental damage; as such, the salvage reward cannot provide a reference to determine the price as it certainly does not contain a proper amount of information to estimate the salvor's effort and skills employed for environmental emergency responses in maritime accidents. Furthermore, as the reward is governed by the 'No Cure–No Pay' principle, the salvor who renders environmental emergency response in maritime accidents will be left empty-handed in many cases.⁷⁰⁵ Besides, due to the high information costs of risks assessment *ex ante*, salvors may not have incentives to take the risks if there is only a little chance of a reward. As such, the success requirement for a right to reward cannot reduce the information costs for price determination *ex ante* and thus it does not provide incentives for efficient resource allocation for environmental salvage. This arguably provides an economics perspective on why the industry is seeking solutions to the phenomenon of environmental salvage to provide Incentives.⁷⁰⁶ An alternative should be worked out that would be able to simulate information on price determination *ex post*, which could be a guideline document worked out by the industry that contains such information.

ii. 'No Cure–No Pay' Model or Services Fee: Agency Theory, Divergency of Interests and Information Asymmetry

The relationship between the party demanding an environmental emergency response in maritime accidents, i.e. the shipowner or the public authority, and the party providing such services is a 'principal–agent' relationship as examined in law and economics literature on 'agency theory'.⁷⁰⁷ Jensen and Meckling define an agency relationship as 'a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent'.⁷⁰⁸ The problem in a 'principal-agent' relationship is that there is a divergence of interests between the principal and agent as the agent may wish to render the service with the lowest effort but still gain the highest reward. Therefore, there is a monitoring cost on the quality of the agent's inputs in a principal-agent relationship.

⁷⁰⁵ For example there is no property to be salvaged but only environmental harm prevented, or the property was ordered to be bombed by the public authority.

⁷⁰⁶ The legal perspective was examined in Chapter 4

⁷⁰⁷ For agency theory, see Jensen and Meckling (n 602).

⁷⁰⁸ *ibid* 308.

The same problem exists in property salvage. It is also a 'principal-agent' relationship, and Landes & Posner argue that, compared with the monitoring of input effort, the cost advantage is likely to lie with monitoring the output that is rewarded based on a 'No Cure-No Pay' payment model.⁷⁰⁹ The use of contingency fee arrangements (which includes 'No Cure-No Pay') has also been examined by law and economics literature on the payments for lawyers.⁷¹⁰ Similarly, the major argument in favour of a 'No Cure-No Pay' arrangement is that it can better realign the interests between the agent and the principal than a service fee model (such as the hourly-fee payment for lawyers) as the agent's reward is contingent on success. The potential problem of a services fee model could be that the agent may overcharge, either by providing low-quality services or by spending more hours than necessary. However, these literatures have also pointed out that between the two payment arrangements, one is not by definition better than the other as long as the principal can control the quality of the services provided by the agent: it depends on whether there is a huge information asymmetry between the principal and the agent and whether there is the problem of moral hazard.⁷¹¹ In sum, the 'No Cure-No Pay' payment model is not necessarily better than the services fee model as long as the quality of the agent's service can be controlled by the agent; this requires the new mechanism to contain a solution(s) with low monitoring costs.

In environmental salvage, there are huge information costs of *ex ante* risks and costs assessment due to the fact that the nature and situations of environmental risks are evolving with great uncertainties, it is usually impossible to predict *ex ante* how much efforts and skills would be employed either for the agent (the salvor who provides environmental salvage) or the principal (the shipowner or the public authority who demand environmental salvage). As such, the information asymmetry argument might not be applicable. Furthermore, under a 'No Cure-No Pay' model the 'cure' or 'useful result' in environmental salvage would be intangible avoidance of costs for environmental damage, and the calculation of payment would be unpredictable, which has been indicated during the discussions on the ISU proposal of an 'Environmental Salvage Award'.⁷¹² As such, the 'No Cure-No Pay' model does not provide for incentives for efficient resources allocation and the services-fee model should be the payment model. To encounter the moral hazard problem and to control the quality of services, a low-cost monitoring mechanism should be introduced. This could be a similar system to the

⁷⁰⁹ Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19) 104.

⁷¹⁰ See, Hugh Gravelle and Michael Waterson, 'No Win, No Fee: Some Economics of Contingent Legal Fees' (1993) 103 *The Economic Journal* 1205; Thomas J Miceli and Kathleen Segerson, 'Contingent Fees for Lawyers: The Impact on Litigation and Accident Prevention' (1991) 20 *The Journal of Legal Studies* 381.

⁷¹¹ Michael G Faure, Fokke Fernhout and Niels Philipsen, 'No Cure, No Pay and Contingency Fees' [2010] *New trends in financing civil litigation in Europe. A legal, empirical and economic analysis* 33, 39.

⁷¹² CMI, 'Report of the International Working Group on Review of the Salvage Convention - For Consideration by Delegates to the CMI Conference: Beijing 2012' (n 653) 172.

‘Special Casualty Representatives’ as used under the SCOPIC clause.⁷¹³ Independent salvage experts can be employed to monitor the services on-site and their reports could be used as evidence that the salvor has used his or her best efforts and skills.

It is further noted that the argument in favour of a ‘No Cure–No Pay’ arrangement in property salvage is that it may cut down the number of legal proceedings.⁷¹⁴ However, there is a lack of empirical evidence on this argument. Besides, a low-cost dispute resolution mechanism could also reduce the number of legal proceedings.

iii. The Optimal Price

Friedman examined the optimal payment for property salvage and he argues that there are two optimal prices from two perspectives: on the one hand from the perspective of providing incentives for salvors (having enough capacity around to save ships in distress, look out for ships with problems, etc), the socially optimal price consists of the full salvaged value of the property. A salvor should invest as long as the marginal costs of this investment are lower than the marginal benefits (which is the salvaged property). Any price lower than this implies a positive externality (e.g. for the shipowner) and hence the activity level of the salvor will be too low.⁷¹⁵ On the other hand, from the perspective of providing incentives to the shipowner (for example, when deciding whether to send a ship into the storm), the correct price for salvage should be the marginal costs of salvage. Any price higher than this implies a positive externality for the salvor and hence the activity level of shipowners will be too low.⁷¹⁶ The optimal price should strike a balance between these two possible prices.⁷¹⁷

Following Friedman’s analysis, for environmental salvage, the optimal price should strike a balance between the following two possible prices: from the perspective of the supply side (the salvor who provides environmental emergency response), the price should be the full value of the avoided losses as any activities that cost less than the avoided environmental harm are worthwhile; from the perspective of the potential pollution activities (environmental emergency in maritime accidents), the optimal price for the measures should only be the marginal costs of avoiding or limiting environmental harm.⁷¹⁸

5.4.4 Contractual Arrangements : *Ex Ante* and *Ex Post* Perspectives

⁷¹³ See Chapter 3, Paragraph 3.4.5 Special Casualty Representative (‘SCR’)

⁷¹⁴ Landes and Posner, ‘Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism’ (n 19) 104.

⁷¹⁵ David D Friedman, *Law’s Order* (Princeton University Press 2001) 154 <<https://doi.org/10.1515/9781400823475>> accessed 25 August 2022.

⁷¹⁶ *ibid.*

⁷¹⁷ *ibid.* 155.

⁷¹⁸ I would like to show great gratitude to Professor Louis Visscher (Rotterdam), especially for his input on this section at the conference the Future of Law and Economics (Maastricht, 28 March 2022).

i. Efficient Ex Ante Bargaining

In the absence of transaction costs, efficient bargaining could take place for environmental salvage at the optimal price as examined in the previous section. The payment model could either be a ‘No Cure–No Pay’ or a services fee model.⁷¹⁹ In this case, the presumption is that both parties are well informed and there is no party in a weaker bargaining position, which is an example of efficient Coasean bargaining.⁷²⁰ In this ideal case, an efficient allocation of resources for environmental salvage will be reached through parties’ *ex ante* bargaining, without the need for the law to intervene.

However, efficient bargaining *ex ante* may not be feasible in most cases due to problems caused by the features of environmental salvage.⁷²¹ Firstly, there are huge information costs in searching for the right salvor for an environmental emergency response in a maritime accident. Response time is of the essence to the success of preventing or minimizing environmental harm but the shipowner may not be able to find a proper salvor whose expertise and equipment would be suitable; in salvage practice, the shipowner would rely on their insurers (property underwriters) who deal with maritime accidents on a regular basis in decision-making and thus there would be less information (searching) costs for the insurers to contact potential salvors. But this is problematic because environmental salvage is highly integrated into property salvage, and environmental salvage caused the divergency of interest among marine insurers: the property insurers are liable for the payment of property salvage while P&I Clubs are liable for the payment of environmental salvage. Furthermore, since the nature of the environmental danger is still evolving at the time when a salvor is engaged, the salvor also has huge information costs as risk and cost assessment *ex ante* is not possible. Besides, in some cases the environmental danger will only reveal itself during salvage operations; the salvors who are rendering the property salvage services may not want to engage with other salvors for environmental salvage.⁷²² Secondly, there are huge contracting (bargaining) costs because there is no time for efficient bargaining,⁷²³ and the agent (the salvor) needs to find rapid solutions to the evolving environmental emergency in a maritime accident; this would amount to a ‘situational monopoly’: the size of environmental catastrophe in maritime accidents can be substantial and would require highly sophisticated equipment and personnel; thus, only a few salvage companies would be able to respond in a timely manner. Furthermore, it should be noted that insurers’ impact is significant because of the need for a solvency guarantee

⁷¹⁹ See Friedman’s analysis for bargaining in property salvage, Friedman (n 715) 155.

⁷²⁰ See Coase (n 55).

⁷²¹ See Section 5.3.3 in this chapter.

⁷²² Howard (n 566) 441.

⁷²³ Friedman (n 715) 155.

(security) issued by the insurers,⁷²⁴ who are also the bill-payers for property salvage and environmental salvage.

The possible solution to reduce the transaction costs and facilitate efficient *ex ante* bargaining may be that parties, including shipowners, P&I Clubs, property underwriters, salvors, etc., come together and develop a document of guidelines. The document should fix, on the one hand, efforts skills and behaviours to be taken or performed by the agent (the salvors), and on the other hand the price to be paid *ex post* by the principal (the shipowner and their insurers). Furthermore, a general model for calculating the price *ex post* should be included as it would reduce the need for negotiations *ex ante*.⁷²⁵ Besides, agreements on how security (solvency guarantees) will be provided should also be fixed *ex ante* by the parties, which includes the shipowners, marine insurers and salvors. Such a document with guidelines should be the main body of the contract for environmental emergency responses in maritime accidents, with agreements of the parties as annexes.

ii. Dispute Resolution Ex Post

As efficient bargaining *ex ante* may not always take place, an *ex post* dispute resolution mechanism as part of the contract for environmental emergency response in maritime accidents is necessary. Due to the situational monopoly and the associated possible opportunism problems, there might be disputes on the behaviours, efforts and skills of the salvor in rendering environmental emergency responses in maritime accidents. There will also inevitably be problems with the price to be determined *ex post* even with the guidelines. Another consideration is the argument that the ‘No Cure–No Pay’ payment would cut down numbers of lawsuits and thus it reduces social costs that occurred in the legal system. There may, however, not be enough empirical evidence to support this argument. Nevertheless, low-cost *ex post* dispute resolution mechanisms are necessary. Since it is a highly technical and complicated area, the information costs for general courts will be huge, and the litigation time might be too long for the salvage industry which is capital intensive. Therefore, alternative dispute-resolution mechanisms, such as arbitration or mediation, might be more cost-effective. Salvage experts who have an information advantage could be selected to provide these alternative dispute resolutions *ex post*. Besides, the proposed low-cost monitoring mechanism in this chapter may also contribute to reducing the information costs in price determination and dispute-resolution *ex post*, as the report from the appointed salvage expert on-site could be used to estimate the efforts and skills used by the salvor.⁷²⁶ It is further noted that the disadvantage

⁷²⁴ Such as a letter of indemnity from a P&I Club as security for Special Compensation or SCOPIC remuneration. See, Lloyd’s of London, ‘Code of Practice between International Salvage Union and International Group of P&I Clubs’ (n 366) arts 6–8.

⁷²⁵ Faure and Yu (n 32) 163-164.

⁷²⁶ See this chapter, section 5.4.2.2

of alternative dispute resolution mechanisms such as arbitration is that parties lack incentives to reveal the settlements or arbitration rewards, and as such they do not generate the positive externalities that follow from court precedents; besides, arbitration may be lengthy and costly.⁷²⁷ It is equally important that unfair agreements should be set aside, and this should be done by the courts if a lawsuit were brought.

5.5 Concluding Remarks

Environmental salvage, or more precisely environmental emergency response in maritime accidents, is highly integrated with property salvage. This important feature explains why there are a lot of similarities in features of property salvage and environmental salvage. It may also have led to path dependency in law and practice in dealing with the issues in the phenomenon of environmental salvage within the salvage law regime. However, the concept of environmental salvage is an oxymoron because the nature of property salvage is preservation of property from maritime accidents while the nature of environmental salvage is *ex post* mitigation of environmental risks in maritime accidents and the benefits conferred are intangible avoidance of costs. From an economic-efficiency point of view, the salvage reward and the associated principles developed for property salvage cannot function well enough to simulate the outcomes and conditions of a competitive market where there are low transaction costs. In this chapter, Landes & Posner's positive economic analysis of property salvage and the Coase theorem provide some foundations for a normative economic analysis to find a cost-effective mechanism for environmental salvage. It should be pointed out that the high transaction costs caused by the situational monopoly may be reduced via the proposed mechanism for environmental salvage in this chapter. However, although one may wish that the use of contract should solve the problem, an additional question arises here is whether the use of tort may contribute to the solutions provided in this chapter.

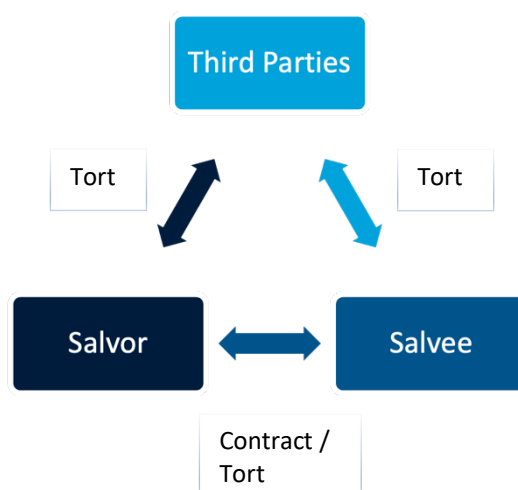
⁷²⁷ See Michael G Faure and Wanli Ma, 'Investor-State Arbitration: Economic and Empirical Perspectives' (2020) 41 Michigan Journal of International Law 1. Note that the fixed cost arbitration may be a solution.

**Chapter 6 Salvor's Negligence in Ship-Source Pollution Cases: The Use of Tort Law
Rules**

6.1 Preliminary Remarks⁷²⁸

Environmental emergency responses to maritime accidents that are provided by professional salvors are usually highly risky and uncertain in several senses. Obviously, the hazardous conditions under which the salvage master and the salvage crew have to work indicate the risks of loss of life and damage to the equipment on the salvors' sides.⁷²⁹ When services are rendered to a distressed vessel such as an oil tanker or a chemical tanker, it is also a real concern that the rendered services could lead to possible aggravation of damage to the property and the environment.⁷³⁰ In terms of environmental damage and its consequences, there is a triangle relationships between the salvor, salvee, and the third party: between the professional salvor and the salvee there is usually a contract; between the third party and the salvor/ salvee respectively, there is no contract, but third-party claims for pollution damage may be brought on a tort basis, especially under the international ship-source pollution compensation regime.

Figure 2 Triangle Relationship in Environmental Damages Caused by Salvorial Negligence



Consequently, on the one hand, in the salvor–salvee relationship, there is a legal risk for salvors of being sued for damages (compensation) in tort or for breach of contract.⁷³¹ On the other hand, in the salvor–third party relationship, the salvor may also be concerned about the potential liability in respect of third-party actions for environmental damage in an environmental emergency response,⁷³² which for example could be damage to the seabed

⁷²⁸ Michael G Faure and Haiyang Yu, 'Salvorial Negligence versus Responder Immunity: Economic Analysis' (2023) Working Paper.

⁷²⁹ Mukherjee, 'Refuge and Salvage' (n 699) 286.

⁷³⁰ Bernard A Dubais, 'The Liability of a Salvor Responsible for Oil Pollution Damage' (1976) 8 *Journal of Maritime Law and Commerce* 375, 377.

⁷³¹ Rose (n 35) 472 para.12–045.

⁷³² Mukherjee, 'Refuge and Salvage' (n 699) 287.

caused by a dredging process. Furthermore, there is an increasing concern about potential criminalization of the salvor for pollution damage.⁷³³

The question that has been debated in academia is to what extent professional salvors should be exposed to liabilities for their negligent acts or omissions in performing environmental emergency response in maritime accidents.⁷³⁴ De la Rue and Anderson argue that the real concern for professional salvors is that the legal risks of failure are too great a deterrent, this would discourage them from engaging with salvage operations.⁷³⁵ This chapter aims to contribute to the debate from an economic analysis perspective. The occurrence of environmental damage caused by maritime accidents indicates that safety regulations have *de facto* failed to prevent environmental harm from happening. It is observed that the main incentive for a salvor to provide salvage services, and in particular environmental emergency responses to maritime accidents, is the monetary incentive which will be effected by the use of tort law rules. Although it is obviously desirable that the salvor should take optimal care, the risk should not be so high that the salvor would be discouraged from engaging in salvage. Besides, there might be a difference between private incentives and the social goal to be achieved by salvage. A salvor's intervention obviously renders benefits to both the salvee and third parties, without which there will be expected loss for the private parties and for society. If the salvor intervenes (often with the expectation of getting a reward), the risk may be shifted from the salvee and third parties to the salvor. The shift of risk to the salvor is desirable as the salvor is in a better position to mitigate the loss of property or environmental damage. The salvor is the *superior risk bearer*, i.e. 'the party that is the more efficient bearer of the particular risk in question, in the particular circumstances of the transaction'.⁷³⁶ In the end, the monetary incentive that the salvor is entitled to must be high enough to make the activity worthwhile, taking into account the possible risk of liability.⁷³⁷

This chapter firstly examines the liability rules regarding negligent acts or omissions on the salvor's part that have been developed for (property and environmental) salvage. The Salvage Convention 1989 abstractly reproduced the current rules developed in English courts in its Articles 8.1 and 18.⁷³⁸ The potential claims for damages could come from the salvee alleging the so-called 'salvorial negligence'⁷³⁹ or third-party claims for environmental damage under

⁷³³ *ibid* 289–291.

⁷³⁴ Huiru Liu, 'Salvors' Provision of Environmental Services: Remuneration, Liability And Responder Immunity' (2018) 24 *Journal of International Maritime Law* 284; De La Rue and Anderson (n 6); See also, Mišo Mudrić, *The Professional Salvor's Liability in the Law of Negligence and the Doctrine of Affirmative Damages* (LIT 2013).

⁷³⁵ De La Rue and Anderson (n 43) 290.

⁷³⁶ Richard A Posner and Andrew M Rosenfield, 'Impossibility and Related Doctrines in Contract Law: An Economic Analysis' (1977) 6 *The Journal of Legal Studies* 83, 90.

⁷³⁷ Faure and Yu (n 728) s 2.1.

⁷³⁸ Rose (n 35) 469 para.12–035.

⁷³⁹ See Thomas, 'Salvorial Negligence and Its Consequences' (n 608); D Rhidian Thomas, 'Aspects of the Impact of Negligence upon Maritime Salvage in United Kingdom Admiralty Law' (1976) 2 *Maritime Lawyer* 57.

the ship-source pollution compensation regime.⁷⁴⁰ The potential criminalization of a salvor will also be examined. Then, from a law and economics perspective, this chapter sketches out the efficient liability rules for professional salvors' negligence in environmental emergency responses to maritime accidents.

6.2 Salvors' Negligence in Pollution Cases and Its Consequences

6.2.1 Background: Public Policy, Historical Changes, and the *Tojo Maru* Case

i. Historical Changes in Law and Practice

Kennedy submits that the Salvage Convention 1989 reproduces the current law relating to negligence by a salvor during salvage operations as laid down at common law in Articles 8.1 and 18.⁷⁴¹ Before the detailed analysis of current law, it is essential to understand the historical changes in law and practice as developed in the common law.

From the law perspective, the UK higher court system was completely reorganized by the Judicatures Acts 1873 & 1875 passed by the UK parliament. The reason for this change was '[c]omplex commercial cases often required the attention of different branches of law in different courts'.⁷⁴² Consequently, the ancient High Court of Admiralty was abolished and the unified High Court of Justice was set up by the Judicatures Acts 1873 & 1875.⁷⁴³ It should be noted, related to discussions on salvorial negligence below, that before 1873 in Admiralty proceedings it was not possible to bring a counterclaim; the legal concept of negligence as a cause of action at common law was still in a formative stage and the duty of care on a tort basis was not yet established as a general principle in common law,⁷⁴⁴ and would only be firmly established by the decision of the House of Lords in *Donoghue v. Stevenson* in 1932.⁷⁴⁵ However, it was established in the *Delphinula* case that the general principle of liability for negligence in *Donoghue v. Stevenson* was applicable to salvage and the principles of duty and liability are the same at common law and in Admiralty.⁷⁴⁶

From the salvage practice perspective, before 1875 when the ancient Admiralty Court was merged into the High Court of Justice, salvage services were still rendered by passing vessels and professional salvors did not exist.⁷⁴⁷ Formal salvage agreements only came to be used in

⁷⁴⁰ Mukherjee, 'Refuge and Salvage' (n 699) 286–289.

⁷⁴¹ Rose (n 35) 469 para.12–035.

⁷⁴² UK Parliament, 'The Judicature Acts of 1873 and 1875' <<https://www.parliament.uk/about/living-heritage/transformingsociety/laworder/court/overview/judicatureacts/>> accessed 9 March 2023.

⁷⁴³ Rose (n 35) 54–55 para.2–016.

⁷⁴⁴ *ibid* 464–465 para.12–024.

⁷⁴⁵ *Donoghue v Stevenson* (1932) A.C. 562 580; Huiru Liu, *Environmental Protection Services and Salvage Law: Emerging Issues in Perspective* (WMU Publications 2020) 237.

⁷⁴⁶ *Delphinula, The* (1946) 80 Ll.L.Rep. 459.

