

Private Standards for the Public Interest? Evidence from Environmental Standardization in China

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Private standards for the public interest? Evidence from environmental standardization in China

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Abstract

This article discusses the extent to which private standardization contributes to environmental governance in China. It starts from the law and economics literature, which sees not only particular advantages in private standardization, more particularly lower administrative costs, technological innovation and flexibility, but also potential disadvantages, such as regulatory capture and under-enforcement. The article then discusses the use of environmental standards in China, with a particular focus on the role of private standards in environmental governance. The article points to the interdependence between private and public standards, as the government encourages private standardization, and public regulation equally incorporates private standards. Finally, the article analyses the benefits of private standardization as they appear in the specific case of China, but also the potential disadvantages and points towards possibilities of using private standards in a differentiated manner, enjoying the benefits and trying to remedy the potential disadvantages.

1 | INTRODUCTION

Standards are an important instrument in environmental policy. Standardization in environmental policy is usually achieved through public regulation, but it may also be possible via private regulation. Private regulation may take advantage of private parties holding superior information (compared with administrative agencies); it may also be more flexible and less costly than the creation of public standards through a public authority. Moreover, if private regulation is created in a collaborative fashion, involving the stakeholders who will have to apply the standards, there may also be better compliance than with public standards imposed by the government.

Private standardization is increasingly playing a role in China, where the government usually takes the lead in environmental governance. Some of the international standards, such as ISO 14001, are used by businesses for market distinction and recognition. Moreover, China adopted a new law of standardization in 2017, and an increasing number of private standards for environmental compliance has been developed in China.

The law and economics literature has warned that while private standards undoubtedly have particular advantages, they also raise

concerns.¹ There is always a danger that private standards would be subject to private interests and would not sufficiently focus on the public interests at which environmental governance aims. The problems with private standardization may vary with the different shapes of private regulation. It is likely that environmental governance can benefit from private standardization if the problems with private regulation can in some way be remedied.

Against this background, the central research question of this article is as follows: To what extent does private standardization contribute to environmental governance in China? This question will be answered using a law and economics framework, because the economic approach to law has paid much attention not only to the potential advantages of private standardization but also to the dangers and has indicated under which conditions private standards may contribute to environmental governance. Section 2 presents a theoretical framework. Section 3 applies this framework to the case study of private environmental standard-setting in China. Section 4 draws some lessons from the Chinese experiences. Section 5 concludes.

¹See Section 2.2.

2 | THEORETICAL FRAMEWORK: THE LAW AND ECONOMICS OF PRIVATE STANDARDIZATION

Environmental standardization is traditionally viewed as part of regulation to remedy market failures such as externalities, imperfect or incomplete information, lack of competition and the under-provision of public goods.² Standard-setting concerns not only the making but also the enforcement of standards and can be seen as a process of weighing (transaction) costs against benefits.

Environmental standards in this article refer mainly to ex ante standards, which can be set by public authorities such as legislatures and governments or by private parties such as individual firms, professional associations or environmental nongovernmental organizations (NGOs).

The enforcement of standards relies on various legal and policy instruments, which are often classified into the command-and-control rules of private law, market-oriented instruments and persuasive instruments. The instruments may differ in terms of costs and effects on collective or individual activities at all levels.³

2.1 | The costs of environmental standardization

Environmental standardization needs to choose between different types of standards, that is, target, performance and specification standards. The three types of standards differ in terms of administrative costs and the levels of government intervention.⁴ The law and economics literature defines administrative costs as the costs of the functioning of the legal system, such as the cost of filing a lawsuit and forcing a defendant to pay compensation to a plaintiff or 'out of pocket and opportunity costs of negotiating, drafting and enforcing contracts'.⁵ For the purposes of this article, administrative costs of standardization include the costs of formulating and enforcing the standards.

A target standard often requires the reduction of a specific concentration of substances controlled in the environment.⁶ Target standards seem to be the most cost-effective when the causation of harm is complex or the harm is spreading over a large number of victims.⁷ However, target standards are not precisely made for individual performance, and it can be very costly for firms to determine how they should perform to meet the targets.

²Al Ogus, *Regulation: Legal Form and Economic Theory* (Oxford University Press 1994) 17–25.

³See, e.g., I Ayres and J Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (Oxford University Press 1992); MG Faure, 'The Complementary Roles of Liability, Regulation, and Insurance in Safety Management: Theory and Practice' (2014) 17 *Journal of Risk Research* 689; S Shavell, 'Corrective Taxation versus Liability as a Solution to the Problem of Harmful Externalities' (2011) 54 *Journal of Law and Economics* S249; S Shavell, 'A Fundamental Enforcement Cost Advantage of the Negligence Rule over Regulation' (2012) 42 *Journal of Legal Studies* 275.