⁷⁴⁷ Rose (n 35) 467 para.12–030; Mandaraka-Sheppard (n 35) 482.

the late 19th century.⁷⁴⁸ These two facts indicate that the duty of care in modern law may be rooted in common law and contracts and the standard of care, i.e. the salvors' expected skill and care, may vary depending on whether the salvor is a professional salvor or a passing vessels.

ii. Public Policy for Salvage

Thomas argues that the concept of salvage in the traditional sense can be described as an altruistic service voluntarily performed that successfully contributes to the preservation of an distressed and recognized subject of salvage.⁷⁴⁹ Traditional salvage law, as developed in the Admiralty jurisdiction in the UK and later on embedded in the Salvage Convention 1989, has fully embraced the public policy of encouraging salvage at sea and the establishment of a professional salvage industry. On the one hand, the tribunals would normally hold a generous attitude in assessing a salvage reward under the 'No Cure–No Pay' principle; on the other hand, the tribunals would hold a lenient attitude towards salvors' negligent acts in salvage operations.⁷⁵⁰ Justice Willmer stated in *The Alenquer (Collision Action). The Rene (Salvage Claim)* case that it would be contrary to public interest for the court judgements to discourage salvors from taking risks, exercising skills and using entitative while rendering services at sea.⁷⁵¹

Generally speaking, there are two types of negligent acts by salvors, namely (i) a negligent act by the salvor causes the danger to the vessel which makes salvage services necessary (for example, a negligent act occurred while carrying out a towage service) and (ii) negligent acts by the salvor which occurred during the salvage operations. Regarding the first type of salvor's negligence, the doctrine of the 'clean hands rule' was developed in the English law, which held that wrongdoers shall not take advantage of their wrongs. However, the House of Lords' decision in *The Beaverhood v. The Kafiristan* (1938) reset the view on the ground of the public policy in encouraging salvage.⁷⁵² As a result, the current view on the first type of negligence act is that the wrongdoer's fault would affect the assessment of the reward but it would not deprive the salvor of the right to a reward entirely.⁷⁵³ However, this public policy seems to be increasingly coming to be challenged in modern times,⁷⁵⁴ especially since the House of Lords' decision in the *Tojo Maru* case in 1972 which marks the establishment of the so-called 'doctrine of affirmative damages' in salvage cases regarding the second type of salvor's negligence. In

⁷⁴⁸ Mandaraka-Sheppard (n 35) 511.

⁷⁴⁹ Thomas, 'Salvorial Negligence and Its Consequences' (n 608) 167.

⁷⁵⁰ Rose (n 35) 567, para.15–001; Thomas, 'Aspects of the Impact of Negligence upon Maritime Salvage in United Kingdom Admiralty Law' (n 9) 59; *Tojo Maru, The* [1972] A.C.242 289 para.D.

⁷⁵¹ *The 'Alenquer' (Collision Action) The 'Rene' (Salvage Claim)* [1955] 1 Lloyd's Rep. 101 112.

⁷⁵² [1938] A.C. 136.

⁷⁵³ Rose (n 35), 459–462.

⁷⁵⁴ Thomas, 'Salvorial Negligence and Its Consequences' (n 608) 172.

that case, the effect of a salvor's negligence during salvage operations was comprehensively examined and reinterpreted in the light of the modern law generally.⁷⁵⁵

iii. The Tojo Maru Case (UK House of Lords)

In 1965, salvors rendered services to the tanker *Tojo Maru* and her cargo on the basis of an LOF agreement (No Cure–No Pay). During the salvage operations and after the cargo had been discharged, the salvor's chief diver went into the water from their tug and negligently fired a bolt into the vessel *Tojo Maru*'s shell, hoping to fix a patch over a hole therein. A series of explosions and a fire occurred because a tank had not been gas-freed. Consequently, the tanker *Tojo Maru* suffered heavy damage. The salvors claimed a salvage award for their services while the shipowners counterclaimed for damages alleging salvor's negligence. At arbitration, the salvors were held liable but were entitled to limit liability based on the tonnage of the tug as there was no fault or privity. Willmer L.J. at the trial court held that the salvor was not entitled to limitation because the apt was not committed onboard the tug. On appeal, Lord Denning held that the salvor was not liable for negligence but the salvage award should be reassessed to take the salvor's negligence into account. On further appeal, the House of Lords held that a salvor's entitlement to reward and his or her liability to pay damages for negligence were distinct matters, though they could be the subject of cross-claims between the salvor and the salvee. The salvee had a right to sue for damages for salvor's negligence and this was not simply a factor for consideration in the salvage reward assessment. Furthermore, the salvors were not entitled to limit their liability.⁷⁵⁶

6.2.2 Salvor's Liability Towards the Salvee

i. The Salvor's Duty of Care and Its Standard

Due Care: Salvage Convention 1989 and English Law

The Salvage Convention 1989 stipulates a duty of care that salvors owe to the owner of the vessel or other property in danger, including the duty to exercise due care to prevent or minimize damage to the environment in performing the duty to carry out the salvage operations with due care.⁷⁵⁷ Arts 8.1 and 18 reproduced the current law relating to negligence by a salvor during the performance of salvage as laid down in common law.⁷⁵⁸ Article 8.1 states the following:

- ‘[T]he salvor shall owe a duty to the owner of the vessel or other property in danger:
- (a) to carry out the salvage operations with due care;

⁷⁵⁵ Rose (n 35) 463–464 para.12–021.

⁷⁵⁶ *Tojo Maru, The* (n 159); Rose (n 35) 463–464 para.12–021.

The 1976 Limitation of Liability Convention was introduced to allow salvors to limit their liability to a fixed tonnage of 1500 tons. See, *ibid* 7.

⁷⁵⁷ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 8 (1).

⁷⁵⁸ Rose (n 35) 469 para.12–035. See also, Mandaraka-Sheppard (n 35) 524.

(b) in performing the duty specified in subparagraph (a), to exercise due care to prevent or minimize damage to the environment;

I whenever circumstances reasonably require, to seek assistance from other salvors; and
(d) to accept the intervention of other salvors when reasonably requested to do so by the owner or master of the vessel or other property in danger; provided however that the amount of his reward shall not be prejudiced should it be found that such a request was unreasonable.’

Before salvage under contract became common, Admiralty law recognized that salvors were bound to exercise ordinary skill and care in the execution of salvage operations and the standard of care would be expected to correspond to such a degree of prudence and skill as persons in their condition would ordinarily do possess.⁷⁵⁹ The inherent danger in salvage may, with hindsight, justify a lower level of care than in easier circumstances but it does not excuse the failure to exercise due care.⁷⁶⁰

Best Endeavours: LOF

LOF 2020 provides in clause A that the contractor (the salvor) shall use his or her best endeavours to save the property; it also provides in clause B that while performing salvage operations, the contractor shall use his or her best endeavours to prevent or minimize damage to the environment.⁷⁶¹ All versions of LOF, from LOF 80 to LOF 2020, include the equivalent of clause A of LOF 2020. All versions of LOF, from LOF 1990 to LOF 2020, include the same as clause B of LOF 2020.⁷⁶² It is clear that the duty of care under LOF contracts, i.e. best endeavours, is different from that under the Salvage Convention 1989, which is a codification of the common law duty of care owed by salvors throughout the salvage operations,⁷⁶³ i.e. due care or reasonable endeavours. It should be noted that under salvage law, a salvor may discontinue his salvage services without incurring any liability.⁷⁶⁴ However, the LOF provides that although under Clause G the salvor still has a right to terminate the services when there is no longer any reasonable prospect of a useful result leading to a traditional salvage reward,⁷⁶⁵

⁷⁵⁹ *Tojo Maru, The* (n 159).

⁷⁶⁰ Rose (n 35) 464 para.12–023.

⁷⁶¹ LOF 2020 Clause A and Clause B state as follows,

‘A. Contractors’ basic obligation: The Contractors identified in Box 1 hereby agree to use their best endeavours to save the property specified in Box 2 and to take the property to the place stated in Box 3 or to such other place as may hereafter be agreed. If no place is inserted in Box 3 and in the absence of any subsequent agreement as to the place where the property is to be taken the Contractors shall take the property to a place of safety.

B. Environmental protection: While performing the salvage services the Contractors shall also use their best endeavours to prevent or minimise damage to the environment.’

See, ‘Lloyd’s Standard Form of Salvage Agreement (LOF 2020)’ (n 86).

⁷⁶² Mandaraka-Sheppard (n 35) 525.

⁷⁶³ *ibid* 524.

⁷⁶⁴ Mandaraka-Sheppard (n 35) 524; Rose (n 35) 432–433 para.11–048.

⁷⁶⁵ ‘Lloyd’s Standard Form of Salvage Agreement (LOF 2020)’ (n 86). Clause G provides that,

he or she shall use his or her best endeavours to salve the property as required by Clause A. Therefore it is important to take note of the notion of 'best endeavours' in common law. The standard of care under a duty to use one's 'best endeavours' is higher than that under a duty to take 'due care' or 'reasonable endeavours'.⁷⁶⁶ The problem with the duty of using one's 'best endeavours' is that the content of such a duty is to be determined by considering the object of those endeavours and the whole range of its application;⁷⁶⁷ the question of whether a particular course of action would have constituted a reasonable endeavour is one for the *ex post* judgement of the court or tribunal, to be arrived at on the basis of all the evidence, possibly including expert evidence.⁷⁶⁸ This objective test will be made by the court based on each case's own facts and circumstances if it is uncertain in the contract what the parties have been agreed to undertake.⁷⁶⁹ Furthermore, the onus of proof certainly would be a difficult task to the claimant, whether it is the salvor or the salvee.⁷⁷⁰ With regard to the application to salvage cases, it is argued by professor Aleka Mandaraka-Sheppard that 'a salvor will fulfil his obligation under the LOF to "use his best endeavours" if he takes all those steps in his power that are capable of producing the desired results; the steps will be those that a prudent, determined and reasonable salvor, acting in his own interests and desiring to achieve that result, would take'.⁷⁷¹

Current Law Examined in the Tojo Maru

In the *Tojo Maru* case, where the salvor's contractual duty of care was examined by the House of Lords, the salvage services were rendered based on a Lloyd's Form (No Cure–No Pay) which provided that the salvor should use his or her best endeavours to salve the vessel.⁷⁷² It should be noted that in the *Tojo Maru* case, the appeal was concerned with claims arising *ex contractu* and it was concerned with breach of a contractual rather than a general duty of care.⁷⁷³ In the judgement, Lord Diplock held that the nature of the contract in question was a contract for work and labour performed by professional salvors. It had three special characteristics, namely: the salvage remuneration was not due unless the property was saved in whole or in part;⁷⁷⁴ it could not exceed the salvaged value of property;⁷⁷⁵ and it was always assessed upon the principle

'Rights of termination: When there is no longer any reasonable prospect of a useful result leading to a salvage reward in accordance with Convention Articles 12 and/or 13 either the owners of the vessel or the Contractors shall be entitled to terminate the services hereunder by giving reasonable prior written notice to the other.'

⁷⁶⁶ Redgwell (n 43) 149; Mandaraka-Sheppard (n 35) 526.

⁷⁶⁷ *Miramar Maritime corporation v Holborn Oil Trading Ltd (The 'Miramar')* [1984] House of Lords 2 Lloyd's Rep. 129 682 per Lord Diplock.

⁷⁶⁸ *AP Stephen v Scottish Boatowners Mutual Insurance Association (The 'Talisman')* [1989] 1 Lloyd's Rep. 535; Mandaraka-Sheppard (n 17) 527; Rose (n 35) 434.

⁷⁶⁹ Mandaraka-Sheppard (n 35) 527.

⁷⁷⁰ Rose (n 35) 434 para.11–051.

⁷⁷¹ Mandaraka-Sheppard (n 35) 528.

⁷⁷² *Tojo Maru, The* (n 159) 267 para.B; 292 para.B.

⁷⁷³ Rose (n 35) 467 para.12–030; *Tojo Maru, The* (n 159) 292–293 per Lord Diplock; 289 per Lord Pearson.

⁷⁷⁴ *Tojo Maru, The* (n 159) 293 para.D.

⁷⁷⁵ *ibid* 293 para.F.

of *quantum meruit*.⁷⁷⁶ The question was, in light of these special characteristics, ‘what is the liability of the contractor for damage caused to the ship by his failure to use reasonable skill or care in the performance of that undertaking’.⁷⁷⁷ Lord Diplock held that, ‘[O]ne does not, ..., find the judges of the Court of Admiralty before 1875 applying the concept of contract to salvage services’. At that time salvage services were rendered by passing-by vessels, professional salvors did not exist and express contracts of this type were unknown in salvage cases. Furthermore, there was normally no room for any consensual element; even there was, the implied promises lacked mutuality in that the salvor assumed no obligation to continue to provide his services. In the 18th century and the first part of 19th century the similarities between salvage services and contracts for work and labour were less apparent.⁷⁷⁸ Lord Diplock held that, ‘[T]hese special characteristics ... would not appear in themselves sufficient to oust the ordinary rule of English law that a person who undertakes for reward to do work and labour upon the property of another owes to the owner of the property a duty to exercise that care which the circumstances demand and, where he holds himself out as carrying on the business or profession of undertaking services of that kind, to use such skill in the performance of them as a person carrying on such a business may reasonably be expected to possess.[...]’ *Kennedy* argues that the last paragraph of Lord Diplock’s speech indicates that the standard of care for contractual negligence varies in different circumstances and professional salvors will be under a higher duty than non-professional salvors.⁷⁷⁹

In summary, the current law is that a salvor has a duty of care at common law and (where there is a contract) under the contract not to be negligent.⁷⁸⁰ The duty of care is owed to the owners of the property in danger but it is not owed to third parties.⁷⁸¹ The standard of care is both firm and flexible: on the one hand, it is firmly established that a salvor is obliged to take reasonable care; on the other hand, the standard of care varies in different circumstances. It depends on the contractual standard of care as chosen by the parties (if there is a contract) and more importantly, it depends on the circumstances in a particular case. Establishing negligence on the part of the salvor is difficult and the salvage tribunal which makes a decision with hindsight should be conscious that the persons involved were acting in the face of danger and to take account of public policy if it becomes relevant in a case.⁷⁸²

⁷⁷⁶ *ibid* 293 para.H.

⁷⁷⁷ *ibid* 292 para.G.

⁷⁷⁸ *ibid* 292.

⁷⁷⁹ Rose (n 35) 468 para.12–032.

⁷⁸⁰ Rose (n 35) 469 para.12–036.

⁷⁸¹ D Rhidian Thomas, ‘Marine Salvage and the Environment: Developments, Problems and Prospects’ in Richard Caddell and D Rhidian Thomas (eds), *Shipping, Law and the Marine Environment in the 21st Century: Emerging Challenges for the Law of the Sea - Legal Implications and Liabilities* (Lawtext Publishing 2013) 161.

⁷⁸² *ibid* 469–470 para.12–037.

Furthermore, there is a problem regarding the interrelationship between the salvor's i) duty of care to prevent or minimize damage to the environment during salvage operations (for convenience, hereinafter referred to as the environment duty) and (ii) the duty of care in exercising salvage operations.⁷⁸³ This problem not only exists with duties of 'due care' under the Salvage Convention 1989 but is also associated with the duties of 'best endeavours' under LOF agreements. It should be noted that the salvor's environment duty is owed towards the owners of the property in danger but not towards third parties. As such, the environment duty arises as an incident of the duty to exercise due care in salvage operations (property salvage) and it ceases to exist if there is no duty to assist the property in danger.⁷⁸⁴ As one distinguished commentator argues, logic suggests that the duty to save property is a primary duty while the environment duty is secondary and it arises only as incident to the primary duty. The drafting of the Article 8 of the Salvage Convention 1989 supports this approach.⁷⁸⁵ However, there is no case law confirming it. A more practical problem arises due to the uncertainty in interrelationships, which can present a dilemma for a salvor: when a choice has to be made between serving the private interest and the public interest in salvage operations, the salvor might be held liable for breach of duty towards the owner of property in danger either way. If carrying out the salvage operations would present a great danger to the environment, the salvor might be liable for breach of the duty of care in exercising salvage operations if the salvor chose to abandon the salvable property for that reason; but the salvor might also be liable for the breach of environment duty owed to the property owners if he or she chose to disregard the environment, although to do so might be the only way of salvaging the property.⁷⁸⁶

ii. Magnitude of Consequence for Salvorial Negligence

(i) The Doctrine of Affirmative Damages

English Law: From 'Shield' to 'Sword'

Under traditional salvage law, the consequences of a salvor's negligent acts in salvage operations would be the denial of costs and abatement or even forfeiture of the salvage reward, depending on the circumstances in each case.⁷⁸⁷ This has been described as a protective 'shield' that could be used by the salvee to reduce, to an extent that depends on the circumstances, his or her obligation to pay for the salvage reward.⁷⁸⁸ Article 18 of the Salvage Convention 1989 reproduces the common law principles and stipulates that, '[A] salvor may be deprived of the whole or part of the payment due under this Convention to the extent that the salvage operations

⁷⁸³ Thomas, 'Marine Salvage and the Environment: Developments, Problems and Prospects' (n 781) 161–162.

⁷⁸⁴ *ibid* 161.

⁷⁸⁵ *ibid* 162.

⁷⁸⁶ *ibid* 161–162.

⁷⁸⁷ Thomas, 'Salvorial Negligence and Its Consequences' (n 608) 170; Rose (n 35) 476–481.

⁷⁸⁸ Thomas, 'Salvorial Negligence and Its Consequences' (n 608) 171.

have become necessary or more difficult because of fault or neglect on his part or if the salvor has been guilty of fraud or other dishonest conduct.’⁷⁸⁹

However, in the 19th century it was recognized that salvorial negligence may be used as a ‘sword’ to condemn the salvor in compensatory damages, as an alternative to the protective ‘shield’.⁷⁹⁰ In the *Tojo Maru* case, the Court of Appeal took a lenient attitude towards the salvor’s negligence and made the decision based on the ‘more good than harm doctrine’, which is ‘a method of assessing a possible salvor’s liability in which a salvage operation was to be considered through a comparison of the beneficial and non-beneficial performance of a salvor’.⁷⁹¹ According to this doctrine, a salvor has done ‘more good than harm’ where the actual salvaged value exceeds the value of the vessel at the time of the commencement of a salvage operation. The actual salvaged value shall be determined by taking into account the damage caused by the salvor’s negligence acts. If a salvor does more harm than good, then the salvor would be made responsible to the extent of forfeiture of the award but no additional damages should be claimed; the salvor is not liable for a counterclaim for damages.⁷⁹² However, the House of Lords rejected the claim that any special rules on the basis of the ‘more good than harm doctrine’ had been firmly established in maritime law;⁷⁹³ instead, this decision was made by relying on the established ground of liability,⁷⁹⁴ that is, the established principles of negligence by professionals at common law.⁷⁹⁵ As such, the salvor’s claim for a salvage reward can be confronted with the salvee’s counterclaim for damage; a negligent professional salvor may face a reduction or forfeiture of the reward as stipulated in Article 18 of the 1989 Salvage Convention,⁷⁹⁶ or even be held liable for the amount of damage exceeding the forfeiture of a salvage award, as held in the *Tojo Maru* case.⁷⁹⁷ One author argues that this establishes the so-called ‘doctrine of affirmative damages’, that is ‘a professional salvor can be held liable for the damage caused due to negligent performance of salvage services, even if such liability goes beyond the threshold regulated by the Salvage Convention’.⁷⁹⁸

⁷⁸⁹ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 18.

⁷⁹⁰ Thomas, ‘Salvorial Negligence and Its Consequences’ (n 608) 171.

⁷⁹¹ Mudrić, *The Professional Salvor’s Liability in the Law of Negligence and the Doctrine of Affirmative Damages* (n 288) 201.

⁷⁹² *Tojo Maru, The* (n 20); See also, Mudrić (n 6) 201–205; Mandaraka-Sheppard (n 35) 534–535.

⁷⁹³ *Tojo Maru, The* (n 159); Mandaraka-Sheppard (n 35) 534.

⁷⁹⁴ Thomas, ‘Salvorial Negligence and Its Consequences’ (n 608) 171.

⁷⁹⁵ Mandaraka-Sheppard (n 35) 534.

⁷⁹⁶ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 18 provides that,

‘The effect of salvor’s misconduct

A salvor may be deprived of the whole or part of the payment due under this Convention to the extent that the salvage operations have become necessary or more difficult because of fault or neglect on his part of if the salvor has been guilty of fraud or other dishonest conduct’.

⁷⁹⁷ Mišo Mudrić, ‘Salvor’s Liability for Professional Negligence’ (2013) 5.

⁷⁹⁸ *ibid* 5–6. The same author states in that paper that there are similar cases in the United States, France and Germany.

American Law: Distinguishable Damages and the Doctrine of Affirmative Damages

In the United States, the doctrine of affirmative damages is firmly established in case law even before the English House of Lords' decision in the *Tojo Maru* case.⁷⁹⁹ Brice argues that 'bearing in mind that the American courts are not all of one mind in their approach', the American courts 'restrict the right to recover damages to damage which is *independent and separable* and plainly identifiable as having been caused by the salvor (as opposed to being inherent in the predicament in which the casualty was found'.⁸⁰⁰ In the *Noah's Ark* case,⁸⁰¹ the Court differentiates between distinguishable and non-distinguishable damages, and the non-professional salvor was liable for the distinguishable damage: the danger of the savlee's vessel running aground was caused by the salvor's negligent performance. According to the judge's method of assessing liability, the key element is the existence of a distinguishable damage caused by the salvor which is different from the damage (the danger) that the distressed vessel was originally facing at the time of engaging the salvor. The damage is non-distinguishable if the two causes of damage are the same and consequently, the salvor is only liable for non-distinguishable damages in cases of gross negligence or wilful misconduct.⁸⁰² But the Court in the *Kentwood*⁸⁰³ holds a stricter attitude in the assessment of salvor's liability in cases of non-distinguishable damages in a non-emergency situation. Judge Clark held that regardless of the degree of negligence observed, an ill-equipped professional salvor could be held liable for simple negligence.⁸⁰⁴ Nonetheless, this is not to derogate from the general principles of liability of salvors as indicated previously in the *Noah's Ark* case.⁸⁰⁵

Salvage Convention 1989: Article 14 Special Compensation

The salvor might have a right to claim a special compensation under the Salvage Convention 1989 in cases where the vessel in danger has a threat to cause environmental damage. (For descriptions and discussions on special compensation see Chapter 4, Paragraph 4.4) It is not *stricto sensu* a salvage award but a concept introduced to encourage salvors to act in the public interest of protecting the environment while traditional salvage awards would be insufficient. The special compensation is paid solely by the shipowner (and in reality the P&I Club), but it does not preclude the shipowner's right to recourse.⁸⁰⁶ Furthermore, if a salvor fails to prevent or minimize environmental damage due to negligence, the salvor in question would be deprived

⁷⁹⁹ Mudrić, 'Salvor's Liability for Professional Negligence' (n 797).

⁸⁰⁰ Reeder (n 35) 524 para.7–163.

⁸⁰¹ *The Noah's Ark v Bentley & Felton Corp* [1961] United States Court of Appeals, Fifth Circuit 292 F.2d 437 (5th Cir. 1963), 322 F.2d 3, 1964 A.M.C. 59.

⁸⁰² Mudrić, 'Salvor's Liability for Professional Negligence' (n 797) 7.

⁸⁰³ *Kentwood Ltd v US* [1996] United States District Court, ED Virginia, Norfolk Division 930 F. Supp. 227, 1997 A.M.C. 231 (E.D. Va. 1996).

⁸⁰⁴ *ibid* 240; Mudrić, 'Salvor's Liability for Professional Negligence' (n 797) 7.

⁸⁰⁵ Reeder (n 35) 528 para.7–175.

⁸⁰⁶ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 14(6).

the whole or part of the amount of special compensation due under Article 14 of the Salvage Convention 1989.⁸⁰⁷

(ii) Limitation of Liability

A salvor is normally also a shipowner and therefore the salvor may also be entitled to limit the liability. But in the *Tojo Maru* case (see earlier in this chapter in section 6.2.1.3), the salvor could not limit his liability based on the vessel's tonnage because the salvage diver's negligent act was not carried out onboard of the salvage vessel.⁸⁰⁸ As a result of this decision, a provision was introduced into the limitation of liability convention (LLMC 1976, now amended by the Protocol of 1996) which states that, '[T]he limits of liability for any salvor not operating from any ship or for any salvor operating solely on the ship to, or in respect of which he is rendering salvage services, shall be calculated according to a tonnage of 1,500 tons',⁸⁰⁹ unless 'it is proved that the loss resulted from his personal act or omission, committed with the intent to cause such loss, or recklessly and with knowledge that such loss would probably result'.⁸¹⁰ Furthermore, the right of limitation of liability is also available for a claim for damages as a result of the environmental consequences of the breach of duty under the LLMC.⁸¹¹

In the UK, the Merchant Shipping Act 1995 s.185 (1) – (2) give the LLMC 1976 force of law.⁸¹² But there is legal uncertainty under English law regarding whether the parties may contract out of the provisions of the LLMC 1976 now that it has the force of law in the UK. Both the MSA 1995 and the LLMC 1976 contain provisions that the right to limit is not available in certain cases where the parties' relationship is provided for by contract;⁸¹³

⁸⁰⁷ *ibid* 14(5); Thomas, 'Marine Salvage and the Environment: Developments, Problems and Prospects' (n 781) 167.

⁸⁰⁸ *Tojo Maru, The* (n 159) 270.

⁸⁰⁹ Convention on Limitation of Liability for Maritime Claims, London, 1976 art 6 (4).

⁸¹⁰ *ibid* 4.

⁸¹¹ Thomas, 'Marine Salvage and the Environment: Developments, Problems and Prospects' (n 781) 161.

⁸¹² Merchant Shipping Act 1995 s 185 provides that,

'(1)The provisions of the Convention on Limitation of Liability for Maritime Claims 1976 as set out in Part I of Schedule 7 (in this section and Part II of that Schedule referred to as 'the Convention') shall have the force of law in the United Kingdom.

(2)The provisions of Part II of that Schedule shall have effect in connection with the Convention, and subsection (1) above shall have effect subject to the provisions of that Part.'

⁸¹³ Merchant Shipping Act 1995 s 185 (4) provides that 'The provisions having the force of law under this section shall not apply to any liability in respect of loss of life or personal injury caused to, or loss of or damage to any property of, a person who is on board the ship in question or employed in connection with that ship or with the salvage operations in question if—

(a) he is so on board or employed under a contract of service governed by the law of any part of the United Kingdom; and

(b) the liability arises from an occurrence which took place after the commencement of this Act.

In this subsection,

"ship" and "salvage operations" have the same meaning as in the Convention.'

Convention on Limitation of Liability for Maritime Claims, London, 1976 arts 2, 3 provide that,
'Article 2 Claims subject to limitation

meanwhile in other cases the legislation prohibits the contractual ouster of the Convention.⁸¹⁴ The current view in *Kennedy* is that it is possible for a person to waive the right to limit liability by contract, but ‘it also remains possible that he can rely on the statutory force of the Convention to override a contractual exclusion to which he agreed.’⁸¹⁵ In the United States, the limitation of liability is based on the post-casualty/damaged value of the ship plus the freight in the course of being earned, as opposed to the tonnage basis used in the limitation of liability conventions.⁸¹⁶

(iii) The Problem of Set-Off

As a result of the established doctrine of affirmative damages, a negligent salvor seeking a reward may face a counterclaim for damages. Thus there might be a set-off between these two claims. However, the question is whether the limitation of liability for a salvor should be

Subject to Articles 3 and 4 the following claims, whatever the basis of liability may be, shall be subject to limitation of liability:

- a) claims in respect of loss of life or personal injury or loss of or damage to property (including damage to harbour works, basins and waterways and aids to navigation), occurring on board or in direct connexion with the operation of the ship or with salvage operations. and consequential loss resulting therefrom;
 - (b) claims in respect of loss resulting from delay in the carriage by sea of cargo, passengers or their luggage.
 - (c) claims in respect of other loss resulting from infringement of rights other than contractual rights, occurring in direct connexion with the operation of the ship or salvage operations.
 - (d) claims in respect of the raising, removal, destruction or the rendering harmless of a ship which is sunk, wrecked, stranded or abandoned, including anything that is or has been on board such ship.
 - (e) claims in respect of the removal, destruction or the rendering harmless of the cargo of the ship.
 - (f) claims of a person other than the person liable in respect of measures taken in order to avert or minimize loss for which the person liable may limit his liability in accordance with this Convention, and further loss caused by such measures.
2. Claims set out in paragraph 1 shall be subject to limitation of liability even if brought by way of recourse or for indemnity under a contract or otherwise. However, claims set out under paragraph 1(d), (e) and (f) shall not be subject to limitation of liability to the extent that they relate to remuneration under a contract with the person liable.

Article 3 Claims excepted from limitation

The rules of this Convention shall not apply to:

- (a) claims for salvage or contribution in general average;**
- (b) claims for oil pollution damage within the meaning of the International Convention on Civil Liability for Oil Pollution Damage, dated 29 November 1969 or of any amendment or Protocol thereto which is in force;**
- (c) claims subject to any international convention or national legislation governing or prohibiting limitation of liability for nuclear damage;
- (d) claims against the shipowner of a nuclear ship for nuclear damage;
- (e) claims by servants of the shipowner or salvor whose duties are connected with the ship or the salvage operations, including claims of their heirs, dependants or other persons entitled to make such claims, if under the law governing the contract of service between the shipowner or salvor and such servants the shipowner or salvor is not entitled to limit his liability in respect of such claims, or if he is by such law only permitted to limit his liability to an amount greater than that provided for in Article 6.’

⁸¹⁴ Convention on Limitation of Liability for Maritime Claims, London, 1976 art 2.

⁸¹⁵ Rose (n 35) 499 para.13–053.

⁸¹⁶ Reeder (n 35) 524–525.

applied before or after the set-off.⁸¹⁷ This issue was revealed in the *Tojo Maru* case but it was not dealt with by the House of Lords;⁸¹⁸ and the views in salvage arbitrations are contradicting. This issue of set-off has not yet appeared in judicial decision or discussion in American courts either.⁸¹⁹ The choice to apply one or the other of the two different options would in some cases considerably influence the final financial exposure of the salvor.⁸²⁰

6.2.3 Third Parties' Claims for Pollution Damage

i. International Ship-Source Pollution Compensation Regime

CLC 92 and IOPC Funds, Bunker Convention, HNS Convention

In the field of ship-source pollution, almost all current private law governing liability and compensation (or 'damages' in common law) for pollution damage is convention-based, that is except for the US regime.⁸²¹ The current international conventions deal with the liability and compensation for ship-source pollution caused by oil, bunker oil, and hazardous and noxious substances (HNS).

The *Torrey Canyon* disaster of 1967 involved third-party damage caused by oil spilled from the ship and it eventually led to the introduction of the International Convention on Civil Liability for Oil Pollution Damage 1969 (CLC 69).⁸²² If a claim falls under the CLC 69 regime, the shipowner would be strictly liable for pollution damages caused by spills of persistent oil suffered in the territory (including the territorial sea) of a State Party to a certain amount unless the incident occurred as a result of the actual fault or privity of the owner.⁸²³ The CLC 69

⁸¹⁷ Mudrić, 'Salvor's Liability for Professional Negligence' (n 797) 14.

⁸¹⁸ *Tojo Maru, The* (n 159) 282 para.D.

⁸¹⁹ Reeder (n 35) 536 para.7–205.

⁸²⁰ Mudrić, 'Salvor's Liability for Professional Negligence' (n 797) 15. The example given by that author is as follows,

'The value of a nominal salvage award is set to 100 units of account, the value of claim for damage is set to 200 units of account, and the limitation fund is set to 150 units of account. A decision to grant a right to limit the liability after the set-off of nominal salvage award with the claim for damage (After Set-Off) will produce the following effect: nominal salvage award 100 – claim for damage 200 = 100 / limitation fund 150 = 100 units of account, as the balance of 100 is lower than the limit of limitation fund. A decision to grant a right to limit the liability before the set-off of the nominal salvage award with the claim for damage (Before Set-Off) will produce the following effect: claim for damage 200 / limitation fund 150 = 150 – nominal salvage award 100 = 50 units of account. If the value of claim for damage increases, for example, to 1000 units of account, the After Set-Off situation will result in the final figure of 150 units of account, subject to the overall limit of the value of limitation fund, whereas the figure in Before Set-Off will remain the same. It is, therefore, obvious that the Before Set-Off option is more favourable for a salvor.'

⁸²¹ The United States is NOT a Member State to any of the international ship-source pollution compensation conventions.

⁸²² International Convention on Civil Liability for Oil Pollution Damage (CLC), Adoption: 29 November 1969; Entry into force: 19 June 1975; Being replaced by 1992 Protocol: Adoption: 27 November 1992; Entry into force: 30 May 1996.

⁸²³ CLC 69, Article V provides that,

'1. The owner of a ship shall be entitled to limit his liability under this Convention in respect of any one incident to an aggregate amount of 2,000 francs for each ton of the ship's tonnage. However, this aggregate amount shall not in any event exceed 210 million francs.'

channels all third-party claims to the shipowner,⁸²⁴ and the debate was whether the shipowner should be the only polluter that pays since the pollution damage would be mainly caused by the oil cargo. Furthermore, there was an increasing concern with the limit of liability was too low to adequately compensate third parties. The solution was that the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND 1971) was introduced to provide additional compensation by contributions from the oil industry for third parties in cases where compensation under CLC 69 was either inadequate or unobtainable.⁸²⁵ The contributions to the Fund would be made via a levy on receivers of oil, crude oil and/or heavy fuel oil (contributing oil) in a Member State to the Fund convention. Major incidents exposed the need to increase the available amount of compensation and to widen the scope of the regime. As a result, the CLC 69 was replaced by the 1992 Protocol, thus the amended convention is known as CLC 1992, although the CLC 69 is still in force. The Member States of the CLC 69 are different from those of the CLC 1992.⁸²⁶ The Fund Convention 1971 was also superseded by the 1992 Protocol and it ceased to be in force from 24 May 2002; currently there are two Funds for oil pollution damage, namely the 1992 Fund, as established by the 1992 Protocol,⁸²⁷ and the Supplementary Fund, as established by the Protocol of 2003 to the 1992 Fund Convention following the incidents of the *Erika* and *Prestige*.⁸²⁸ The 1992 Fund and the Supplementary Fund are two intergovernmental organizations and they form the International Oil Pollution Compensation Funds (IOPC Funds); the Supplementary Fund provides an additional third tier of compensation to supplement the compensation available under the 1992 Civil Liability and Fund Conventions.⁸²⁹

Whereas the CLC remains as the core of the international ship-source pollution compensation regime, the Bunker Convention was adopted to ensure adequate compensation to third parties

2. If the incident occurred as a result of the actual fault or privity of the owner, he shall not be entitled to avail himself of the limitation provided in paragraph 1 of this Article.’

⁸²⁴ CLC 69, Article III

⁸²⁵ International Maritime Organization, ‘International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND)’

<[https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-the-Establishment-of-an-International-Fund-for-Compensation-for-Oil-Pollution-Damage-\(FUND\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-on-the-Establishment-of-an-International-Fund-for-Compensation-for-Oil-Pollution-Damage-(FUND).aspx)> accessed 23 March 2023.

⁸²⁶ For the latest statistics, see, IOPC Funds, ‘Parties to the International Liability and Compensation Conventions’ <<https://iopcfunds.org/about-us/membership/>> accessed 23 March 2023.

⁸²⁷ International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Concluded at Beussels on 18 December 1971, entered into force on 16 October 1978; superseded by 1992 Protocol: adopted on 27 November 1992, entered into force on 30 May 1996) (The 1992 FUND Convention).

⁸²⁸ Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992 (adopted on 16 May 2003, entered into force on 3 March 2005) (Supplementary Fund Protocol) 24.

⁸²⁹ For more information about IOPC Funds, see IOPC Funds, *Claims Manual 2019 Edition: As Adopted by the 1992 Fund Assembly in April 1998 and Amended, Most Recently in April 2018, by the 1992 Fund Administrative Council* (International Oil Pollution Compensation Funds 2019) <https://iopcfunds.org/wp-content/uploads/2018/12/2019-Claims-Manual_e-1.pdf> accessed 4 November 2022.

for damage caused by spills of oil when carried as fuel in ships' bunkers.⁸³⁰ The convention is modelled on the CLC 69 and the shipowner is held strictly liable for the limited amount,⁸³¹ but it does not contain the channelling provision.⁸³²

The HNS Convention 2010 is also modelled on the CLC and it aims to establish a compensation regime for pollution damage caused by hazardous and noxious substances carried by sea which are not covered by the CLC 1992 or the Bunker Convention. The HNS Convention 2010 would hold the shipowner strictly liable for a limited amount. An HNS Fund would be established and it would be financed through contributions paid post-incident by receivers of HNS and the HNS Fund would pay compensation once shipowner's liability was exhausted. The HNS Convention 2010 has not yet entered into force due to a lack of ratifications.⁸³³

ii. Channelling Provision and Right to Recourse

A professional salvor rendering services of environmental emergency response in salvage operations may enjoy the protection by the channelling provision. CLC 92 Article III paragraph 1 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.' Salvors may enjoy the protection and channel third parties claims to shipowners by virtue of Article III paragraph 3 which states the following: '[N]o claim for compensation for pollution damage may be made against the owner otherwise than in accordance with this Convention. Subject to paragraph 5 of this Article, no claim for compensation for pollution damage under this Convention or otherwise may be made against:

[...]

(d) any person performing salvage operations with the consent of the owner or on the instructions of a competent public authority;

(e) any person taking preventive measures;

(f) all servants or agents of persons mentioned in subparagraphs I, (d) and (e);

⁸³⁰ International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER), Adoption: 23 March 2001; Entry into force: 21 November 2008.

⁸³¹ International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER), Adoption: 23 March 2001; Entry into force: 21 November 2008 art 6 Limitation of Liability provides that, 'Nothing in this Convention shall affect the right of the shipowner and the person or persons providing insurance or other financial security to limit liability under any applicable national or international regime, such as the Convention on Limitation of Liability for Maritime Claims, 1976, as amended'.

⁸³² Mandaraka-Sheppard (n 35) 571.

⁸³³ International Maritime Organization, 'The HNS Convention'

<<https://www.imo.org/en/MediaCentre/HotTopics/Pages/HNS-2010.aspx>> accessed 23 March 2023; International Maritime Organization, IOPC Funds, and International Tanker Owners Pollution Federation (ITOPF), 'The HNS Convention: Why It Is Needed' <<https://www.wcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/HNS%20ConventionWebE.pdf>> accessed 23 March 2023.

[...]

The salvor will lose the protection of the channeling provision if ‘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’.⁸³⁴ It has not yet been comprehensively answered by the courts whether the standard of care is gross negligence or wilful misconduct,⁸³⁵ but it does represent a higher threshold than a simple negligence. However, the same article III of the CLC 92 provides the shipowner with a right to recourse in paragraph 5, that ‘[N]othing in this Convention shall prejudice any right of recourse of the owner against third parties.’⁸³⁶ As such, one commentator argues that the salvor might be held liable for simple negligence in the shipowner’s claim via the right to recourse alleging salvorial negligence.⁸³⁷ The same argument can be made with the HNS convention which was modeled on the CLC.

iii. Immunity in National Laws

Salvors may also rely on various statutory protections against third-party claims for environmental damages in cases of ship-source pollution as developed in domestic laws. In the UK law, a salvor may invoke the Merchant Shipping Act 1995 section 156 which provides that ‘any person performing salvage operations with the consent of the registered owner of the ship or on the instructions of a competent public authority’, or any person taking any measures to prevent or minimize oil pollution damage, shall not be liable for liability for pollution from oil or bunker oil.⁸³⁸ One author argues that under the MSA 1995 there is no express provision

⁸³⁴ International Convention on Civil Liability for Oil Pollution Damage (CLC), Adoption: 29 November 1969; Entry into force: 19 June 1975; Being replaced by 1992 Protocol: Adoption: 27 November 1992; Entry into force: 30 May 1996 art III.

⁸³⁵ Huiru Liu, ‘Salvor’s Provision of Environmental Services: Remuneration, Liability and Responder Immunity’ (2018) 24 *Journal of International Maritime Law* 284, 292.

⁸³⁶ International Convention on Civil Liability for Oil Pollution Damage (CLC), Adoption: 29 November 1969; Entry into force: 19 June 1975; Being replaced by 1992 Protocol: Adoption: 27 November 1992; Entry into force: 30 May 1996 art III.

⁸³⁷ Liu, ‘Salvor’s Provision of Environmental Services: Remuneration, Liability and Responder Immunity’ (n 835) 293–294.

⁸³⁸ Merchant Shipping Act 1995 s 156 ‘Restriction of liability for pollution from oil or bunker oil’ provides that, (1) Where, as a result of any occurrence —

(a) there is a **discharge or escape of oil from a ship** to which section 153 applies or there arises a relevant threat of contamination falling within subsection (2) of that section, or

(b) there is a discharge or escape of oil falling within section 154(1) **or there arises a relevant threat of contamination** falling within section 154(2),

then, whether or not the registered owner of the ship in question incurs a liability under section 153 or 154 —

(i) he shall not be liable otherwise than under that section for any such damage or cost as is mentioned in it, and

(ii) no person to whom this paragraph applies shall be liable for any such damage or cost unless it resulted from anything done or omitted to be done by him either with intent to cause any such damage or cost or recklessly and in the knowledge that any such damage or cost would probably result.

(2) Subsection (1)(ii) above applies to —

[...]

granting the shipowner a right to recourse against the salvors.⁸³⁹ The salvor will lose the immunity from oil or bunker oil pollution liability against third parties if such damage or costs ‘resulted from anything done or omitted to be done by him *either with intent to cause any such damage or cost or recklessly and in the knowledge that any such damage or cost would probably result*’.⁸⁴⁰

In the United States, a salvor rendering environmental emergency response in salvage operations may enjoy the statutory protection in the Oil Pollution Act 1990, i.e. the so-called ‘responder immunity’, if the services were provided in accordance with the National Contingency Plan. The ‘responder immunity’ provision in the US code reads as follows:

‘(4) Exemption from liability

(A) A person is not liable for removal costs or damages which result from actions taken or omitted to be taken in the course of rendering care, assistance, or advice consistent with the National Contingency Plan or as otherwise directed by the President relating to a discharge or a substantial threat of a discharge of oil or a hazardous substance.

(B) Subparagraph (A) does not apply —

(i) to a responsible party;

(d) any person performing **salvage operations** with the consent of the registered owner of the ship or on the instructions of a competent public authority;

(e) any person **taking any such measures** as are mentioned in subsection (1)(b) or (2)(a) of section 153 or 154;

(f) any servant or agent of a person falling within paragraph (c), (d) or (e) above.

(2A) Where, as a result of any occurrence —

(a) there is a **discharge or escape of bunker oil** falling within section 153A(1), or

(b) **there arises a relevant threat of contamination** falling within section 153A(2),

then, whether or not the owner of the ship in question incurs any liability under section 153A

—

(i) he shall not be liable otherwise than under that section for any such damage or cost as is mentioned in it; and

(ii) no person to whom this paragraph applies shall be liable for any such damage or cost unless it resulted from anything done or omitted to be done by him either with intent to cause any such damage or cost or recklessly and in the knowledge that any such damage or cost would probably result.

(2B) Subsection (2A)(ii) applies to —

[...]

(c) any person performing **salvage operations** with the consent of the owner of the ship or on the instructions of a competent public authority;

(d) any person **taking any such measures** as are mentioned in subsection (1)(b) or (2)(a) of section 153A;

(e) any servant or agent of a person falling within paragraph (c) or (d).]

(3) The liability of a person under section 153, 153A or 154 for any impairment of the environment shall be taken to be a liability only in respect of —

(a) any resulting loss of profits, and

(b) the cost of any reasonable measures of reinstatement actually taken or to be taken’.

⁸³⁹ Liu, ‘Salvor’s Provision of Environmental Services: Remuneration, Liability and Responder Immunity’ (n 835) 298.

⁸⁴⁰ Merchant Shipping Act 1995 s 156 (1) (ii), (2A) (ii).

- (ii) to a response under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.);
 - (iii) with respect to personal injury or wrongful death; or
 - (iv) if the person is grossly negligent or engages in willful misconduct.
- I A responsible party is liable for any removal costs and damages that another person is relieved of under subparagraph (A)'.⁸⁴¹

6.2.4 Public Intervention

i. Place of Refuge

Public authorities may refuse to grant a place of refuge to salvors to provide salvage operations in cases where there is danger of environmental damage to their coastal area. In the *Prestige* case, the Spanish port authorities refused to grant a place of refuge, and the vessel broke down six days later. According to the then-president of the International Salvage Union, the Spanish decision to deny refuge to the *Prestige* turned the total damages from a potential USD 40 million (USD 10 million for salvage operations and USD 30 million for clean-up operations) incident to a USD 1.5 billion catastrophe.⁸⁴² Article 11 'Co-operation' of the Salvage Convention 1989 does not impose an obligation on the coastal states to grant places of refuge.⁸⁴³ The IMO has developed guidelines regarding the issue of providing places of refuge to distressed vessels.⁸⁴⁴ It is suggested in the guidelines that the best way to prevent pollution is to transfer the oil cargo or bunkers. It is essentially what a salvor would do in salvage operations and the best place for such operations is a place of refuge.⁸⁴⁵ However, a coastal state has an established right in international law to protect its coastal line from marine pollution.⁸⁴⁶ It is left as a political decision for the port authorities to make by weighing the risks and benefits of granting the place of refuge to a vessel in distress.⁸⁴⁷

ii. Criminalization

Criminalization in ship-source pollution cases is increasingly becoming a concern for the shipping industry and it is also a concern for the salvage industry. Salvors are as vulnerable to

⁸⁴¹ 33 U.S.C. § 1321 (c) (4).

⁸⁴² van Rooij (n 6).

⁸⁴³ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 11; Mukherjee, 'Refuge and Salvage' (n 699) 278.

⁸⁴⁴ Resolution A.949(23) Guidelines on places of refuge for ships in need of assistance; Resolution, A.950(23) Maritime Assistance Services (MAS); International Maritime Organization, "'Places of Refuge' - Addressing the Problem of Providing Places of Refuge to Vessels in Distress' <<https://www.imo.org/en/OurWork/Safety/Pages/PlacesOfRefuge.aspx>> accessed 23 March 2023.

⁸⁴⁵ Resolution A.949(23) Guidelines on places of refuge for ships in need of assistance.

⁸⁴⁶ United Nations Convention on the Law of the Sea, 10 December 1982, entered into force on 16 November 1994 (the 1982 UNCLOS) arts 194, 195, 198, 199, 211, 221, 225; International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 9; Convention on Facilitation of International Maritime Traffic (FAL), adopted on 9 April 1965, entered into force on 5 March 1967 art V (2).