⁴Ogus (n 2) 151.

⁵G Calabresi, *The Costs of Accidents: A Legal and Economic Analysis* (Yale University Press 1970) 15–16; H Butler, C Drahozal and J Shepherd, *Economic Analysis for Lawyers* (3rd edn, Carolina Academic Press 2014) 231.

⁶Ogus (n 2) 151, 166.

⁷ibid 166.

Performance standards are likely to solve the problem by determining the care or activity levels for individual emitters, but performance standards could be costly to formulate compared with target standards. In public regulation, performance standards often work with permits or on-site monitoring, making the proof of causation much easier.⁸

Specification standards require or prohibit the use of a specific production method or other inputs.⁹ Specification standards are cheap to formulate with expertise in a specialized area and can provide firms with more certainty in compliance. Nevertheless, specification standards give firms no choice as to how to meet the goal and, hence, may reduce the incentive for green technology innovation.¹⁰ Although specification standards are generally not desirable in environmental governance, a certain degree of specificity may help to induce not only compliance but also better performance than required.¹¹

2.2 | The costs and benefits of private standardization

Standardization refers more generally to a variety of instruments that can be used to solve the problems in environmental governance. Private standards can be a means of private regulation. In particular cases, private regulation can be self-regulation, which means that standards are set by the regulated industry itself. It is also worth noting that private standards are only one possible method of environmental governance. If it appears that the administrative costs of private standardization outweigh the advantages, there are many other legal and policy instruments that could be used as an alternative to private standards.¹²

2.2.1 | Lower administrative costs, flexibility and technological innovation

There are several advantages of private regulation identified in the law and economics literature. Private standardization may have lower administrative costs. In theory, the administrative costs of private standardization are lower than those of public standard-setting for the following reasons. Private parties may have better information than the government agencies that are often not specialized in the particular area.¹³ Given the specialized focus on a particular area, private parties have prior knowledge as a result of which the costs of finding out what optimal standards would be lower than under public standard-setting. Also, the enforcement costs could be lower with private standards as

⁸ibid 170.

⁹ibid 167.

¹⁰ibid 168.

¹¹C Boussalis, Y Feldman and HE Smith, 'Experimental Analysis of the Effect of Standards on Compliance and Performance' (2018) 12 *Regulation and Governance* 277.

¹²N Gunningham, PN Grabosky and D Sinclair, *Smart Regulation: Designing Environmental Policy* (Oxford University Press 1988).

¹³Al Ogus, 'Self-Regulation' in B Bouckaert and G De Geest (eds), *Encyclopedia of Law and Economics*, Vol. IX (Edward Elgar 2000) 591.

private parties may know where there could be particular breaches and can recognize violations more easily given their information advantage.¹⁴ For instance, some local governments in the United States incorporated the LEED (Leadership in Energy and Environmental Design) standards into public regulations for sustainable building.¹⁵ A LEED green building will be certified and overseen by the Green Business Certification Inc. as the global certifying body for all LEED projects.¹⁶ In that case, the private sector may have better information than the government and would thus be able to enforce the private standards at lower costs than through public regulation.

Lastly, a greater incentive for voluntary compliance with private standards than with public standards could make it cheaper to effectively implement private standards. Private parties may have a greater willingness to comply with private standards as the standards are made by the regulated community sharing common interests rather than by a public agency far away.¹⁷ Firms or product manufacturers may pursue private environmental certification to gain a distinct market position.¹⁸ Firms tend to comply with a standard voluntarily if required to do so in the global supply chain. For example, some Chinese companies with global businesses complied with popular international environmental standards such as ISO 14001, LEED¹⁹ and the Forest Stewardship Council (FSC).²⁰ Companies therefore often have incentives to comply with international private standards as it will give them access to (international) markets.

Another advantage of private standardization is flexibility in establishing standards. Private standard-setting does not have to follow the strict due process required by the law.²¹ Compared with public regulation, private standardization is less likely to suffer from the red tape of bureaucracy and could be more quickly adapted to changing circumstances. Potentially, private standards are more responsive than public regulation, especially in areas where there is uncertainty concerning the risks to be regulated.²² Public regulation may not rush to standardize emerging disruptive technologies for which risk-averse or risk-seeking consumers may have different preferences. For instance, autonomous vehicles have the benefits of efficient land use and pipeline emissions reduction.²³ However, the (social) costs and benefits of

those vehicles may vary, depending on the level of smart technologies involved. This reasoning applies not only to disruptive technologies related to the digital age but also to environmental risks, which may in some cases be subject to uncertainty concerning the optimal preventive technologies. These uncertainties may require a high degree of flexibility and adaptability of the standards. In that case, private standardization is able to respond more quickly than public regulation.