⁸⁴⁷ Resolution A.949(23) Guidelines on places of refuge for ships in need of assistance para.1.1.5.

penal sanctions as seafarers.⁸⁴⁸ The infamous example is the *Tashman Spirit* oil spill in the Karachi Port of Pakistan in 2003, where a salvor working on the vessel was arrested by the local authority after the spilling of several thousand tonnes of crude oil.⁸⁴⁹ The EU Directive on ship-source pollution introduced possible penal sanctions for pollution offences and the legal uncertainty in the standard of care causes risk to salvors of being exposed to criminal liability. The permeable (8) provides that, ‘Ship-source discharges of polluting substances should be regarded as infringements if committed with intent, recklessly or by serious negligence[...].’⁸⁵⁰ The problem of the lack of a definition of ‘serious negligence’ in EU Member States creates legal uncertainty and it potentially raises the salvor’s concern regarding criminalization. One distinguished commentator argues that it seems that ‘serious negligence’ will be judged based on the seriousness of the particular situation and not on the basis of the party’s conduct and the equation of ‘serious negligence’ with the breach of duty of care makes the tort law of negligence a criminal offence.⁸⁵¹

6.2.5 Observations: Salvor’s Risks and Liability

i. Salvor – Salvee

Bear in mind that under traditional salvage law, a salvor’s efforts and skills are rewarded by a salvage reward that is composed of a percentage of the salvaged value of the property. Under the traditional ‘No Cure–No Pay’ payment model, the consequences of negligent acts on the part of a salvor that caused damage to the subject of salvage would be three folded: firstly, the total salvaged value would be less than that without such damage to the salvaged property; secondly, the damage caused by the salvor’s negligent acts would be taken into consideration in fixing the salvage reward; thirdly, the salvor would also face a potential counterclaim for damages as made possible by the doctrine of affirmative damages and the *Tojo Maru* decision. There seems to be no reasons why these would not apply to environmental salvage. Of course, this concern may be eased as the salvor is entitled to limit his liability under the LLMC 76, unless ‘the loss resulted from his personal act or omission, committed with the intent to cause such loss, or recklessly and with knowledge that such loss would probably result.’⁸⁵²

ii. Salvor – Third Parties

With regard to third-party claims for ship-source pollution, the international ship-source pollution compensation regime holds the shipowner strictly liable for a certain amount on condition that the shipowner must have liability insurance. The compensation regime provides

⁸⁴⁸ Mukherjee, ‘Refuge and Salvage’ (n 699) 289.

⁸⁴⁹ Dale Wainwright, ‘Tasman Spirit Crew Arrested’ <<https://www.tradewindsnews.com/daily/tasman-spirit-crew-arrested/1-1-76343>> accessed 23 March 2023.

⁸⁵⁰ Directive 2005/35/EC of the European Parliament and of the Council of 7 September 2005 on ship-source pollution and on the introduction of penalties for infringements.

⁸⁵¹ Mandaraka-Sheppard (n 35) 61.

⁸⁵² Convention on Limitation of Liability for Maritime Claims, London, 1976 art 4.

protection of the salvor against third-party claims for environmental damages via the channelling provision (except for the Bunker Convention, which does not have the channelling provision). In cases where the salvor's simple negligence caused (further) environmental damages, all third-party claims under the CLC 92 and HNS Convention would be in theory channelled to the registered shipowner. However, this might be circumvented by the shipowner using the right to recourse under the CLC 92 and HNS Convention alleging salvorial negligence; as such, the salvor could be held liable for simple negligence.⁸⁵³ Obviously, this would only happen if causation could be proved by the claimant and the onus of proof would be quite heavy. If somehow the third-party claim were brought in a national regime, for example when the compensation fund is depleted or the CLC 92 is not applicable, the salvor might be able to enjoy true immunity (unless the salvor had shown gross negligence or wilful misconduct) under certain national laws such as those of the UK and the United States.⁸⁵⁴ Furthermore, one author argues that the concept of responder immunity under national laws might also be expended to provide immunity for salvors against criminal liability.⁸⁵⁵ Nonetheless, the legal uncertainty here should alert the salvor to the need to avoid potential costly law suits that would be a serious business risk.

6.3 Economic Analysis

6.3.1 The Use of Liability Rules in Economic Theories

The Coase theorem suggests that,⁸⁵⁶ in a setting of low transaction costs there is no need for law to intervene while in a setting of high transaction costs law should intervene to encourage efficient allocation of resources. As there are various scenarios in environmental salvage, it is necessary to limit the subject of discussion for this chapter: firstly, the salvor in question is a professional salvor. Passing-by salvors (such as a container ship or an oil tanker passing by the casualty) may have the capability of saving lives and mitigating loss of property in maritime accidents, but they do not have the equipment or skills, which requires high upfront investment, to provide a cost-effective environmental emergency response. The new mechanism providing incentives should be mainly targeted at professional salvors and thus, the use of liability rules as examined in this chapter is that which is mainly relevant to professional salvors. Secondly, the use of liability rules as examined in this chapter should be read together with the proposed mechanism in the previous chapter and both of them should be applicable to environmental emergency response in maritime accidents (i.e. the proposed terminology replacing 'environmental salvage'). Besides, the same might not be applicable to clean-up operations or

⁸⁵³ Liu, 'Salvor's Provision of Environmental Services: Remuneration, Liability and Responder Immunity' (n 835) 293–294.

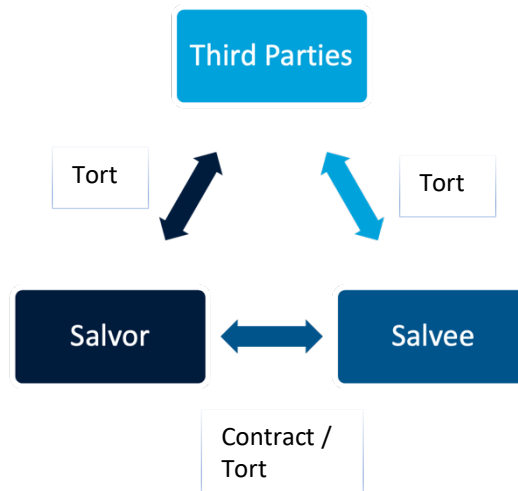
⁸⁵⁴ *ibid* 300.

⁸⁵⁵ Liu, *Environmental Protection Services and Salvage Law: Emerging Issues in Perspective* (n 44) 251–278.

⁸⁵⁶ Coase (n 55); see, Chapter 1 Paragraph 1.4.3.

wreck removal operations where the danger is less imminent and as such, the transaction costs in those settings might not necessarily be high.

Figure 2 Triangle Relationship in Environmental Damages Caused by Salvorial Negligence



In most scenarios of environmental salvage, there are usually high transaction costs due to the features as examined in the previous chapter:⁸⁵⁷ firstly, one must bear in mind that the subject of discussion is environmental emergencies in maritime accidents. Secondly, there is still uncertainty due to the evolving nature of danger, which makes *ex ante* risk assessment impossible even for professional salvors. As a result, due to the lack of information available to determine which skill and efforts are needed, *ex ante* price determination might be difficult. Thirdly, the relationship between the salvor and the salvee could be a situational monopoly combined with a principal–agent setting. As such, although a well-informed (highly skilled and possibly well-equipped) professional salvor and a salvee might be able to communicate, there might not be *ex ante* optimal contractual arrangements in place, as efficient bargaining might not be possible between the salvor and the salvee.⁸⁵⁸ Furthermore, this is also the case when a third party is involved, as a third party usually does not have any chance to negotiate *ex ante* the desirable care level regarding environmental damage. Therefore, the use of liability rules is necessary to provide incentives for the potential tortfeasor to take an optimal level of care, especially in terms of damage to a third party.

The goal of tort law In accidents, In terms of economic analysis of law, Is to provide Incentives to those who can influence the accident risk to take optimal care and adopt an optimal activity

⁸⁵⁷ See Chapter 5, Paragraph 5.3.3

⁸⁵⁸ As shown in the *Ever Given* case, even in cases where the danger is not quite urgent, the negotiations might not lead to a salvage agreement. See, *Smit Salvage BV, Baggermaatschappij Boskalis BV, Ocean Marine Egypt SAE, Augustea Ship Management SRL v Luster Maritime SA, Higaki Sangyo Kaisha Limited (m.v Ever Given)* [2023] EWHC 697 (Admlty).

level.⁸⁵⁹ The rationale is that the liability rules and the responsibility for damages will give the tortfeasor an incentive to alter their behaviour accordingly,⁸⁶⁰ with the assumption that the tortfeasor can take measures to prevent the pollution.⁸⁶¹ Guido Calabresi argues that the total social costs in accidents are composed of primary costs (the costs of accident avoidance and the damage occurs), secondary costs (equitable loss spreading) and tertiary costs (costs of administering the legal system).⁸⁶² The total social costs could be minimized if the potential tortfeasor takes an optimal care level and adopts optimal activity levels. Steven Shavell uses the marginal cost/marginal benefit–weighing to determine optimal care and activity levels; he further argues that liability rules should be constructed in such a way that the potential tortfeasor would be provided with incentives to follow the optimal care and activity levels.⁸⁶³ The economics literature distinguishes the type of accident setting into unilateral setting or bilateral setting. In a unilateral setting only the potential tortfeasor can influence the accident risk while in a bilateral setting the victim can also influence the accident risk and as such optimal incentives should also be provided to the victim. In terms of environmental salvage, we may assume that it is purely a unilateral setting as only the tortfeasor’s care can influence the accident risk. Economics literature suggests that in a unilateral setting, the use of strict liability may provide the tortfeasor with incentives both to take optimal care level and adopt an optimal activity level; the use of negligence liability may provide the tortfeasor with incentives to take the optimal care level as would be set by the court, but it cannot provide incentives for the tortfeasor to adopt the optimal activity level, which in its definition refers to factors that are not taken into account by the court.⁸⁶⁴ As such, the use of strict liability is preferred over negligence rules in a unilateral setting.

6.3.2 The Use of Tort Law Rules Adjusted to Environmental Salvage

i. Salvor – Third Party

The preliminary findings according to economic analysis of accident law is that the salvor should be held strictly liable for third-party damages as only the strict liability can provide incentives for both optimal care and activity levels. However, the features of environmental salvage determine that there needs to be several adjustments to the existing legal theories around accident law so that they can be adapted to salvage practice. One needs to bear in mind that one feature of environmental salvage is that sometimes it is difficult to distinguish whether

⁸⁵⁹ Literature suggests that besides care that is traditionally taken into account in judicial settings, there are other factors can also influence the accident risk but are not taken into account by the courts. Such a behaviour act could be for example the number of times one engages in the activity. The term ‘activity level’ is used to describe such a concept. See, Faure and Partain (n 667) 152–154.

⁸⁶⁰ Steven Shavell, *Foundations of Economic Analysis of Law* (Belknap Press 2004) 176–206 <<https://mu.idm.oclc.org/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=282147&site=ehost-live&scope=site>>.

⁸⁶¹ Faure and Partain (n 667) 148.

⁸⁶² Calabresi (n 57).

⁸⁶³ Shavell, ‘Strict Liability versus Negligence’ (n 57); Shavell, *Economic Analysis of Accident Law* (n 57).

⁸⁶⁴ Faure and Partain (n 667) 152–154.

a service counts as property salvage or environmental salvage. The notion of ‘activity level’ for professional salvors in traditional property salvage or environmental salvage is a binary choice: whether the salvor would engage with a salvage operation which might include environmental salvage (if the expected social benefits outweigh the expected social costs) or not. If a professional salvor is discouraged from salvage activities, either property salvage or environmental salvage, the said salvor would be discouraged from investing in, and maintenance of, equipment and personnel. Consequently, the socially desirable positive externalities of salvage services would be gone with the wind. The positive externalities, i.e. safety of navigation and protection of the environment, have been recognized by the Salvage Convention 1989 and courts, as indicated by the public policy described earlier in this chapter. The literature has pointed out that in fixing an optimal liability rule, the positive externalities generated by the activity that might cause the liability should also be incorporated. Otherwise there is a danger of over-deterrence of socially beneficial activities.⁸⁶⁵

A second feature of Importance her” is ‘hat there are a lot of uncertainties in environmental salvage with regard to the evolving nature of danger and consequently the required skills and effort. Furthermore, these uncertainties make it impossible in many cases for either the tortfeasors (*ex ante*) or the courts (*ex post*) to determine the socially desirable care level.⁸⁶⁶ This could lead to over-precaution on the part of the potential tortfeasor to avoid liability and this might sometimes even amount to what is known as the ‘chilling effect’ or ‘defensive behaviour’ on their part.⁸⁶⁷ Consequently, there might be a socially wasteful result due to the potential tortfeasor’s abstaining from the activity or exercising excessive levels of care.⁸⁶⁸ This could obviously apply to a salvor’s intervention in maritime accidents. The literature suggests that in cases where public authorities are involved, a public authority would not be inclined towards taking too much precaution, as others could bear the costs.⁸⁶⁹ In many jurisdictions, (partial) immunities for public authorities have been created to solve the issue of the chilling effect in many jurisdictions and in practice, the threshold for liability has often been set to gross negligence other than simple negligence.⁸⁷⁰ Three criteria for partial immunity have been identified in the literature, namely,

- i) substantial uncertainty in decision-making;

⁸⁶⁵ Israel Gilead, ‘Tort Law and Internalization: The Gap Between Private Loss and Social Cost’ (1997) 17 13th Annual EALE Conference 589; Israel Gilead and Michael D Green, ‘Positive Externalities and the Economics of Proximate Cause’ (2017) 74 Washington & Lee Law Review <<https://scholarlycommons.law.wlu.edu/wlulr/vol74/iss3/6/>>.

⁸⁶⁶ Jef de Mot and Michael G Faure, ‘Discretion and the Economics of Defensive Behaviour by Public Bodies’ (2016) 23 Maastricht Journal of European and Comparative Law 595, 602; See also, Michael Faure, Louis Visscher and Franziska Weber, ‘Liability for Unknown Risks – A Law and Economics Perspective’ (2016) 7 198.

⁸⁶⁷ De Mot and Faure (n 866); Jef De Mot and Michael G Faure, ‘Public Authority Liability and the Chilling Effect’ (2014) 22 Tort Law Review 120.

⁸⁶⁸ Faure and Yu (n 728) s 2.2.

⁸⁶⁹ See, Gerrit De Geest, ‘Who Should Be Immune from Tort Liability’ (2012) 41 Journal of Legal Studies 291.

⁸⁷⁰ See, De Mot and Faure (n 866) 601–610.

- ii) no immunity when the law gives specifications on the precise actions to be taken;
- iii) no immunity if no reasonable person could make the decision as that was made by the tortfeasor.⁸⁷¹

A salvor rendering an environmental emergency response to maritime accidents that meets all these criteria should be entitled to a (partial) immunity: in environmental salvage there are lots of uncertainties in decision-making and it is impossible for the law to specify the precise actions to be taken. A too-harsh liability regime for salvors would lead to the substitution effect,⁸⁷² i.e. substituting away from salvage operations that give rise to potential liability,⁸⁷³ which leads to the loss of the positive externalities generated by salvage.⁸⁷⁴ As such, salvors rendering environmental emergency responses to maritime accidents should be held liable only for gross negligence, and this does justify a need for a responder immunity from third-party claims. However, there should also ideally be a contract between the salvor and the salvee through which the levels of care, the activities of the salvor, and the monetary incentive are determined. The use of a contract is important because it could internalize the positive externalities. As such, allowing the salvor to externalize his or her costs of care (to third parties) would make him or her indifferent between action and inaction. It would reduce the chilling effect and consequently would not discourage the salvor from rendering services that generate positive externalities. However, this does not preclude the possibility that the third parties (victims) could be indemnified by the salvee.⁸⁷⁵

Furthermore, an important observation is that the risk of environmental damage caused by maritime accidents can be reduced in two stages which are in a sequential order:⁸⁷⁶ the shipowner should get adequate incentives to avoid getting into accidents in the first place; subsequently, the salvor should get adequate incentives to take an optimal level of care during property salvage and environmental salvage. This provides an argument from an economic analysis perspective in favour of the doctrine of distinguishable damages in the United States as examined earlier in this chapter: according to the doctrine of distinguishable damages, the salvor should only be liable for gross negligence or wilful misconduct if the damages are non-distinguishable from the danger that the distressed vessel was originally facing at the time of engaging the salvor; there is no reason why the salvor should be (even partially) immune from damages clearly and distinguishably caused by the salvor's negligent acts or wilful misconduct after the salvor engaged with the salvage operations.

⁸⁷¹ *ibid* 602.

⁸⁷² Landes and Posner, 'Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism' (n 19).

⁸⁷³ For further discussions see, Michael G Faure, 'Liability for Omissions in Tort Law: Economic Analysis' (2011) 2 *Journal of European Tort Law* 184.

⁸⁷⁴ Faure and Yu (n 728) s 2.2.

⁸⁷⁵ Giuseppe Dari-Mattiacci, 'Negative Liability' (2009) 38 *The Journal of Legal Studies* 21, 50.

⁸⁷⁶ For economic analysis on sequential inputs, see Donald Wittman, 'Optimal Pricing of Sequential Inputs: Last Clear Chance, Mitigation of Damages, and Related Doctrines in the Law' (1981) 10 *Journal of Legal Studies* 65.

ii. Salvee – Salvor & Salvee – Third Party

So far the subject of the liability rules discussed is the salvor in the salvor – third party relationship. Bearing in mind that giving the salvor a (partial) immunity does not necessarily preclude the possibility of bring the third-party claims against the salvee, the discussions in this section now put the salvee in the spotlight. As examined in the previous chapter, the shipowner, if he or she could be identified as the polluter, would be the ‘cheapest cost avoider’.⁸⁷⁷ In economic theory (and also in salvage practice) the shipowner may engage with a professional salvor as the agent on behalf of other salvees (cargo owners or charterers) to perform the duties of the cheapest cost avoider. The theoretical question here is whether the salvee should also enjoy a (partial) immunity from third-party claims as the salvor should. The short answer is no. One may compare the principal–agent relationship between the salvor and salvee with the contractual relationship between an employer and an employee. The law has often followed the principle of *respondeat superior* and allocates the liabilities to the *superior*, i.e. the principal and in this case the salvee (shipowner). Landes and Posner argue that this allocation of liabilities following *respondeat superior* could improve the incentives for care, as the principal would have more incentives to control the risk. For the example of the employer–employee relationship, the employer being held strictly liable for the employee’s torts has the advantage that (i) the employer’s solvency is normally better than that of the employee, as the employer normally has more assets; (ii) the employer has the incentive to better monitor the employee’s behaviours. As such the agent’s care and activity levels might be exercised optimally due to the monitoring of the principal.⁸⁷⁸ In environmental salvage, although the solvency argument might not always be applicable, the salvee (the principal) being strictly liable towards third parties has the advantage of providing incentives for the salvee to: (i) engage with a qualified professional salvor in a timely manner; (ii) choose an adequate contract based on the circumstances (although a shipowner may not be familiar with the contracts used for salvage, the shipowner’s P&I Club would have the incentive to give advice adequately, as the Club would pay for environmental damage claims from third parties and environmental salvage. By choosing between a *due care* contract or *best endeavours* contract, the salvor may be exposed to different extents of risk in return for corresponding prices.);⁸⁷⁹ (iii) cooperate with the salvor during salvage operations; (iv) monitor the salvor’s behaviours via contractual instruments (such as the SCR, i.e. Special Casualty Representative, as a part of the SCOPIC administered by the Lloyds’ Salvage Arbitration Branch).⁸⁸⁰ Once again, the importance of using a contract is observed.

⁸⁷⁷ For ‘cheapest cost avoider’, see Calabresi (n 57) 143–152.

⁸⁷⁸ William M Landes and Richard A Posner, ‘The Positive Economic Theory of Tort Law Symposium: Modern Tort Theory’ (1980) 15 Georgia Law Review 851, 914–915.

⁸⁷⁹ The first two points are highly relevant in current practice, see Shaw (n 12).

⁸⁸⁰ For SCR under SCOPIC, see Chapter 3, Paragraph 3.4.5.

6.3.3 Other Maritime Law Considerations

i. Channelling Provision, Right to Recourse and Responder Immunity

If a third-party claim is brought against the salvor under the CLC or HNS conventions, the channelling provisions under the conventions do not provide the salvor with a true immunity, i.e. only for gross negligence or wilful misconduct but not liable for simple negligence. The reason is that the shipowner may take advantage of the combination of the right to recourse under the CLC or the HNS convention and salvorial negligence to hold the salvor liable for simple negligence.⁸⁸¹ If a third-party claim was brought outside the CLC or the HNS conventions, the salvor might enjoy the statutory immunity provided in several nations' domestic legislation which would protect the salvor who had shown simple negligence from third-party claims.⁸⁸² Therefore, the solution needs to be worked out taking into account these existing provisions.

The economics literature suggests that the exclusive channelling provision, i.e. channelling all the claims to one party, is inefficient as it would remove the liability of others who could also affect the accident risk.⁸⁸³ In environmental salvage, the shipowner and the salvor both contribute to the accident risk but in a sequential manner: the shipowner should be given incentives to avoid getting into a maritime accident in the first place; the salvor should then be given incentives to reduce environmental damage once engaged with the casualty. The salvor's incentives to take optimal care and engage in an optimal activity level would be removed if all the liabilities were channelled to the shipowner, unless the shipowner had a right to recourse as the liabilities may be relocated in accordance with the Coase theorem.⁸⁸⁴ As such, the solution under the CLC or HNS convention regimes cannot be that of simply taking away the shipowner's right to recourse in the conventions. Furthermore, the salvor and the salvee should have a joint and several liability, which has the advantage that the victim may have the possibility of choosing one of them to claim damages; the injurer (either the salvor or the salvee) who paid for the damages may in turn exercise a redress against the other party who contributed to the loss proportionately.⁸⁸⁵ The disadvantage is, however, that the potential litigation costs in third-party claims for the salvor might further be reflected in the price, but it encourages the use of a contract. The risk of liability and consequently the cost for the salvor should not be so high as to discourage the salvor from entering into contract at the time of the emergency due

⁸⁸¹ Liu, 'Salvor's Provision of Environmental Services: Remuneration, Liability and Responder Immunity' (n 835) 293–294.

⁸⁸² See earlier in this chapter and see also, *ibid* 293–294, 300.

⁸⁸³ Faure and Wang (n 33) 187–189.

⁸⁸⁴ Michael G Faure, 'Attribution of Liability: An Economic Analysis of Various Cases' (2016) 91 *Chicago-Kent Law Review* 603, 625–628.