The flexibility can also mean that compliance with a private standard is not mandatory. Various private standard-setters have to compete with each other to create standards that best fit the needs of market participants and local circumstances.²⁴ In that respect, private standardization may not significantly limit consumer choices and reduce the diversity of preferences for innovative technologies.²⁵

2.2.2 | Regulatory capture and rent-seeking

Standard-setting thus becomes a regulatory tool to deal with externalities. However, individuals in any group attempting collective action will have incentives to take a free ride on the efforts of others if the group is working to produce public goods.²⁶ Without benefits for individual parties, private standardization is unlikely to occur even when large groups of people are interested in environmental protection. The very complexity of public interest decision making in environmental governance may make standard-setting particularly susceptible to private interest influence.²⁷

Private standardization may be a result of the capturing of the standard-setting entity. In that case, standard-setting may be abused in the interest of the regulated community that dictates the standards.²⁸ This could lead to inefficiently low technical standards, as has been the case with private environmental labelling.²⁹ It is likely that professional associations that create a rating system will offer easy credits to their members. Capturing may also result in inefficiently high standards. In some cases, front-runners in the industry (with informational advantages) may lobby for very high technical standards to create barriers to market entry for competitors.³⁰

The capturing of private standards by the regulated community becomes even more severe if there is no countervailing power against industry lobbying.³¹ The flexibility of private regulation may come at

¹⁴NJ Philipsen, 'The Role of Private Actors in Preventing Work-Related Risks: A Law and Economics Perspective' (2018) 24 *European Public Law* 544; Ogus (n 13) 594–596.

¹⁵SB Schindler, 'Following Industry's LEED: Municipal Adoption of Private Green Building Standards' (2010) 62 *Florida Law Review* 285.

¹⁶US Green Building Council, 'LEED in Motion: China' (31 October 2017) <<https://www.usgbc.org/sites/default/files/leed-in-motion-china.pdf>> 17.

¹⁷Philipsen (n 14) 545.

¹⁸Coldwell Banker Richard Ellis (CBRE), 'Toward Excellence: Market Performance of Green Commercial Buildings in the Greater China Region' (CBRE Research 2016) <https://kapost-files-prod.s3.amazonaws.com/uploads/direct/1467740025-63-7415/China_Report_FINAL.pdf> 3–5.

¹⁹ibid 3; Y Zou, 'Certifying Green Buildings in China: LEED vs. 3-star' (2018) 10 *Journal of Cleaner Production* 208.

²⁰Forest Stewardship Council (FSC), 'FSC Forum with the Yong'an Forestry Group on Forests Management Standard' (1 August 2019) <<https://cn.fsc.org/cn-cn/newsroom/id/222>>; J Zhao et al, 'Current Status and Problems in Certification of Sustainable Forest Management in China' (2011) 48 *Environmental Management* 1086.

²¹C Stefanadis, 'Self-Regulation, Innovation, and the Financial Industry' (2003) 23 *Journal of Regulatory Economics* 5.

²²P Grajzl and P Murrell, 'Allocating Lawmaking Powers: Self-Regulation vs. Government Regulation' (2007) 35 *Journal of Comparative Economics* 520.

²³JM Anderson et al, 'Autonomous Vehicle Technology: A Guide for Policymakers' (RAND Corporation 2016) <https://www.rand.org/pubs/research_reports/RR443-2.html> 5–28.

²⁴R Van den Bergh, 'Farewell Utopia? Why the European Union Should Take the Economics of Federalism Seriously' (2016) 23 *Maastricht Journal of European and Comparative Law* 937; SR Miller, 'Enforcement of Local Green Building Ordinances Integrating Third-Party Rating Systems' (2009) 27 *California Real Property Journal* 57.

²⁵Philipsen (n 14) 545.

²⁶M Olson, *The Logic of Collective Action. Public Goods and the Theory of Groups* (Harvard University Press 1971) 49–51.

²⁷Ogus (n 2) 205.

²⁸Ogus (n 13) 591–592.