⁸⁸⁵ William M Landes and Richard A Posner, 'Joint and Multiple Tortfeasors: An Economic Analysis' (1980) 9 *The Journal of Legal Studies* 517; See also, Lewis A Kornhauser and Richard L Revesz, 'Joint and Several Liability', *Tort Law and Economics* (2nd edn, Edward Elgar Publishing 2009) <<https://www.elgar.com/shop/gbp/tort-law-and-economics-9781847206596.html>>.

to the positive externalities generated. An immunity clause may be included by parties in the contract, which obviously leads to different prices. Nonetheless, the statutory responder immunity may be used in cases where it is necessary to protect salvors from third-party claims for environmental damages.

ii. Limitation of Liability

The law and economics literature suggests that the limitation of liability is inefficient in providing incentives for tortfeasors to take optimal care and activity levels. The combination of the channelling provision (under the CLC and HNS conventions) and limitation of liability (under the LLMC 1976 or national laws) has the disadvantage that it might lead to under-deterrence of tortfeasors in terms of third-party damages, and as such it would limit the internalization of risk activity.⁸⁸⁶ In environmental salvage, as the salvee and the salvor both contributed to the accident risk in a sequential manner, the salvor should not be completely immune from third-party damages or claims for damages from the salvee. Following the economic analysis, the statutory limitation of liability as examined earlier in this chapter would be problematic. The solution from an economic analysis perspective would be, according to the Coase theorem, that parties (the salvor and the salvee) may agree via contract with to which extent the salvor would be exposed to liability.⁸⁸⁷ Given that there should be a joint and several liability between the salvor and the salvee towards third parties, a third party may choose the salvee (strictly liable) over the salvor (as suggested, strictly liable but only for gross negligence). The salvee in such a case may then exercise recourse against the salvor. The salvor and salvee are provided with incentives to negotiate on the salvor's care and activity levels and also to agree in the contract on a contractual limitation of liability. Consequently, these negotiations would be reflected in the prices.⁸⁸⁸ Furthermore, the salvor and the salvee may also negotiate on whether the set-off should be applied before or after the (contractual) limitation of liability which solves the problem of set-off as referred to previously in this chapter. The suggested arrangements would therefore encourage parties to use the contract to internalize the (both positive and negative) externalities.⁸⁸⁹

6.3.4 Place of Refuge and Criminalization: Substitution Effect

Landes and Posner notes that under the Admiralty Law, refusal to salvage a vessel does not create a right of action for the shipowner against a potential salvor. In accordance with their economic analysis, they argue that salvage in modern times is not a by-product of other

⁸⁸⁶ Faure and Wang (n 33) 600.

⁸⁸⁷ *ibid* 599.

⁸⁸⁸ Faure and Yu (n 728) s 2.6.

⁸⁸⁹ Giuseppe Dari-Mattiacci observes that the legal system internalizes negative externalities by providing general tort liability rules while it tackles the problem of internalizing positive externalities by implementing a set of different and often indirect solutions. He argues that the explanations of this asymmetry rests on the three features of negative liability, namely intent, incentives, and evidence. See Dari-Mattiacci (n 875).

activities but a business undertaken by professional salvors; imposition of liability without compensation would largely drive them out of the market.⁸⁹⁰ This so-called ‘substitution effect’ is still of great relevance regarding environmental salvage. Uncertain and risky as it already is for salvors, the problem of no place of refuge and the potential exposure of salvage experts to criminal liabilities would drive professional salvors away from environmental salvage. As far as the issue of criminalization of salvors is concerned, there have been many critiques of this issue by legal scholars.⁸⁹¹ The relevant argument in favour of criminalization in law and economic analysis literature is as follows: firstly, the tort law and its enforcement have their limits in providing sufficiently deterrence because for victims of environmental pollution it would be difficult to have sufficient information and to prove the causation; secondly, there is a need for penal sanctions If the Injurer Is Insolvent so as to provide perfect compensation;⁸⁹² thirdly, assuming criminals behave like rational utility maximizers (a professional salvor as a corporate actor would indeed act more rationally than a private actor),⁸⁹³ if the cost of crime were increased to the extent that the cost is larger than the benefit, a potential injurer would not commit a crime and as such, criminal law provides another way of controlling harm and internalizing (negative) externalities. According to Becker’s deterrence hypothesis (for crime),⁸⁹⁴ the severity of punishment should be high if the probability of detection is low. In terms of environmental salvage and salvors, it is crystal clear that the probability of detection is quite high and the reputation loss would be quite a deterrence for salvors In cases like the salvage of the *Ever Given*, which was stuck in the Suez Canal in 2021 and caught global attention immediately. Furthermore, there are high administrative costs of criminal procedures and error costs in criminal law, as the innocent should not be punished.⁸⁹⁵ Last but not least, considering the positive externalities generated in salvage operations and environmental salvage, the danger of substitution effect is a strong argument from an economic analysis perspective against the criminalization of salvors in providing environmental emergency responses to maritime accidents.

⁸⁹⁰ Landes and Posner, ‘Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism’ (n 19) 122.

⁸⁹¹ See, Marc A Huybrechts, ‘Whatever Happened to European Directive 2005/35/EC? Europe’s Ambivalent Approach to the Fight against Marine Pollution and Its Consequences for Seafarers’ in Baris Soyer and Andrew Tettenborn (eds), *Pollution at Sea: Law and Liability* (1st edn, Informa Law from Routledge 2012) <<https://doi.org/10.4324/9781315874340>>; Mukherjee, ‘Refuge and Salvage’ (n 699).

⁸⁹² Michael G Faure, ‘A Law and Economics Approach to Environmental Crime’ in Tiffany Bergin and Emanuela Orlando (eds), *Forging a Socio-Legal Approach to Environmental Harms* (Routledge 2017) 79–80 <<https://www-taylorfrancis-com.mu.idm.oclc.org/chapters/edit/10.4324/9781315676715-5/law-economics-approach-environmental-crime-michael-faure?context=ubx&refId=1894b836-d038-41f6-b97d-1993b734f2dd>> accessed 21 April 2023.

⁸⁹³ See, Gary S Becker, ‘Irrational Behavior and Economic Theory’ (1962) 70 *Journal of Political Economy* 1.

⁸⁹⁴ Gary S Becker, ‘Crime and Punishment: An Economic Approach’ (1968) 76 *Journal of Political Economy* 169.

⁸⁹⁵ See, Faure, ‘A Law and Economics Approach to Environmental Crime’ (n 892) 83.

6.4 Concluding Remarks

Professional salvors as rational corporate actors would take both the potential reward and the legal risks and liabilities for negligence into consideration when it comes to business decision-making. These decisions include both the short-term question of whether to engage with a particular environmental salvage case and the long-term question of whether to keep investing so as to retain capacity for environmental emergency responses to maritime accidents or to switch to another business.

As far as the risks and liabilities for negligence are concerned, it is a complicated issue: on the one hand the salvor should indeed be exposed to liabilities as this is an incentive for him or her to take the optimal level of care and engage in the optimal level of activity: the reasons are (i) in the case of a situational monopoly, and the salvor might (albeit not necessarily) abuse his or her situational monopoly position and ii) there is an agent–principal relationship between the salvor and the salvee and consequently there might be a divergence of interests between them. Exposing the salvor to liabilities for negligence is necessary to provide incentives for the salvors to take optimal care and activity levels and as such, the negative externalities would be internalized. On the other hand, however, the positive externalities generated from the salvor’s services, i.e. the safety of navigation and the protection of the environment, should be recognized and in economics language, the positive externalities should be internalized. It is the uncertainties about the nature of the danger and consequently, uncertainties about the levels of skill and efforts required that make *ex ante* risk assessment quite difficult even for professional salvors, if not completely impossible. As safety regulations *de facto* failed in the first place, the task of internalizing externalities might fall on the shoulders of the use of liability rules. However, this chapter shows that the use of tort law rules alone cannot fulfil the goal of internalizing externalities, especially because there is a danger of a substitution effect, if the total risk for a professional salvor is so high that the rational choice would be to substitute away from salvage operations. Therefore, the efficient solution should be a combination of ‘carrots’ (as proposed in Chapter 5) and ‘sticks’ (liability rules, as examined in this chapter) in line with the predictions made by Levmore,⁸⁹⁶ and the stick should not be so big that it will scare the salvor off.

As such, in accordance with the economic analysis presented in this chapter, the salvor should be held jointly liable with the salvee for environmental damages towards third parties, but only for a higher threshold of negligence, such as gross negligence and wilful misconduct. Indeed, a responder immunity does seem to make sense as a way to make this happen but ideally this could also be subject for negotiations, especially due to the inefficiency of the channelling

⁸⁹⁶ Levmore (n 696).

provision in the international ship-source pollution compensation regime as suggested by both economics and legal literature.⁸⁹⁷ Besides, in accordance with the Coase theorem, the limitation of liability for the salvor ideally would also be subject for negotiations due to the inefficiency of the current statutory limitation of liability as revealed in this chapter.⁸⁹⁸ Furthermore, it could be added that as the salvor, especially a professional salvor, is normally the *superior risk bearer*, it would be desirable for the society that the risk were shifted to the salvor. Obviously, the salvor would only bear the risk with the expectation of a higher reward in return which encourages the use of contract. In current salvage practice this could be the choice between the LOF ('best endeavors') and a daily hire contract ('due care'), and it is indeed the reality that an LOF would be more expensive than a daily hire contract. It should also be noted that when assessing salvorial negligence and its consequences, firstly, the doctrine of distinguishable damages should be followed to avoid the substitution effect; secondly, it is also important for the legal system (in this case the 'sticks') to recognize the shipowner's timely engagement with a salvor on a contractual basis and the duty to cooperate during salvage. The reality has changed in the sense that a shipowner may not necessarily be in a weaker bargaining power compared with a salvor's bargaining power; a shipowner may hesitate to engage with a professional salvor on a generous contract.⁸⁹⁹ The use of tort law rules should indeed encourage the use of contract.⁹⁰⁰ The contractual and financial arrangements were proposed in the previous chapter. Lastly, one may argue that from an economic analysis perspective, the public authorities should also be exposed to liabilities as incentives regarding the decision whether to grant a place of refuge or not,⁹⁰¹ but this is out of the scope of discussion for this chapter.

⁸⁹⁷ See, in this Chapter, Paragraphs 6.2.5 & 6.3.3

⁸⁹⁸ See, in this Chapter, Paragraph 6.3.3

⁸⁹⁹ See, *Smit Salvage B.V., Baggermaatschappij Boskalis B.V., Ocean Marine Egypt S.A.E., Augustea Ship Management SRL v. Luster Maritime S.A., Higaki Sangyo Kaisha Limited (m.v. Ever Given)* (n 858); Shaw (n 12).

⁹⁰⁰ See, Dari-Mattiacci (n 875).

⁹⁰¹ Faure and Yu (n 728) s 5.

Chapter 7 Conclusion

7.1 Summary of the Research Findings

The main research questions of this dissertation are as follows: what incentives are provided to salvors under the current legal regime to encourage them to provide environmental services? Are these incentives sufficient and can reform proposals be formulated? The constituent elements of this piece of research are the legal issues on the salvage reward and the salvor's liability in rendering environmental emergency response to maritime accidents. In order to answer the main research questions, this investigation mainly examines three components, namely, traditional salvage law as developed in the *Admiralty Law* (Chapter 2 for the law governing the salvage reward and Chapter 6 for the law governing salvorial negligence), and *salvage practice*, i.e. especially the contractual instruments and financial arrangements administrated by Lloyd's Salvage Arbitration (Chapter 3) and *the Salvage Convention 1989* (Chapter 4).⁹⁰² The main research questions are divided into three sub-research questions, as follows:

i. Issues regarding the salvage reward

Sub-research question 1: What is the legal regime regarding fixing the salvage reward for the salvor's environmental services in salvage operations and how does it work?

Sub-research question 2: Is the salvage reward in the current legal regime a sufficient incentive for salvors' environmental services in salvage operations?

ii. Issues regarding the salvor's liability

Sub-research question 3: What are the salvor's liabilities in providing environmental services under the current legal regime and do they constrain the salvor from rendering environmental services?

To summarize the research findings, this chapter now proceeds in three steps. Firstly, the history of environmental salvage provides an overview of the development of salvage law and practice as well as the conflicts between private and public interests. It brings the reader to the second part, the status quo of current solutions and limitations which answers the sub-research questions 1, 2 and 3 via doctrinal and economic analysis. The answers to these sub-research questions also make up the answer to the following parts of the main research questions, i.e. what incentives are provided to salvors under the current legal regime to encourage them to provide environmental services? Are these incentives sufficient [...]. Lastly, the third part provides *de lege ferenda*, i.e. the reform proposals (in Chapters 5 & 6) made in accordance with the economic analysis to cope with the legal and societal challenges in environmental salvage.

⁹⁰² The order followed here is in line with the historical development of salvage law and practice.

7.1.1 History of Environmental Salvage Revisited: An Overview of the Developments in Law and Practice

‘Innovations in this area (salvage) have not come from the courts [...] but from a wide range of distinct sources operating in a pluralistic environment who face the problem in the field first as a business risk. The market, not the courts, has driven innovation, and through arbitration has policed its consequences.’⁹⁰³ Wayne T. Brough’s statement precisely summarizes the development of salvage law and practice. In terms of the challenges of environmental salvage, the innovations from the market (especially the contractual instruments and practical arrangements led by Lloyd’s of London and its Salvage Arbitration Branch, see Chapter 3) and the law reform attempts by the industry (normally the industry would bring a reform proposal to the CMI with the hope of reaching the IMO; see Chapter 2 for the proposal of ‘liability salvage’ and Chapter 4, Paragraph 4.5 for the proposal of an ‘environmental salvage award’) have been mostly passive reactions to major maritime accidents and court decisions. The commercial parties are mainly composed of the salvage industry, which is represented by the ISU, the shipowners, the P&I Clubs, who are shipowners’ liability insurers, and property underwriters, (hull and machinery insurers, cargo insurers) who cover the risks of property loss and damage. Property salvage should be paid for by property underwriters, while environmental salvage should be paid for by P&I Clubs.

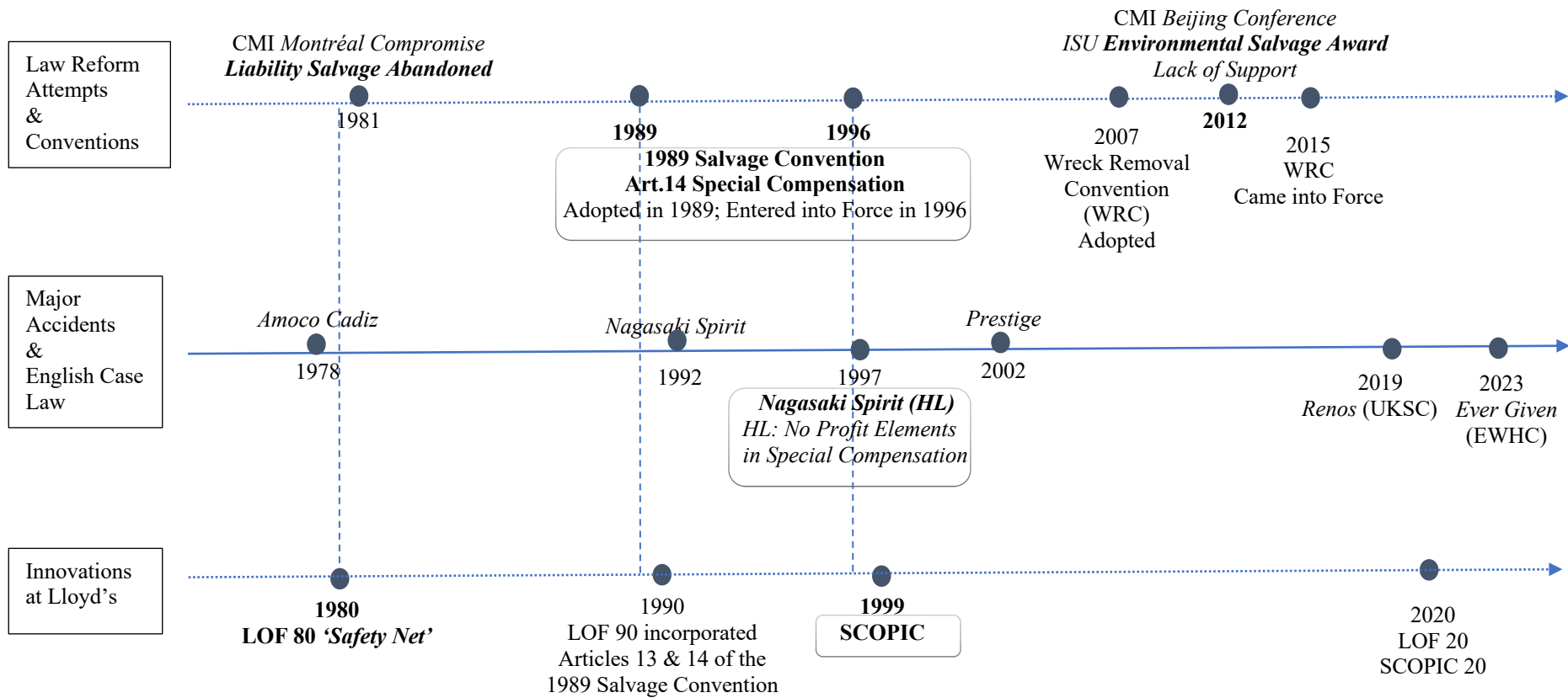
Traditional (property) salvage is defined in *Kennedy* as a service that confers a benefit by saving or helping to save a recognized subject of salvage.⁹⁰⁴ The core issue is that the traditional salvage law governed by the ‘No Cure–No Pay’ principle cannot provide adequate incentives for salvors’ environmental emergency responses. The Salvage Convention 1910 reproduced salvage law principles as developed in the Admiralty jurisdiction of the UK and the ‘No Cure–No Pay’ principle was embedded in that convention.⁹⁰⁵ The *Amoco Cadiz* (1978) oil spill provided the impetus for significant changes in salvage law and practice as salvors found it difficult to collect rewards in environmental salvage, especially when the subject of salvage

⁹⁰³ Brough (n 50) 110–111.

⁹⁰⁴ Rose (n 35) 7 para.1–016.

⁹⁰⁵ Convention for the Unification of Certain Rules of Law Respecting Assistance and Salvage at Sea, adopted in Brussels in 1910 art 2.

Figure 3 Historical Overview of Some Notable Developments in Law and Practice for Environmental Salvage



was an oil tanker that could easily become a total loss. The issue was that a salvage reward would be made out of the salvage fund, i.e. an amount fixed according to the salvaged value of the property, and it could not adequately reflect a salvor's skill and effort in preventing environmental harm in maritime accidents.

Lloyd's first reacted to this challenge by introducing a 'safety net' provision to the LOF 80, i.e. a guaranteed remuneration composed of the salvor's expenses plus a possible 15% increment for salvage involving a laden tanker (and only if a laden or partially laden oil tanker is the subject of salvage) if the reward were inadequate or non-existent (see Chapter 3). Meanwhile, a working group was established under the leadership of Professor Erling Selvig and consequently the concept of 'liability salvage' was proposed at the CMI conference in Montréal in 1981 as a separate category of salvage (i.e., a legal basis for a reward) to be added to the 1910 Salvage Convention. The idea of 'liability salvage' was that avoidance of third-party liabilities would be recognized as a benefit conferred by salvage services and as such, this benefit conferred should entitle the salvor to a reward. The concept was abandoned due to opposition from the industry, especially from the P&I Clubs, who would have to bear the financial burden as shipowners' liability insurers. But the commercial parties reached the 'Montréal Compromise', which led to the following two changes contained in the new convention, i.e., the Salvage Convention 1989. The two changes are: (i) a traditional salvage reward may be enhanced by the salvor's skill and efforts in preventing or minimizing environmental damage in salvage operations (Article 13.1 (b) of the Salvage Convention 1989, see Chapter 4, Paragraphs 4.2 and 4.3); and (ii) the 'Special Compensation' was introduced to provide an incentive for environmental salvage, which would be made based on the salvor's expense plus a possible increment (Article 14 of the Salvage Convention 1989, see Chapter 4, Paragraphs 4.2 and 4.4). Lloyd's quickly reacted to the law reform by incorporating these innovations in the Salvage Convention 1989 (in particular Article 14 Special Compensation) into the LOF 90, six years before the Convention entered into force. However, the UK House of Lords' decision in the *Nagasaki Spirit* case ruled out the 'profit element' in assessing the salvor's expenses for Article 14 Special Compensation of the Salvage Convention, besides, the industry was not satisfied with Article 14 Special Compensation as it turned out to be time-consuming and expensive to operate the calculation. As a result, the commercial parties swiftly reacted to the problem and they jointly invented the contractual instrument, i.e. the SCOPIC clause, to circumvent the case law and to replace the Article 14 Special Compensation in the Salvage Convention 1989. The SCOPIC clause as a voluntary replacement of the Article 14 Special Compensation could be incorporated into the LOF (see Chapter 3, Paragraph 3.4 and Chapter 4, Paragraph 4.6). However, the industry made another attempt at law reform by introducing the so-called 'environmental salvage award', which was essentially a new name

for the old concept of ‘liability salvage’.⁹⁰⁶ The ISU proposal of an ‘environmental salvage award’ was made to the CMI Beijing Conference in 2012, but there was a lack of support from other commercial parties. The idea was essentially to delete the environment factor in Article 13.1(b) of the Salvage Convention 1989, which currently is an enhancing factor for the assessment of a traditional salvage reward, and to replace Article 14 Special Compensation with a separate environmental salvage reward. As such, the current balance of interests as made in the Salvage Convention 1989 between the property underwriters and P&I Clubs would be rearranged: the financial burden of property underwriters who pay for the traditional salvage award will be decreased, while the financial burden of P&I Clubs who insure the shipowners’ environmental liability risks will be increased for environment salvage. Furthermore, another issue that has been debated was the potential over-deterrence effect caused by the salvor’s risk and liability for negligence during salvage operations and while providing environmental services on sites of maritime accidents (see Chapter 6). In July 2022, the International Group of P&I Clubs (IGP&I) commissioned an independent report on the issue of potential delay in contracting and engagement with professional salvors for maritime accidents.⁹⁰⁷ The report verifies the continuous decline in the use of LOF contracts in recent years and it indicates that there is a general decline in global salvage capacity. It seems that only another major maritime accident and environmental disaster caused by ship-source oil or HNS (hazardous and noxious substances carried by sea) pollution would put the law reform on the global (political) agenda. One may notice that in recent years, the amount of ship-source oil pollution accidents has been decreasing, but the green transition in international shipping will lead to uncertainty as to the safety of navigation and the protection of the environment in the use and transportation of alternative fuels which could be qualified as HNS. The task of readjusting conflicting private interests among commercial parties and, furthermore, reconciling private and public interests poses a significant societal challenge.

7.1.2 Status Quo of Solutions in Law and Practice: Answers to Sub-Research Questions

i. The Salvage Reward

‘The circumstances in which salvage awards are allowed and the criteria governing the size of the award suggest that the purpose of salvage awards is to encourage rescues (at sea) in settings of high transaction by simulating the conditions and outcomes of a competitive market.’⁹⁰⁸ Landes and Posner’s positive economic analysis argues that traditional salvage law is efficient in property salvage in terms of efficient allocation of resources (see Chapter 5.2). For traditional salvage, the central focus is the salvage of property and the benefit conferred is the

⁹⁰⁶ Mudrić, ‘Liability Salvage - Environmental Award: A New Name for an Old Concept’ (n 43).

⁹⁰⁷ Shaw (n 12).

⁹⁰⁸ Landes and Posner, ‘Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism’ (n 19) 100.

tangible property that has been salvaged; as such, the salvaged value of property could provide sufficient information to provide an adequate incentive for salvors equivalent to that which would have been made in a competitive market. The principle of ‘No Cure–No Pay’ solves the problem of the combination of bilateral monopoly and opportunism (see Chapter 5, Paragraph 5.2). However, the traditional salvage law cannot achieve the same goal for environmental salvage because the central focus is the salvage of the environment, i.e. preventing or minimizing environmental damage in maritime accidents, and the benefit conferred is the intangible avoidance of environmental harm. The concept ‘environmental salvage’ is itself an oxymoron.⁹⁰⁹ The salvaged value of property (if any) could not provide sufficient information to provide an adequate incentive for the salvors’ efforts and skill in rendering environmental emergency responses to maritime accidents. Because the benefits conferred by salvor’s services should be composed of both the salvaged value of property and the intangible avoidance of costs for environmental damage, the salvaged value of property itself cannot simulate the conditions and outcomes of a competitive market (see Chapter 5, Paragraph 5.3).

The current solutions in salvage law and practice for providing incentives for salvors’ environmental emergency response to maritime accidents are composed of (i) the two monetary incentives provided by Article 13 and Article 14 of the Salvage Convention 1989 (see Chapter 4) and (ii) the SCOPIC clause (see Chapter 3, Paragraph 3.4), to be used as a supplement to the LOF agreement, as a contractual substitute to replace the Article 14 Special Compensation that the industry is not satisfied with, especially after the *Nagasaki Spirit* case (1997).⁹¹⁰ A traditional salvage reward is subject to the ‘No Cure–No Pay’ principle and the criteria for the assessment that have been developed in Admiralty law are summarized in Article 13 of the Salvage Convention. Such a traditional salvage reward might be enhanced taking into account of ‘the skill and efforts of the salvors in preventing or minimizing damage to the environment’.⁹¹¹ Furthermore, a salvor would be entitled by right to Article 14 Special Compensation if the following conditions were met, namely, the salvor is engaged with salvage operations rendered to a vessel; the vessel by herself or her cargo threatened damage to the environment; and the salvor has failed to earn a conventional salvage award at least equivalent to the Special Compensation payable under Article 14.⁹¹² Article 14 provides a ‘safety net’ for salvors to recover the expenses made with reference to the salvor’s ‘out-of-pocket expenses reasonably incurred’ and ‘a fair rate for equipment and personnel actually and reasonably used (by salvors)’.⁹¹³ The due amount of Special Compensation could be increased ‘if the salvor by

⁹⁰⁹ Faure and Yu (n 32).

⁹¹⁰ *Semco Salvage & Marine Pte Ltd v Lancer Navigation Co Ltd (The Nagasaki Spirit)* (n 323).

⁹¹¹ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 art 13.1 (b).

⁹¹² *ibid* 14.1.

⁹¹³ *ibid* 14.3.

his salvage operations has prevented or minimized damage to the environment'.⁹¹⁴ However, the salvage industry was never satisfied with Article 14 Special Compensation. The drafting of Article 14 does not provide an exact formula for calculation and the difficulties in applying the Article 14 led to many Lloyd's salvage arbitrations.⁹¹⁵ Furthermore, the House of Lords in the *Nagasaki Spirit* case ruled out the 'profit element' in the determining salvor's expense for the purpose of Special Compensation (see in particular Chapter 4, Paragraph 4.4). The commercial parties' response to these problems was the invention of the SCOPIC clause which was introduced only two years after the House of Lords' decision in the *Nagasaki Spirit* case was made. The main advantage is that it provides tariff rates to calculate the SCOPIC remuneration, which would be paid solely by the shipowner (in the end the P&I Club), and the tariff rates are commercial rates adjusted constantly by the commercial parties. Besides, it also confers on insurers significant powers to supervise the expenditures through the Special Casualty Representatives (SCR)⁹¹⁶ (see Chapter 3, Paragraph 3.4.5). However, the general decline in the use of the LOF would reduce the use of the SCOPIC at the same time. The bargaining power of the salvee (especially the shipowner) is not necessarily much weaker than that of the salvor.⁹¹⁷ Even if the salvor might be in a situational monopoly position, it does not necessarily mean that the position would be abused. A professional salvor may not enter into a repeat contract with the same shipowner for an emergency response, but the reputational loss would be a serious consideration if the salvor did indeed abused his or her situational monopoly position. It could be that a salvor in practice performs a service under a less-salvor-favourable daily-hire contract, e.g. WRECKHIRE 2010 (see Chapter 3, Paragraph 3.2); it could have led to a more generous reward if that service were performed under a LOF contract. Besides, the bargaining game between the salvor and the salvee may lead to the result that there is no valid contract, in which case the reward would be calculated based on the Salvage Convention 1989, which *de facto* happened in the recent *Ever Given* case in 2023.⁹¹⁸ These limitations of the current solutions might be explained by the economic theory of path dependency: the solutions are very much contained in the box of traditional salvage law as well as within the 'No Cure–No Pay' principle.

ii. The Salvor's Liability

Traditional salvage law holds a lenient attitude towards negligence on the part of the salvor in salvage operations due to public policy considerations: the first one is to not discourage salvors

⁹¹⁴ *ibid* 14.2.

⁹¹⁵ Thomas, 'Marine Salvage and the Environment: Developments, Problems and Prospects' (n 781) 168.

⁹¹⁶ *ibid* 170.

⁹¹⁷ This statement may be supported by, for example, the delay in contracting with salvors and the decline in the use of the salvor-favourable LOF agreements. See, Shaw (n 12); Lowry (n 17); Lloyd's of London, 'LOF Statistics: Lloyd's Open Form Report 2015' (n 17).

⁹¹⁸ *Smit Salvage BV, Baggermaatschappij Boskalis BV, Ocean Marine Egypt SAE, Augustea Ship Management SRL v Luster Maritime SA, Higaki Sangyo Kaisha Limited (m.v Ever Given)* [2023] EWHC 697 (Admlty).

from taking risks, exercising their skill, and using their entitlement while rendering services at sea;⁹¹⁹ the second one is to encourage the establishment of professional salvage industry which requires high upfront investment and daily expenses to keep the equipment and salvage experts in station. Such public policy is fully embedded in the Salvage Convention 1989 for the purposes of encouraging both property salvage and environmental salvage.⁹²⁰ The consequences of salvorial negligence traditionally would only lead to a reduction of a salvage reward and the threshold, as also provided in Article 18 of the Salvage Convention 1989, is set at the forfeiture of the whole reward. However, the House of Lords' decision in the *Tojo Maru* case (1972) held that the salvor's negligence should be subject to tort law rules as developed in common law and that the shipowner could bring a (counter)claim for damages. This is the so-called doctrine of affirmative damages, which is recognized in various common law and civil law jurisdictions.⁹²¹ As such, the consequences of salvorial negligence could be that the salvor would be liable for an amount of damages that exceeded the threshold provided by Article 18 of the Convention. A salvor owes the owners of the property in danger a duty of care in exercising salvage operations as well as a duty of care to prevent or minimize damage to the environment while exercising salvage operations (for convenience, referred to hereinafter as 'the environmental duty'). It is argued in academia that the environmental duty should be a secondary duty and it is only owed to the owners of property in danger when the salvor is performing salvage services (see Chapter 6, Paragraph 6.2.2). However, there are legal uncertainties when the salvor has to make a choice between the public and private interests: if the salvage operations would involve great danger to the environment, and the salvor chose to abandon the salvable property, the salvor might be liable for breach of the duty of care in exercising salvage operations; but the salvor might also be liable for the breach of the environmental duty owed to the property owners if the salvor chose to disregard the environment, although to do so might be the only way of salvaging the property.⁹²² Of course, the salvor's concern for risks and liability for negligence might be to some extent reduced as the salvor is entitled to a right of limitation of liability under the LLMC, unless 'it is proved that the loss resulted from his personal act or omission, committed with the intent to cause such loss, or recklessly and with knowledge that such loss would probably result'.⁹²³ Furthermore, as far as third-party claims for environmental damage are concerned (see Chapter 6), the international ship-source pollution compensation regime generally provides the salvor with protection via the channelling provision which basically channels all claims to the registered shipowner. The shipowner would lose the protection by the channelling provisions if 'the

⁹¹⁹ *The 'Alenquer' (Collision Action) The 'Rene' (Salvage Claim)* [1955] 1 Lloyd's Rep. 101 112.

⁹²⁰ International Convention on Salvage, 1989, adopted on 28 April 1989; entry into force on 14 July 1996 Preamble.

⁹²¹ Mudrić, *The Professional Salvor's Liability in the Law of Negligence and the Doctrine of Affirmative Damages* (n 288).

⁹²² Thomas, 'Marine Salvage and the Environment: Developments, Problems and Prospects' (n 781) 161–162.

⁹²³ Convention on Limitation of Liability for Maritime Claims, London, 1976 art 4.

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'.⁹²⁴ This channelling provision can be found in the CLC 92 and the HNS Convention but it is absent from the Bunker Convention. It is an important observation that even under the CLC 92 and the HNS Convention, the channelling provision cannot provide a complete protection for the salvors against third-party claims: the shipowner may take advantage of the right to recourse provided by the CLC 92 and the HNS Convention to claim damages from the salvor, alleging salvorial negligence. In the end, theoretically speaking, the salvor might find himself or herself in a law suit for simple negligence.⁹²⁵ Obviously, the onus of proof would be a difficult task for the shipowner. It is further noted that if such a claim were brought under domestic laws, the salvor might be able to remain immune from such claims, alleging the statutory responder immunity that is available in the UK and the United States. Nonetheless, the risks caused by the uncertainty as to the public authorities' uncertain decisions regarding granting a place of refuge and the trend of criminalization are still present. The over-deterrence effect caused by the legal uncertainties in liabilities for negligence and risks caused by the problems of place of refuge and criminalization should certainly not be neglected.

7.1.3 Environmental Salvage *De Lege Ferenda*: Reform Proposals Suggested by Economic Analysis

i. What Is 'Environmental Salvage' Anyway?

The concept of 'environmental salvage' in salvage law and practice generally refers to the consequences that a salvor rendering environmental services in salvage operations (the term used in practice to refer to a salvage operation is 'dry salvage' or 'emergency response'⁹²⁶ to maritime accidents) might be entitled to (i) an enhanced traditional salvage reward under Article 13 of the Salvage Convention 1989, (ii) a Special Compensation under Article 14 of the Convention or (iii) a SCOPIC remuneration if the SCOPIC clause were incorporated into a LOF agreement and invoked by the salvor. In academic discussions, the concept of 'environmental salvage' is argued to be an oxymoron,⁹²⁷ and it is argued that other terminologies would be better, such as environmental protection services⁹²⁸ or environmental services.⁹²⁹ Nonetheless, the purpose of the actions taken by a salvor that entitles the salvor in question to a 'environmental salvage' reward/remuneration is essentially *ex post* mitigation measures immediately taken as a response to an environmental emergency caused by maritime

⁹²⁴ International Convention on Civil Liability for Oil Pollution Damage (CLC), Adoption: 29 November 1969; Entry into force: 19 June 1975; Being replaced by 1992 Protocol: Adoption: 27 November 1992; Entry into force: 30 May 1996 art III.

⁹²⁵ Liu, 'Salvor's Provision of Environmental Services: Remuneration, Liability and Responder Immunity' (n 835).

⁹²⁶ Alberda (n 59) 3.

⁹²⁷ Faure and Yu (n 32).

⁹²⁸ Liu, *Environmental Protection Services and Salvage Law: Emerging Issues in Perspective* (n 44).

⁹²⁹ Rose (n 35).

accidents. Thus, although the term ‘environmental salvage’ might stay as it is, the notion might be explained as ‘environmental emergency response’ to maritime accidents, which distinguishes the term from wreck removal (‘wet salvage’ as it is called in salvage practice) and the clean-up actions required on the site of a ship-source pollution accident.

From the perspective of societal goals, it is clear that the society is confronted with a situation where despite safety regulations, an environmental emergency can still happen in maritime accidents; it is socially desirable that *ex post* mitigation measures could take place to prevent or minimize environmental damage. From the demand side of the *ex post* mitigation measures, the solution is to hold the ‘cheapest cost avoider’⁹³⁰ liable for taking care of the environmental emergency in maritime accidents so that that party would have the incentive to take care of the environmental emergency. It is usually the shipowner who should be identified as the liable polluter (see Chapter 5, Paragraph 5.4.2.1). From an economic analysis perspective it can be added that it is usually the shipowner (or ‘bareboat charterer’ in case of a bareboat charterparty under which the management and navigation of the vessel is the charterer’s responsibility. In this chapter, the term ‘shipowner’ should be interpreted as including bareboat charterers) who is the ‘cheapest cost avoider’: the shipowner is the decision-maker in both *ex ante* prevention and *ex post* mitigation of environmental emergency responses in maritime accidents.

From the supply side of the *ex post* mitigation measures, the salvor would usually be the first responder to an environmental emergency and professional salvors are the ones who have the capacity to provide such services. As such, it is socially desirable to have a system of environmental salvage in place, i.e. financial and contractual arrangements to determine the reward, to offer incentives for professional salvors in order to encourage them to provide cost-effective environmental emergency responses to maritime accidents. Economic analysis provides parameters to determine what an efficient mechanism for environmental salvage could be. The following section is a summary of the proposed mechanism.

⁹³⁰ See, Calabresi (n 57).

ii. Reward

(i) Financing Arrangements

Table 3 Financing Arrangement for Environmental Emergency Response in Maritime Accidents			
	First Best: Shipowner As the Liable Polluter	Second Best: Public Intervention (No Liable Polluter)	
Demand	Shipowner	Public Authority	
Financing	Shipowner	General Taxpayer	A Levy on Activity
Potential Deficiencies	Optimal Precaution? Optimal Activity Level?	No Positive Incentives	Administrative Costs & Collection Problems
Solutions	Strict Liability + No Limitation of Liability + Compulsory Insurance	N/A	International: A Convention Domestic: Mutual Monitoring (Ideally) would Provide Incentives

The best scenario is one in which the shipowner can be identified as the liable polluter and the shipowner can demand the environmental emergency response be provided in maritime accidents and consequently finance the reward. The economic rationale, as explained in the previous section, is that the shipowner (including the bareboat charterer where applicable) is the cheapest cost avoider for an environmental emergency response in maritime accidents; imposing the liability to take care of the environmental emergency on the shipowner also provides him or her incentives to invest in *ex ante* prevention measures to prevent the occurrence of environmental emergency in maritime accidents. Besides, from a legal theory perspective, this would also serve the polluter-pays rule. Furthermore, according to economic analysis, an environmental emergency in maritime accidents can be considered as a unilateral setting because only the shipowner as the tortfeasor would affect the accident risk. As such, only strict liability can provide the shipowner with incentives to take optimal precautions in taking care of environmental emergencies in maritime accidents and to remain at an optimal activity level in providing maritime transportation. There should be no limitation of liability as it would lead to under-deterrence and under-compensation effects. To solve the insolvency

problem which would lead to the ‘judgement-proof problem’,⁹³¹ the shipowner should be required to purchase compulsory insurance (see Chapter 5, Paragraph 5.4.2.2).

The second-best scenario is that the public authority steps in and demands that environmental emergency responses be provided in maritime accidents. This could happen in cases where the shipowner cannot be identified as the liable polluter, the shipowner and/or the insurers decide to abandon the vessel in accordance with marine insurance law, or the public authority decides to take control of the maritime accident. This is the second-best option because the incentives for the shipowner to invest in *ex ante* prevention might be decreased or cease to exist. Furthermore, problems arise in terms of financing of the reward: the first solution is to use general taxes but there will be no positive incentives for the shipowner to take an optimal level of care or engage in the optimal level of activity. The second solution is to collect a levy from the commercial parties who are engaged with the same activity, e.g. oil companies, but the administrative costs might be high and collecting the levy might be problematic. As such, in the international setting, this will lead to assistance from a convention; in a domestic setting, ideally, mutual monitoring among those commercial parties who pay the levy would be established (see Chapter 5, Paragraph 5.4.2.3).

(ii) Payment Arrangements

The core issue is whether the payment model should be ‘No Cure–No Pay’ or simply a service-fee model. Under the ‘No Cure–No Pay’ payment model, the amount of payment depends on the salvaged value. In a competitive market, the payment for environmental emergency response in maritime accidents should provide incentives for salvors to engage with adequate levels of skill and efforts in providing their services. These skill and efforts require high upfront investment and daily expenses to provide timely services. The salvaged value of property cannot provide information to stimulate the due amount that would provide such incentives for salvors; salvaged value of avoided costs for environmental damage would be unpredictable and uncertain. Thus, the ‘No Cure–No Pay’ model does not work well for environmental salvage.

The main advantage of the ‘No Cure–No Pay’ model in salvage is that the ‘No Cure–No Pay’ model can realign the interests between the salvor and the salvee; it is a ‘agent’–‘principal’ relationship, as the reward is contingent on the result. Meanwhile, under a service fee model there might be a divergence of interests between the agent and principal that would lead to the potential for the agent to engage in ‘cheating behaviour’, especially when there is a large information asymmetry. But this argument might not be applicable in environmental emergency responses in maritime accidents: there are a lot of uncertainties in the nature of the danger and *ex ante* risk assessment might not be possible, even for professional salvors. Salvors

⁹³¹ Shavell, ‘The Judgment Proof Problem’ (n 694).

act as a ‘gatekeeper’ for the salvee. Furthermore, introducing monitoring mechanisms such as the ‘Special Casualty Representative’ under the SCOPIC clause could assist the principal in controlling the quality of services provided by the salvor. Therefore, the service-fee model can function well as the payment model in the case of an environmental emergency (see Chapter 5, Paragraph 5.4.3.2).

(iii) Contractual Arrangements

Table 4 Contractual Arrangements for Environmental Emergency Responses in Maritime Accidents

Contractual Arrangements for Environmental Emergency Responses in Maritime Accidents		
	First Best: Efficient Bargaining <i>Ex Ante</i>	Second Best: Dispute Resolution <i>Ex Post</i>
Problems	High Transaction Costs: <ul style="list-style-type: none"> • No Time To Bargain • Situational Monopoly • Intervention of Third Parties (Insurers; Public Authorities) 	Ex Post Determination of Payment: <ul style="list-style-type: none"> • Risk of Litigation • Highly Technical
Consequences	Efficient Bargaining May Not Be Possible	Huge Information Costs for General Courts
Solution(s)	Standardization of <ul style="list-style-type: none"> • Salvor’s Skill and Efforts • Price to be Paid <i>Ex Post</i> 	Alternative Dispute Resolution e.g. Arbitration, Mediation, etc.

The Coase theorem suggests that the contractual arrangement should solve or at least decrease the high transaction costs in the contracting of environmental emergency responses in maritime accidents.⁹³² There are high transaction costs that constitute obstacles to the efficient allocation of resources for several reasons: firstly, the nature of an emergency suggests that there is simply no time to bargain for an optimal contract in many cases. Secondly, the high upfront investment and daily expenses in the equipment and personnel required suggest that only a few professional salvage companies can provide adequate services, and as such there is a situational monopoly. This does not necessarily mean that the salvor would abuse his or her monopoly position but it does justify high service fees. Thirdly, the shipowner’s insurers (both property underwriters as property insurers and P&I Clubs as liability insurers) would have an influence on the shipowner’s decision-making, but there is a divergence of interests between the property

⁹³² Coase (n 55), see Chapter 1, Paragraph 1.4.3.

insurers and the liability insurers; furthermore, public authorities may decide to intervene in the salvage operations because of environmental concerns but they may also refuse to grant a place of refuge for salvors to renders services. Therefore, efficient bargaining may not always be possible. The solution is that the commercial parties work together to compile a documents that provides general standards and guidelines on the salvor's skill and efforts that would be considered as adequate in each case and on the price to be paid *ex post*. As such, the potential 'cheating behaviour' both on the salvor's side and the salvee's side would be corrected. Nonetheless, as the payment is made *ex post*, disputes concerning the payment are inevitable and consequently there is a need for dispute resolution *ex post*. However, salvage in general is highly technical, maritime accidents only happen occasionally, and there are not many precedents in common law due to the use of Lloyd's arbitration. As such there are huge information costs for general courts. *Ex post* alternative dispute resolution mechanisms such as arbitration and mediation are needed. These specialized systems may have advantages as far as the available information concerning the specific issues related to salvage are concerned. Furthermore, the 'Special Casualty Representative (SCR)' under the SCOPIC clause could be used to provide expert evidence in disputes but of course the SCR must be independent of any of the commercial parties involved (see Chapter 5, Paragraph 5.4.4).

iii. Liability

From an economic efficiency perspective, the use of liability rules in terms of salvorial negligence in pollution cases should not only aim at providing incentives for salvors to take the optimal level of care and engage in the optimal level of activity in providing salvage services and environmental emergency responses in maritime accidents; it should also internalize the positive externalities generated by the salvor's services, i.e., the safety of navigation and the protection of the environment. The internalization of positive externalities would ideally be achieved via the use of contract between the salvor and the salvee. Therefore, the salvor should certainly be given incentives to take optimal care in providing environmental emergency responses in maritime accidents. But the risk of liability should not be so high that the potential reward combined with the risks of liability would not be enough to incentivize the salvor to provide socially desirable salvage. When the consequences of the risk of liability outweigh the reward, there is a risk that the professional salvor may substitute away from the salvage operations and the environmental emergency responses to other business. Furthermore, the law should ideally allocate the risk of liability to the salvor who is the *superior risk bearer*. Of course, this shift of risk would further be reflected in the price to be paid to the salvor.

Economic analysis in this dissertation suggests that the salvor should be held jointly liable with the salvee towards third parties for environmental damages, but only in combination with a higher threshold of negligence, such as gross negligence and wilful misconduct. The rationales are that exposing the salvor to third-party claims for environmental damage would better align

the interests of the salvor with the interests of the salvee in taking care of the environmental emergency. But salvors' services not only confer benefits on the salvee but also confers benefits on the public. Furthermore, society has two liability scenarios at its disposal in designing the liability rules: there is not only the potential liability of the salvor but also the liability of the shipowner. Environmental damage in maritime accidents will be caused firstly by the shipowner's activity, and may then it be possibly be aggravated by salvorial negligence. This is a setting of 'sequential inputs' as examined in law and economics literature.⁹³³ Considering the substantial uncertainties in salvor's decision-making, the law and economics literature suggest that it makes sense to give the salvor a (partial) immunity to solve the problem of the substitution effect.⁹³⁴ Furthermore, as this is a setting of sequential inputs, the doctrine of distinguishable damages (see Chapter 6, Paragraph 6.2.2.2) should be followed. Of course, the salvee (the shipowner) should still be held strictly liable for third-party claims for environmental damage as the arguments (for a higher liability threshold) are not applicable to the salvee (the shipowner). After all, the salvee (the shipowner) should be incentivized to avoid maritime accidents in the first place.

The current legal regimes are to a large extent in line with the economic analysis but there are still problems as summarized previously in this chapter. As far as the international ship-source oil pollution compensation regime is concerned, both the CLC 92 and the Bunker Convention contain a channelling provision which arguably provides the salvor an immunity against third parties claims for simple negligence. But firstly, the efficiency of a channelling provision is problematic,⁹³⁵ and secondly, the shipowner may take advantage of the provision of a 'right to recourse' to hold the salvor liable for simple negligence. Furthermore, the salvor may take advantage of the statutory right to limit the liability under the LLMC. But the limitation of liability is also criticized in the economic literature. Ideally, in accordance with the Coase theorem, the better approach would be to leave the salvor's liability exposure to the contract, i.e., the salvor and the salvee determine the extent to which the salvor is liable for third party claims for environmental damage in the contract. In current salvage practice this would mean, for example, the choice between a 'best endeavors' LOF contract and a 'due care' daily-hire contract. The extent to which the salvor would be liable for third-party damages would of course be reflected in the price. Currently, the channelling provision does not provide immunity for a salvor even for simple negligence and the problem of public intervention causes further uncertainties concerning the liability risk for the salvor. As such, the use of 'responder immunity' might be introduced to the international ship-source pollution compensation regime to grant the salvor a partial immunity from third-party claims.

⁹³³ Wittman (n 876).

⁹³⁴ De Mot and Faure (n 867).

⁹³⁵ Faure and Wang (n 33).

In sum, the efficient solution should be a combination of ‘carrots’ (as proposed in Chapter 5) and ‘sticks’ (liability rules as examined in Chapter 6) in line with the predictions made by Levmore,⁹³⁶ and the stick should not be so big that it will scare the salvor off. (see Chapter 6, Paragraph 6.3)

7.2 Limitations of This Research and Suggestions for Further Research

7.2.1 Limitations of This Research

Firstly, the salvage law and practice has mostly developed in the Admiralty jurisdiction of the UK and in the Lloyd’s Salvage Arbitration. It has also developed in other jurisdictions such as the United States but these principles and rules are rather similar due to the common roots in common law. As such, this research does not employ a comparative analysis of law but only mentions the different approaches to certain problems. Secondly, based on the identified research gap, this dissertation does not go into every detail in the judgements of each case, but rather sketches out the main principles and rules to firstly identify the problems and then to provide the foundations for an economic analysis to find a way out. Thirdly, as this dissertation argues that the nature of services rendered in environmental salvage is that of an *ex post* environmental emergency response, one may argue that this would entitle the salvor a right to claim compensation for ‘preventive measures’ against the IOPC Fund. In current IOPC Fund practice it might not be possible to pass the purpose test, especially when there is a salvage contract and even if it passed the test, the incentivization would be limited.⁹³⁷ Fourthly, the cited industry reports and answers to the CMI questionnaires to national maritime law associations provide solid empirical evidence that the incentives provided for salvors’ environmental emergency responses in maritime accidents are not adequate. As such this research chooses to take advantage of these results without repeating the empirical research work, which would require a tremendous amount of resources. However, interviews with various salvage practitioners in London were conducted to understand the current practice.

7.2.2 Suggestions for Further Research

The reform proposals in this dissertation are somewhat theoretical and abstract, therefore, some possibilities for further research might be: (i) To develop detailed guidelines and standards (see Chapter 5, Paragraph 5.4.4.1) fixing the required salvor’s skill and effort in various scenarios and the price to be paid accordingly. It is not the purpose of an academic work like a PhD thesis to develop those guidelines in detail. That is, rather, the task of the practitioners, in other words the commercial parties involved who can base those guidelines on their many years of experience with salvage. Furthermore, the lack of precedents due to the use of Lloyd’s salvage arbitration in the past century adds further complexity to this task. (ii) To carry out research on

⁹³⁶ Levmore (n 696); Faure and Wang (n 33).

⁹³⁷ Faure and Yu (n 32) 150–152; De La Rue and Anderson (n 35) 648–651.

the implications and implementation of the proposed reform proposals as regards the current IMO conventions. This task should of course only be done if there is a possibility of law reform.

(iii) Addressing issues of place of refuge. It is a coastal state's right under international law to protect its coastline from pollution and as such the public authority may refuse to grant a place of refuge for a vessel in danger. However, according to economic analysis, it seems only logical to test the possibility of attributing liability as an incentive for public authorities as they also have an impact on the risk of accidents. Thus, it would be worthwhile to conduct further research into the attribution of liability to public authorities.⁹³⁸

iv) The Wreck Removal Convention entitles a member state to take measures to remove wrecks that are located not only in internal waters and their territorial sea but also in their exclusive economic zones, on the condition that those wrecks constitute a danger to navigation or to the marine environment. In salvage practice, it is possible for a public authority to engage with a professional salvor (demand environmental emergency response) and then let the shipowner pick up the bills *ex post*. The Wreck Removal Convention would provide legitimate rights to follow this practice. Therefore, it would also be fascinating to examine the legitimacy and efficiency of that practice.

⁹³⁸ See, Faure and Yu (n 728).

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Appendix A – LOF 2020

LOF 2020



LLOYD'S STANDARD FORM OF SALVAGE AGREEMENT

(Approved and Published by the Council of Lloyd's)

NO CURE - NO PAY

<p>1. Name of the salvage Contractors:</p> <p>(referred to in this agreement as "the Contractors")</p>	<p>2. Property to be salvaged:</p> <p>The vessel:</p> <p>her cargo freight bunkers stores and any other property thereon but excluding the personal effects or baggage of passengers master or crew</p> <p>(referred to in this agreement as "the property")</p>
<p>3. Agreed place of safety:</p>	<p>4. Agreed currency of any arbitral award and security (if other than United States dollars)</p>
<p>5. Date of this agreement</p>	<p>6. Place of agreement</p>
<p>7. Is the Scopic Clause incorporated into this agreement? State alternative: Yes/No</p>	
<p>8. Person signing for and on behalf of the Contractors</p> <p>Signature:</p>	<p>9. Captain</p> <p>or other person signing for and on behalf of the property</p> <p>Signature:</p>

A Contractors' basic obligation: The Contractors identified in Box 1 hereby agree to use their best endeavours to salvage the property specified in Box 2 and to take the property to the place stated in Box 3 or to such other place as may hereafter be agreed. If no place is inserted in Box 3 and in the absence of any subsequent agreement as to the place where the property is to be taken the Contractors shall take the property to a place of safety.

B Environmental protection: While performing the salvage services the Contractors shall also use their best endeavours to prevent or minimise damage to the environment.

C Scopic Clause: Unless the word "No" in Box 7 has been deleted this agreement shall be deemed to have been made on the basis that the Scopic Clause is not incorporated and forms no part of this agreement. If the word "No" is deleted in Box 7 this shall not of itself be construed as a notice invoking the Scopic Clause within the meaning of sub-clause 2 thereof.

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- D Effect of other remedies:** Subject to the provisions of the International Convention on Salvage 1989 as incorporated into English law ("the Convention") relating to special compensation and to the Scopic Clause if incorporated the Contractors services shall be rendered and accepted as salvage services upon the principle of "no cure - no pay" and any salvage remuneration to which the Contractors become entitled shall not be diminished by reason of the exception to the principle of "no cure - no pay" in the form of special compensation or remuneration payable to the Contractors under a Scopic Clause.
- E Prior services:** Any salvage services rendered by the Contractors to the property before and up to the date of this agreement shall be deemed to be covered by this agreement.
- F Duties of property owners:** Each of the owners of the property shall cooperate fully with the Contractors. In particular:
- (i) the Contractors may make reasonable use of the vessel's machinery gear and equipment free of expense provided that the Contractors shall not unnecessarily damage abandon or sacrifice any property on board;
 - (ii) the Contractors shall be entitled to all such information as they may reasonably require relating to the vessel or the remainder of the property provided such information is relevant to the performance of the services and is capable of being provided without undue difficulty or delay;
 - (iii) the owners of the property shall co-operate fully with the Contractors in obtaining entry to the place of safety stated in Box 3 or agreed or determined in accordance with Clause A.
- G Rights of termination:** When there is no longer any reasonable prospect of a useful result leading to a salvage reward in accordance with Convention Articles 12 and/or 13 either the owners of the vessel or the Contractors shall be entitled to terminate the services hereunder by giving reasonable prior written notice to the other.
- H Deemed performance:** The Contractors' services shall be deemed to have been performed when the property is in a safe condition in the place of safety stated in Box 3 or agreed or determined in accordance with clause A. For the purpose of this provision the property shall be regarded as being in safe condition even though that property (or part thereof) is damaged or in need of maintenance provided that (i) the Contractors are not obliged to remain in attendance to satisfy the requirements of any port or harbour authority, governmental agency or similar authority and (ii) the continuation of skilled salvage services from the Contractors or other salvors is no longer necessary to avoid the property becoming lost or significantly further damaged or delayed.
- I Arbitration and the LSA Clauses:** The Contractors' remuneration and/or special compensation shall be determined by arbitration in London in the manner prescribed by Lloyd's Salvage Arbitration Clauses ("the LSAC") in force at the date of this agreement. The provisions of the said LSAC are deemed to be incorporated in this agreement and form an integral part hereof. Any other difference arising out of this agreement or the operations hereunder shall be referred to arbitration in the same way.
- J Governing law:** This agreement and any arbitration hereunder shall be governed by English law.
- K Scope of authority:** The Master or other person signing this agreement on behalf of the property identified in Box 2 enters into this agreement as agent for the respective owners thereof and binds each (but not the one for the other or himself personally) to the due performance thereof.
- L Inducements prohibited:** No person signing this agreement or any party on whose behalf it is signed shall at any time or in any manner whatsoever offer provide make give or promise to provide or demand or take any form of inducement for entering into this agreement.

IMPORTANT NOTICES

- 1 Salvage security.** As soon as possible the owners of the vessel should notify the owners of other property on board that this agreement has been made. If the Contractors are successful the owners of such property should note that it will become necessary to provide the Contractors with salvage security promptly in accordance with Clause 4 of the LSAC referred to in Clause I. The provision of General Average security does not relieve the salvaged interests of their separate obligation to provide salvage security to the Contractors.
- 2 Incorporated provisions.** Copies of the applicable Scopic Clause and LSAC in force at the date of this agreement may be obtained from (i) the Contractors or (ii) the Salvage Arbitration Branch at Lloyd's, One Lime Street, London EC3M 7HA.
- 3 Awards.** The Council of Lloyd's is entitled to make available the Award, Appeal Award and Reasons on www.lloydsagency.com (the website) subject to the conditions set out in Clause 13 of the LSAC.
- 4 Notification to Lloyd's.** The Contractors shall within 14 days of their engagement to render services under this Agreement notify the Council of Lloyd's of their engagement and forward the signed agreement or a true copy thereof to the Council as soon as possible. A copy of any other agreement that amends or varies the provisions or terms of this Agreement must also be provided to the Council as soon as possible. The Council will not charge for such notification.

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15.1.08 3.12.24 13.10.26 12.4.50 10.6.53 20.12.67 23.2.72
 21.5.80 5.9.90 1.1.95 1.9.2000 6.5.2011 1.1.2020

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Appendix B – SCOPIC 2020

SCOPIC 2020

SCOPIC CLAUSE

1. General

This SCOPIC clause is supplementary to any Lloyd's Form Salvage Agreement "No Cure - No Pay" ("Main Agreement") which incorporates the provisions of Article 14 of the International Convention on Salvage 1989 ("Article 14"). The definitions in the Main Agreement are incorporated into this SCOPIC clause. If the SCOPIC clause is inconsistent with any provisions of the Main Agreement or inconsistent with the law applicable hereto, the SCOPIC clause, once invoked under sub-clause 2 hereof, shall override such other provisions to the extent necessary to give business efficacy to the agreement. Subject to the provisions of sub-clause 4 hereof, the method of assessing Special Compensation under Convention Article 14(1) to 14(4) inclusive shall be substituted by the method of assessment set out hereinafter. If this SCOPIC clause has been incorporated into the Main Agreement the Contractor may make no claim pursuant to Article 14 except in the circumstances described in sub-clause 4 hereof. For the purposes of liens and time limits the services hereunder will be treated in the same manner as salvage.

2. Invoking the SCOPIC Clause

The Contractor shall have the option to invoke by written notice to the owners of the vessel the SCOPIC clause set out hereafter at any time of his choosing regardless of the circumstances and, in particular, regardless of whether or not there is a "threat of damage to the environment". The assessment of SCOPIC remuneration shall commence from the time the written notice is given to the owners of the vessel and services rendered before the said written notice shall not be remunerated under this SCOPIC clause at all but in accordance with Convention Article 13 as incorporated into the Main Agreement ("Article 13").

3. Security for SCOPIC Remuneration

- (i) The owners of the vessel shall provide to the Contractor within 2 working days (excluding Saturdays and Sundays and holidays usually observed at Lloyd's) after receiving written notice from the contractor invoking the SCOPIC clause, a bank guarantee or P&I Club letter (hereinafter called "the Initial Security") in a form reasonably satisfactory to the Contractor providing security for his claim for SCOPIC remuneration in the sum of US\$3 million, inclusive of interest and costs.
- (ii) If, at any time after the provision of the Initial Security the owners of the vessel reasonably assess the SCOPIC remuneration plus interest and costs due hereunder to be less than the security in place, the owners of the vessel shall be entitled to require the Contractor to reduce the security to a reasonable sum and the Contractor shall be obliged to do so once a reasonable sum has been agreed.
- (iii) If at any time after the provision of the Initial Security the Contractor reasonably assesses the SCOPIC remuneration plus interest and costs due hereunder to be greater than the security in place, the Contractor shall be entitled to require the owners of the vessel to increase the security (hereinafter called "the Increased Security") to a reasonable sum and the owners of the vessel shall be obliged to do so once a reasonable sum has been agreed.
- (iv) In the absence of agreement, any dispute concerning the proposed Guarantor, the form of the security or the amount of any reduction or increase in the security in place shall be resolved by the Arbitrator.

4. Withdrawal and Termination by the Contractor

- (i) If the owners of the vessel do not provide the Initial Security within the said 2 working days, the Contractor, at his option, and on giving notice to the owners of the vessel, shall be entitled to withdraw from all the provisions of the SCOPIC clause and revert to his rights under the Main Agreement including Article 14 which shall apply as if the SCOPIC clause had not existed. PROVIDED THAT this right of withdrawal may only be exercised if, at the time of giving the said notice of withdrawal the owners of the vessel have still not provided the Initial Security or any alternative security which the owners of the vessel and the Contractor may agree will be sufficient.
- (ii) If the owners of the vessel do not provide the Increased Security within 2 working days of the date upon which the reasonable sum for such Increased Security has been agreed between the Contractor and the owners of the vessel or has otherwise been determined by the Arbitrator, the Contractor, at his option, and on giving notice to the owners of the vessel, shall be entitled to terminate the services under both the SCOPIC clause and the Main Agreement. The Contractor will in that event be entitled to payment of all SCOPIC remuneration due up to and including the date of such termination. The assessment of SCOPIC remuneration shall take into account all monies due under the tariff rates set out in Appendix A hereof including a reasonable time for demobilisation after the date of such termination.

5. Tariff Rates

- (i) SCOPIC remuneration shall mean the total of the tariff rates of personnel; tugs and other craft; portable salvage equipment; out of pocket expenses; and bonus due.
- (ii) SCOPIC remuneration in respect of all personnel; tugs and other craft; and portable salvage equipment shall be assessed on a time and materials basis in accordance with the Tariff set out in Appendix "A". This tariff will apply until reviewed and amended by the SCOPIC Committee in accordance with Appendix B(1)(b). The tariff rates which will be used to calculate SCOPIC remuneration are those in force at the time the salvage services take place.
- (iii) "Out of pocket" expenses shall mean all those monies reasonably paid by or for and on behalf of the Contractor to any third party and in particular includes the hire of men, tugs, other craft and equipment used and other expenses reasonably necessary for the operation. They will be agreed at cost, PROVIDED THAT:
 - (a) If the expenses relate to the hire of men, tugs, other craft and equipment from another ISU member or their affiliate(s), the amount due will be calculated on the tariff rates set out in Appendix "A" regardless of the actual cost.
 - (b) If men, tugs, other craft and equipment are hired from any party who is not an ISU member and the hire rate is greater than the tariff rates referred to in Appendix "A" the actual cost will be allowed in full, subject to the Special Casualty Representative ("SCR") being satisfied that in the particular circumstances of the case, it was reasonable for the Contractor to hire such items at that cost. If an SCR is not appointed or if there is a dispute, then the Arbitrator shall decide whether the expense was reasonable in all in the circumstances.
 - (c) Any out of pocket expense incurred during the course of the service in a currency other than US dollars shall for the purpose of the SCOPIC clause be converted to US dollars at the rate prevailing at the termination of the services.
- (iv) In addition to the rates set out above and any out of pocket expenses, the Contractor shall be entitled to a standard bonus of 25% of those rates except that if the out of pocket expenses described in sub-paragraph 5(iii)(b) exceed the applicable tariff rates in Appendix "A" the Contractor shall be entitled to a bonus such that he shall receive in total
 - (a) The actual cost of such men, tugs, other craft and equipment plus 10% of the cost, or
 - (b) The tariff rate for such men, tugs, other craft and equipment plus 25% of the tariff rate whichever is the greater.

1.8.1999
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- 6. Article 13 Award**
- (i) The salvage services under the Main Agreement shall continue to be assessed in accordance with Article 13, even if the Contractor has invoked the SCOPIC clause. SCOPIC remuneration as assessed under sub-clause 5 above will be payable only by the owners of the vessel and only to the extent that it exceeds the total Article 13 Award (or, if none, any potential Article 13 Award) payable by all salvaged interests (including cargo, bunkers, lubricating oil and stores) before currency adjustment and before interest and costs even if the Article 13 Award or any part of it is not recovered.
 - (ii) In the event of the Article 13 Award or settlement being in a currency other than United States dollars it shall, for the purposes of the SCOPIC clause, be exchanged at the rate of exchange prevailing at the termination of the services under the Main Agreement.
 - (iii) The salvage Award under Article 13 shall not be diminished by reason of the exception to the principle of "No Cure - No Pay" in the form of SCOPIC remuneration.
- 7. Discount**
- If the SCOPIC clause is invoked under sub-clause 2 hereof and the Article 13 Award or settlement (before currency adjustment and before interest and costs) under the Main Agreement is greater than the assessed SCOPIC remuneration then, notwithstanding the actual date on which the SCOPIC remuneration provisions were invoked, the said Article 13 Award or settlement shall be discounted by 25% of the difference between the said Article 13 Award or settlement and the amount of SCOPIC remuneration that would have been assessed had the SCOPIC remuneration provisions been invoked on the first day of the services.
- 8. Payment of SCOPIC Remuneration**
- (i) The date for payment of any SCOPIC remuneration which may be due hereunder will vary according to the circumstances.
 - (a) If there is no potential salvage award within the meaning of Article 13 as incorporated into the Main Agreement then, subject to Appendix B(5)(c)(iv), the undisputed amount of SCOPIC remuneration due hereunder will be paid by the owners of the vessel within 1 month of the presentation of the claim. Interest on sums due will accrue from the date of termination of the services until the date of payment at the US prime rate plus 1%.
 - (b) If there is a claim for an Article 13 salvage award as well as a claim for SCOPIC remuneration, subject to Appendix B(5)(c)(iv), 75% of the amount by which the assessed SCOPIC remuneration exceeds the total Article 13 security demanded from ship and cargo will be paid by the owners of the vessel within 1 month and any undisputed balance paid when the Article 13 salvage award has been assessed and falls due. Interest will accrue from the date of termination of the services until the date of payment at the US prime rate plus 1%.
 - (ii) The Contractor hereby agrees to give an indemnity in a form acceptable to the owners of the vessel in respect of any overpayment in the event that the SCOPIC remuneration due ultimately proves to be less than the sum paid on account.
- 9. Termination**
- (i) The owners of the vessel may at any time terminate the obligation to pay SCOPIC remuneration after the SCOPIC clause has been invoked under sub-clause 2 hereof provided that the Contractor shall be entitled to at least 5 clear days' notice of such termination. In the event of such termination the assessment of SCOPIC remuneration shall take into account all monies due under the tariff rates set out in Appendix A hereof including time for demobilisation to the extent that such time did reasonably exceed the 5 days' notice of termination.
 - (ii) The termination provisions contained in Clause 4(ii) and sub-clause 9(i) above shall only apply if the Contractor is not prevented from demobilising his equipment by Government, Local or Port Authorities or any other officially recognised body having jurisdiction over the area where the services are being rendered.
- 10. Duties of Contractor**
- The duties and liabilities of the Contractor shall remain the same as under the Main Agreement, namely to use his best endeavours to save the vessel and property thereon and in so doing to prevent or minimise damage to the environment.
- 11. Article 18 – 1989 Salvage Convention**
- The Contractor may be deprived of the whole or part of the payment due under the SCOPIC clause to the extent that the salvage operations thereunder have become necessary or more difficult or more prolonged or the salvaged fund has been reduced or extinguished because of fault or neglect on its part or if the Contractor has been guilty of fraud or other dishonest conduct.
- 12. Special Casualty Representative ("SCR")**
- Once this SCOPIC clause has been invoked in accordance with sub-clause 2 hereof the owners of the vessel may at their sole option appoint an SCR to attend the salvage operation in accordance with the terms and conditions set out in Appendix B. Any SCR so appointed shall not be called upon by any of the parties hereto to give evidence relating to non-salvage issues.
- 13. Special Representatives**
- At any time after the SCOPIC clause has been invoked the Hull and Machinery underwriter (or, if more than one, the lead underwriter) and one owner or underwriter of all or part of any cargo on board the vessel may each appoint one special representative (hereinafter called respectively the "Special Hull Representative" and the "Special Cargo Representative" and collectively called the "Special Representatives") at the sole expense of the appointor to attend the casualty to observe and report upon the salvage operation on the terms and conditions set out in Appendix C hereof. Such Special Representatives shall be technical men and not practising lawyers.
- 14. Pollution Prevention**
- The assessment of SCOPIC remuneration shall include the prevention of pollution as well as the removal of pollution in the immediate vicinity of the vessel insofar as this is necessary for the proper execution of the salvage but not otherwise.
- 15. General Average**
- SCOPIC remuneration shall not be a General Average expense to the extent that it exceeds the Article 13 Award; any liability to pay such SCOPIC remuneration shall be that of the Shipowner alone and no claim whether direct, indirect, by way of indemnity or recourse or otherwise relating to SCOPIC remuneration in excess of the Article 13 Award shall be made in General Average or under the vessel's Hull and Machinery Policy by the owners of the vessel.
- 16.** Any dispute arising out of this SCOPIC clause or the operations thereunder shall be referred to Arbitration as provided for under the Main Agreement.

Classification: Confidential

Appendix C – The Salvage Convention 1989 (Selected Provisions)

INTERNATIONAL CONVENTION ON SALVAGE, 1989

THE STATES PARTIES TO THE PRESENT CONVENTION,

RECOGNIZING the desirability of determining by agreement uniform international rules regarding salvage operations,

NOTING that substantial developments, in particular the increased concern for the protection of the environment, have demonstrated the need to review the international rules presently contained in the Convention for the Unification of Certain Rules of Law relating to Assistance and Salvage at Sea, done at Brussels, 23 September 1910,

CONSCIOUS of the major contribution which efficient and timely salvage operations can make to the safety of vessels and other property in danger and to the protection of the environment,

CONVINCED of the need to ensure that adequate incentives are available to persons who undertake salvage operations in respect of vessels and other property in danger,

HAVE AGREED as follows:

Chapter I - General provisions

Article 1

Definitions

For the purpose of this Convention:

- (a) Salvage operation means any act or activity undertaken to assist a vessel or any other property in danger in navigable waters or in any other waters whatsoever.
- (b) Vessel means any ship or craft, or any structure capable of navigation.
- (c) Property means any property not permanently and intentionally attached to the shoreline and includes freight at risk.
- (d) Damage to the environment means substantial physical damage to human health or to marine life or resources in coastal or inland waters or areas adjacent thereto, caused by pollution, contamination, fire, explosion or similar major incidents.
- (e) Payment means any reward, remuneration or compensation due under this Convention.
- (f) Organization means the International Maritime Organization.
- (g) Secretary-General means the Secretary-General of the Organization.

Article 2

Application of the Convention

This Convention shall apply whenever judicial or arbitral proceedings relating to matters dealt with in this Convention are brought in a State Party.

[...]

Chapter III - Rights of salvors

Article 12

Conditions for reward

- 1 Salvage operations which have had a useful result give right to a reward.
- 2 Except as otherwise provided, no payment is due under this Convention if the salvage operations have had no useful result.
- 3 This chapter shall apply, notwithstanding that the salvaged vessel and the vessel undertaking the salvage operations belong to the same owner.

Article 13

Criteria for fixing the reward

- 1 The reward shall be fixed with a view to encouraging salvage operations, taking into account the following criteria without regard to the order in which they are presented below:
 - (a) the salved value of the vessel and other property;
 - (b) the skill and efforts of the salvors in preventing or minimizing damage to the environment;
 - (c) the measure of success obtained by the salvor;
 - (d) the nature and degree of the danger;
 - (e) the skill and efforts of the salvors in salvaging the vessel, other property and life;
 - (f) the time used and expenses and losses incurred by the salvors;
 - (g) the risk of liability and other risks run by the salvors or their equipment;
 - (h) the promptness of the services rendered;
 - (i) the availability and use of vessels or other equipment intended for salvage operations;
 - (j) the state of readiness and efficiency of the salvor's equipment and the value thereof.

- 2 Payment of a reward fixed according to paragraph 1 shall be made by all of the vessel and other property interests in proportion to their respective salved values. However, a State Party may in its national law provide that the payment of a reward has to be made by one of these interests, subject to a right of recourse of this interest against the other interests for their respective shares. Nothing in this article shall prevent any right of defence.

- 3 The rewards, exclusive of any interest and recoverable legal costs that may be payable thereon, shall not exceed the salvaged value of the vessel and other property.

Article 14

Special compensation

- 1 If the salvor has carried out salvage operations in respect of a vessel which by itself or its cargo threatened damage to the environment and has failed to earn a reward under article 13 at least equivalent to the special compensation assessable in accordance with this article, he shall be entitled to special compensation from the owner of that vessel equivalent to his expenses as herein defined.
- 2 If, in the circumstances set out in paragraph 1, the salvor by his salvage operations has prevented or minimized damage to the environment, the special compensation payable by the owner to the salvor under paragraph 1 may be increased up to a maximum of 30% of the expenses incurred by the salvor. However, the tribunal, if it deems it fair and just to do so and bearing in mind the relevant criteria set out in article 13, paragraph 1, may increase such special compensation further, but in no event shall the total increase be more than 100% of the expenses incurred by the salvor.
- 3 Salvor's expenses for the purpose of paragraphs 1 and 2 means the out-of-pocket expenses reasonably incurred by the salvor in the salvage operation and a fair rate for equipment and personnel actually and reasonably used in the salvage operation, taking into consideration the criteria set out in article 13, paragraph 1(h), (i) and (j).
- 4 The total special compensation under this article shall be paid only if and to the extent that such compensation is greater than any reward recoverable by the salvor under article 13.
- 5 If the salvor has been negligent and has thereby failed to prevent or minimize damage to the environment, he may be deprived of the whole or part of any special compensation due under this article.

- 6 Nothing in this article shall affect any right of recourse on the part of the owner of the vessel.

[...]

Summary

Marine salvors' services to distressed vessels at sea are essential to prevent or minimize damage to the property and the environment in maritime accidents. Salvors provide emergency response services with the expectation of receiving rewards under salvage law or the relevant contracts (if there are contracts). The services provided by salvors are socially desirable for the safety of navigation and the protection of the environment. Professional salvors who have the capacity to respond to global maritime casualties work on the traditional 'No Cure–No Pay' basis under the current salvage regime. The advent of ship-source pollution, starting with the *Torrey Canyon* disaster in 1967, has changed salvage significantly. The application of a success requirement for a salvage claim, as embodied by the 'No-Cure–No-Pay' principle, has threatened the existence of the salvage industry. In cases where the distressed vessels and properties on board could easily cause damage to the environment, the salvors are not satisfied with the incentives provided, and find it difficult to collect a reward for their environmental services. Furthermore, they may also be exposed to potential risks and liabilities. Due to the uncertainties in environmental salvage, even a professional salvor could cause (further) harm to third parties through negligent acts while rendering services to prevent harm. Nevertheless, salvors are not immune from legal obligations. The legal risk of liability for negligence on the part of the salvor should not be so high that the salvor is unwilling to provide environmental salvage services. The goal of this research project is to analytically examine this problem and identify a way out for environmental salvage which serves societal needs as regards the protection of the environment from the impacts of maritime casualties.

The phenomenon of environmental salvage has evolved as a departure from the 'No Cure–No Pay' principle. Salvage law and practice was reformed in the 1980s. The most important standard salvage agreement is the LOF, developed by Lloyd's of London; it first introduced a 'safety net' in LOF 80, which paved the way for the Convention law reform, that is, the Article 14 Special Compensation introduced by the Salvage Convention 1989. However, in 1997 the House of Lords ruled in the *Nagasaki Spirit* case that the salvor's expense in Article 14 of the Salvage Convention could not contain an element of profit. Besides, in salvage practice the calculation of Special Compensation turned out to be time-consuming and expensive to operate. As a result, the commercial parties developed the so-called SCOPIC clause as a supplement to an LOF agreement, to replace the Special Compensation provision in Article 14 of the Salvage Convention 1989.

This research project starts by analytically examining the legal regime of salvage and its environmental implications. It firstly sketches out the traditional principles of salvage that are embodied in salvage law and practice, including the Salvage Convention 1989 and the LOF, as well as the challenges of accommodating the need for adequate incentives for salvors'

environmental services. Then it examines the status quo of the solutions to the problem of environmental salvage that have been developed so far in the LOF and the Salvage Convention 1989, which include the payment structure under the Convention (the traditional ‘No Cure–No Pay’ Article 13 reward and the Article 14 Special Compensation) and its deficiencies, as well as the SCOPIC clause, developed as a contractual solution to replace Article 14. Salvage law reform seems to have come to a dead end after the rejection of the International Salvage Union’s proposal of an ‘Environmental Salvage Reward’ in 2012, which aimed to create a separate reward for environmental services in salvage operations. To find a way out for environmental salvage, the law and economics analysis is used to think out of the box and to propose a new mechanism which is composed of contractual and financial structures, utilizing a social-wealth-maximizing perspective.

This research project then goes on to examine negligence on the part of the salvor and its consequences in environmental salvage in light of an economic analysis. The analysis takes into account the triangular relationship of the salvor, the salvee (normally the shipowner) and the third party suffering a loss. Maritime law notions such as the channelling provision and limitation of liability are also taken into account. This piece of research finds that given the uncertainties in determining the levels of care that should be taken by the salvor, as well as the potential chilling and substitution effects, there is a danger that a too-strict liability regime might deter salvors from engaging in environmental salvage. In the legal regimes discussed, the standard of care for a salvor towards third parties is often raised to a higher threshold than simple negligence. A salvor may be entitled to exemption of liability for simple negligence through the responder immunity or the channelling provision. However, the legal uncertainties in the international ship-source pollution compensation regime and the problem of public intervention may still discourage salvors from rendering socially desirable services.

Summary in Dutch (Samenvatting)

Heroverweging van milieuhulpverlening en het hulpverleningsrecht: naar een efficiënt mechanisme voor milieunoodhulp bij maritieme ongevallen?

De diensten van maritieme hulpverleners aan schepen in gevaar op zee zijn essentieel voor de voorkoming en preventie van schade aan zaken en het milieu bij maritieme ongevallen. Hulpverleners verlenen noodhulp met de verwachting dat zij onder het hulpverleningsrecht of een toepasselijk contract (als daarvan sprake is) hulploon krijgen voor hun diensten. Die dienstverlening van hulpverleners is vanuit maatschappelijk perspectief gewenst voor de veiligheid van de scheepvaart en voor de bescherming van het milieu. Professionele hulpverleners die de capaciteit hebben om wereldwijd op te treden bij maritieme ongevallen, werken op basis van het traditionele ‘no cure–no pay’ principe onder het huidige hulpverleningsregime. De opkomst van vervuiling vanuit schepen, die eerst duidelijk werd met de *Torrey Canyon*-ramp in 1967, heeft de hulpverlening ingrijpend veranderd. Het toepassen van een succesvereiste voor het recht op hulploon, zoals belichaamd in het ‘no cure–no pay’-principe, bracht het bestaan van de hulpverleningsindustrie in gevaar. In situaties waarin schepen in gevaar verkeren en zaken aan boord het milieu zouden kunnen verontreinigen, is de stimulans voor hulpverleners niet afdoende en het is complex voor hulpverleners om hun hulploon te incasseren bij hulpverlening ter bescherming van het milieu (milieuhulpverlening). Bovendien kunnen hulpverleners blootgesteld worden aan potentiële risico’s en aansprakelijkheden. Als gevolg van de onzekerheden in de milieuhulpverlening kan zelfs een professionele hulpverlener (verdere) schade aan derden toebrengen door nalatigheid tijdens de hulpverleningswerkzaamheden die juist zijn gericht op het voorkomen van schade. Desondanks zijn hulpverleners niet vrijgesteld van juridische verplichtingen. Het risico op aansprakelijkheid voor nalatigheid van de hulpverlener moet echter niet zo hoog zijn dat de hulpverlener geen hulp meer wil verlenen ten behoeve van het milieu. Het doel van dit onderzoeksproject is om dit probleem analytisch te onderzoeken en een uitweg te identificeren voor milieuhulpverlening de maatschappelijke behoefte dient van het beschermen van het milieu tegen de gevolgen van maritieme ongevallen.

Het fenomeen milieuhulpverlening heeft zich ontwikkeld in afwijking van het ‘no cure–no pay’-principe. Het hulpverleningsrecht en de -praktijk zijn gevormd in de jaren ’80. De belangrijkste standaardovereenkomst is de LOF, ontwikkeld door Lloyd’s of London; het introduceerde als eerste een ‘vangnet’ in de LOF 80, wat de weg vrijmaakte voor de hervorming van het Verdragsrecht, dat wil zeggen de introductie van artikel 14 Bijzondere Vergoeding in het Internationaal Verdrag inzake Hulpverlening 1989 (het Hulpverleningsverdrag 1989). Echter, in 1997 oordeelde het House of Lords in de *Nagasaki Spirit*-zaak dat onder de kosten van hulpverleners onder artikel 14 van het Hulpverleningsverdrag 1989 niet tevens een winst-

element kon vallen. Bovendien bleek de berekening van de bijzondere vergoeding in de hulpverleningspraktijk tijdrovend en kostbaar. Als gevolg daarvan hebben commerciële partijen de zogenoemde SCOPIC-clausule ontwikkeld als aanvulling op een LOF-overeenkomst, ter vervanging van de Bijzondere Vergoeding-bepaling van artikel 14 van het Hulpverleningsverdrag 1989.

Dit onderzoeksproject begint met het analytisch onderzoeken van het wettelijke regime voor hulpverlening en de implicaties daarvan voor het milieu. Het schetst eerst de traditionele hulpverleningsprincipes die zijn belichaamd in het hulpverleningsrecht en de -praktijk, waaronder het Hulpverleningsverdrag 1989 en het LOF. Daarbij wordt ook gekeken naar de uitdagingen bij het tegemoetkomen aan de behoefte aan adequate prikkels voor de milieubeschermingsdiensten van hulpverleners. Vervolgens onderzoekt dit project de status quo van de oplossingen die tot op heden in de LOF en het Hulpverleningsverdrag 1989 zijn ontwikkeld voor het probleem van milieuhulpverlening, waaronder de vergoedingsstructuur onder het Verdrag (de traditionele 'no cure–no pay'-artikel 13-vergoeding en artikel 14 Bijzondere Vergoedingen) en de tekortkomingen daarvan. Daarbij wordt tevens gekeken naar de SCOPIC clausule, ontwikkeld als contractuele oplossing ter vervanging van artikel 14. De hervorming van het hulpverleningsrecht lijkt een dood punt te hebben bereikt na de afwijzing van het voorstel van de *International Salvage Union* voor een milieuhulploon in 2012, dat ten doel had een speciaal hulploon te creëren voor milieubeschermingsdiensten tijdens hulpverleningsoperaties. Om een uitweg te vinden voor milieuhulpverlening is de rechtseconomische analyse gebruikt om out of the box te denken en een nieuw mechanisme voor te stellen dat bestaat uit contractuele en financiële structuren. Daarbij wordt het perspectief gehanteerd dat is gericht op het maximaliseren van de maatschappelijke welvaart.

Dit onderzoeksproject gaat vervolgens verder met het aan de hand van een economische analyse onderzoeken van nalatigheid door de hulpverlener en de gevolgen daarvan bij milieuhulpverlening. De analyse houdt rekening met de driehoeksverhouding van de hulpverlener, de partij aan wie hulp wordt verleend (vaak de scheepseigenaar) en de derde die schade lijdt. Maritiemrechtelijke concepten zoals de kanalisatiebepaling en beperking van aansprakelijk zijn ook in aanmerking genomen. Dit onderzoek stelt vast dat, gegeven de onzekerheden bij het bepalen van de mate van zorgvuldigheid die door de hulpverlener moet worden betracht, evenals de potentiële bevroezings- en substitutie-effecten, het gevaar bestaat dat een te streng aansprakelijkheidsregime de hulpverleners ervan kan weerhouden zich bezig te houden met milieuhulpverlening. In de besproken rechtssystemen is de zorgvuldigheidsmaatstaf voor hulpverleners tegenover derden vaak zwaarder dan eenvoudige nalatigheid. Een hulpverlener kan van aansprakelijkheid voor eenvoudige nalatigheid worden ontheven door een beroep op responderimmunititeit of de kanalisatiebepaling. De juridische onzekerheden in het regime voor hulploon bij internationale milieuverontreiniging vanaf

schepen en het probleem van publieke interventie kunnen hulpverleners echter nog steeds ontmoedigen om de maatschappelijk wenselijke diensten te verlenen.

Impact Statement

1. Scientific and Societal Relevance

Maritime transport is vital to international trade and the global economy, but it is a risky business. Despite the fact that *ex ante* safety regulations are in place, maritime accidents are inevitable due to factors such as perils of the sea. The salvage industry's services are essential to save life, property, and the environment in maritime accidents. But these services require high levels of upfront investment in sophisticated vessels and equipment and for these to be kept in station for emergency responses to maritime casualties. This research project finds that in environmental salvage, the current legal regime of salvage does not provide adequate incentives to the salvors to make such high upfront investments and to provide a cost-effective environmental emergency response. For society, a cost-effective environmental emergency response on the part of the salvor is desirable to *ex post* prevent or minimize environmental harm immediately after maritime accidents which pose a danger to the environment. Otherwise, there will be huge social costs in *ex post* recovery. The global salvage industry's capacity to provide emergency responses not only protects private interests but also the public interest.

This research project's analysis of the phenomenon of environmental salvage shows that firstly, the development of salvage law and practice has been accident-driven, i.e. the reform of salvage law is normally only made after a major maritime casualty causing enormous damage to the environment; secondly, the innovations have mostly come from the market in salvage practice, and the support of commercial parties is a somewhat fundamental condition for the development of the legal regime. However, industrial reports and academic papers have shown that, in the cooperate world where financial risk is a high priority, commercial parties may not see the full picture; they are likely to focus on their own private interests respectively rather than the other private parties' interests or the public interest. This piece of research not only contributes to the academic debates regarding the phenomenon of environmental salvage but also provides a socially desirable cost-effective mechanism for environmental salvage.

One piece of evidence for the high social relevance of environmental salvage, if it needs to be proved at all, is the recent explosion of the ageing oil tanker *Pablo* on 1 May 2023 in Malaysian waters. The *Pablo* accident drew attention to the 'shadow fleet', which is composed of 300–600 ageing tankers that are poorly managed and without insurance. The shadow fleet is used to circumvent sanctions against Russian oil and high insurance costs. Another point is that the transportation of alternative fuels (such as biodiesel, methanol, lignin fuels, and ammonia) as part of the green transition of the shipping industry also imposes a greater risk of maritime accidents. As such, it is highly important to society to provide the salvage industry with adequate incentives to maintain its capacity to provide a cost-effective environmental

emergency response. Contemporary trends in international politics and technological developments also add to the potential risks of environmental harm in maritime accidents.

2. Target Groups and Activities

The target groups of this research project are academics, the shipping industry, and policymakers. Firstly, this research analytically examines the phenomenon of environmental salvage from both a legal- and an economic-analysis perspective. The efficiency perspective brought by the economic analysis provides new insights into academic debates. This study also provides ‘out-of-the-box’ thinking, i.e. a perspective outside the traditional salvage law paradigm that exists in current academic discussions due to the phenomenon of ‘path-dependency’. Secondly, from a private-interest perspective, the shipping industry as a whole has an interest in resolving the issues caused by environmental salvage. Both the demand and supply sides will get benefits if there is a cost-effective mechanism in place for environmental salvage. The shipowners and their insurers benefit from the salvage industry’s services; the salvage industry also benefits from the incentives provided by the mechanism. Therefore, this research could provide insights for the industry. Lastly, from a public-interest perspective, the research findings provide guidance for policymakers to make decisions regarding law reform to further protect the safety of navigation and the environment.

Steps have already been taken to reach out to the target groups. This research has been presented at various conferences and workshops hosted in Oxford, Split, Rennes, etc. During these conferences, academics and lawyers provided their insights. Moreover, interviews were conducted with salvage experts in the industry and experts from relevant international organizations such as the International Maritime Organization and the IOPC Funds. The research findings were communicated to academics and the industry through these events. These findings will be published in academic journals and as a monograph; some of the findings and ideas that have not been included in this thesis will be developed into publications. Furthermore, this thesis has the potential to be developed into a report for law reform and to reach the policymaking stage, if organizations such as Comité Maritime International have the opportunity to make another attempt at law reform on an international level. Due to the fact that the proposed mechanism of environmental salvage represents a new balance of public and private interests, the proposal for law reform could be brought to either the International Maritime Organization (IMO) or the United Nations Commission on International Trade Law (UNCITRAL).

Curriculum Vitae

Haiyang Yu (in Chinese: 于海洋; born on 1 May 1994 in Dalian, China; He/Him), LL.M. (EUR, Rotterdam), LL.B. (ECUPL, Shanghai), is a Ph.D. candidate at the Faculty of Law of Maastricht University, the Netherlands. He is a fellow of the Institute for Transnational Legal Research and a UM PhD representative for the Ius Commune Research School, which is a cooperation among the law schools of Maastricht University, KU Leuven, Utrecht University and the University of Amsterdam. He is involved in organizing the Ius Commune PhD training programme in Maastricht. He was an elected PhD representative during the academic year of 2022 – 2023 at the Faculty and he worked closely with the Graduate School of Law in identifying (potential) problems existed in the PhD community and searching for solutions. Haiyang obtained a LL.M. in Commercial Law (Maritime & Transport Law) degree from Erasmus University Rotterdam in 2017. During his LL.M. studies in Rotterdam, he obtained a certificate for a Marine Insurance Masterclass which was organized jointly by the DUPI Insurance Group and Erasmus University Rotterdam. He was awarded with a LL.B. degree (Jurisprudence, Civil and Commercial Law Orientated) by the East China University of Political Science and Law in Shanghai in 2016. He is a member of both the China Maritime Law Association (CMLA) and Dutch Transport law Association (NVV). He holds the National Legal Profession Qualification of China.

In 2022, Haiyang conducted a research internship at the International Maritime Organization (IMO) in London, the United Nations specialised agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships. He is a founding board member of the Stichting China-Europe Commercial Collaboration Association (CECCA Foundation, NL) and the head of the maritime law team of CECCA London. Haiyang is the Executive Editor of the *Journal of Transnational and Chinese Maritime Law* (ISSN 2634-4777). He organizes conferences and seminars for CECCA, such as The Salvage of the Vessel Ever Given in the Suez Canal (19 May 2021). He has been invited to present his research at various academic conferences, such as the International Law Workshop in Honour of Professor Catherine Redgwell (Oxford, UK, June 2023), the International Scientific Conference on Maritime Law (Split, Croatia, April 2023), German Law & Economics Association Annual Conference 2022 (Nancy, France, July 2022) and the Transport Law De Lege Ferenda (Dubrovnik, Croatia, September 2022&2023).

List of Publications

Journal Articles

- ‘Is Environmental Salvage an Oxymoron? A Law and Economics Analysis’ (2023) 52 *Journal of Maritime Law and Commerce* 2, 131 (Joint paper with Michael Faure)

- ‘Salvage Claim and Quantum Meruit in English Law’ (2021) 5 Journal of Transnational and Chinese Maritime Law 1
- ‘Chinese Approach to Crew Member’s Criminal Liability and Jurisdiction of Maritime Courts’ (2018) 8 CECCA Newsletter 9

Book Chapters

- ‘Regulation of Marine Plastics Litter: IMO Efforts to Resolve The Crisis’ in Mukherjee P.K. (ed.), *Maritime Law Perspective: Old and New* (Nova Science Publishers 2023) Vol.1, Chapter 14, DOI: <https://doi.org/10.52305/PDGJ6204>
- ‘Shipowner’s Implied Obligation in a Charterparty Relating to Lien on Cargo: English and Chinese Law Perspectives’, in Mukherjee P.K., Maximo Q. Mejia, Jr., Xu J. (Eds.), *Maritime Law in Motion* (Springer 2020), 311 (WMU Stud. Maritime Affairs Vol.8; Joint paper with Shengnan Jia), DOI: https://doi.org/10.1007/978-3-030-31749-2_15
- ‘Developments of English Law on “Insurable Interest” in Marine Insurance and Related Suggestions on Revision The Chines Maritime Code’, *The 9th International Conference on Maritime Law: A Collection of Papers Part I – The Development, Reform and Innovation of the Concept, System and Regime of Maritime Law in the New Era* (Shanghai, China Maritime Law Association and Shanghai Maritime University 2018) 163
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