²⁹D Kerret and A Tal, 'Greenwash or Green Gain? Predicting the Success and Evaluating the Effectiveness of Environmental Voluntary Agreements' (2006) 14 *Penn State Law Review* 31; Organisation for Economic Co-operation and Development (OECD), *Voluntary Approaches for Environmental Policy: Effectiveness, Efficiency, and Usage in Policy Mixes* (OECD Publishing 2003).

³⁰D Vogel, *Trading up: Consumer and Environmental Regulation in a Global Economy* (Harvard University Press 1997).

³¹Ogus (n 13) 591–592.

the cost of due process, transparency and external oversight.³² There may be a danger of excessive delegation of regulatory power to private parties if public regulation incorporates private standards.³³ However, this is more of a legitimacy problem, which can also be understood from an economic perspective. Lobbying by private interest groups will largely be successful if administrative costs are low for the lobby group and information costs are high for the public at large.³⁴ Lobbying will result in rent-seeking by the interest group.³⁵ This means that the special interest group will get rents by lobbying to the disadvantage of the public at large. It is likely that private actors will set or implement standards against public interest goals in environmental management.³⁶

Moreover, private standardization may induce anti-competitive behaviour, which is more likely to happen when public regulation involves private standardization. In some cases, the use of private standards could amount to an agreement between industries to follow particular standards, thus restricting competition in the market.³⁷ This problem could be avoided if there was sufficient competition between different private standard-setters. However, in many cases, the number of private standard-setters is minimal. Even if there is competition, private standard-setters may not compete with higher (i.e. closer to the optimum) standards but rather with standards that please the regulated community.³⁸ In that case, standards in favour of the regulated community will survive the market, crowding out standards made in the interest of environmental protection.³⁹

2.3 | Solutions to the problems with private standardization

The question arises whether private standardization can play a role in environmental governance, considering the costs and benefits of private regulation. A simple answer is yes, but private standards may only perform this task if particular conditions are met, and they will need the right implementation mechanisms to overcome the problems with private regulation.

The desirability of private standardization should probably be differentiated, depending on the particular risks involved. Whether private standardization can play a role in a particular domain may

depend on the heterogeneity of consumer preferences, the relationship between human capital and quality, the presence of reputational effects and the marginal costs of providing high quality.⁴⁰ This implies that the legitimacy problems with private standardization will not necessarily lead to inefficient standards. For instance, in the case of health risks, such as a food scandal caused by contaminated land or indoor air pollution resulting from toxic building materials, the market and reputational controls can be so strong that corporate actors will themselves strive for the imposition of optimal standards. Private standards are also likely to work when the market players have preferences for environmentally beneficial products. However, private regulators may not adequately consider the total environmental impacts and may not make collective decisions as public regulators can do.

Some problems with private standardization (competition problems and inefficiently low or high standards) could be addressed by specific remedies. Competition problems could, for example, be addressed by using private standardization only when there are more private standard-setters available in the market that compete on quality and where adverse selection can be avoided. The danger of inefficiently low or high standards could be remedied by introducing external oversight such as third-party monitoring⁴¹ and by allowing different interest groups to compete in the standard-setting process, thus providing countervailing power.⁴² Those remedies could increase the likelihood that private standards are also set or implemented in the public interest.

Another way of dealing with the disadvantages of private standardization would be to improve the alternatives (public regulation, private law or market-based instruments). Public regulation may refer to a private environmental certification or standard, meanwhile retaining the power to approve the changing of private standards.⁴³ In this way, public regulation can use industry expertise, and private standards can be supervised and enforced by the authority. Enforced self-regulation works similarly but with personalized standards made by individual firms.⁴⁴ However, enforced self-regulation may incur higher administrative costs for public regulation, as governments have to bargain over personalized standards and oversee compliance in a case-by-case manner.⁴⁵ Moreover, in cases where reputational benefits matter less, public regulation can use financial incentives such as subsidies or tax reductions to induce compliance by private parties. External oversight and compliance can also be achieved by environmental information disclosure or third-party verification,⁴⁶ distinguishing private standardization from pure self-regulation.

³²AC Page, 'Self-Regulation: The Constitutional Dimension' (1986) 49 *Modern Law Review* 152.

³³E Teyber, 'Incorporating Third-Party Green Building Rating Systems into Municipal Building and Zoning Codes' (2014) 31 *Pace Environmental Law Review* 840.

³⁴Olson (n 26) 9–16, 60–66.

³⁵JM Buchanan, 'Rent Seeking and Profit Seeking' in JM Buchanan, RD Tollison and G Tullock (eds), *Toward a Theory of the Rent-Seeking Society* (Texas A&M University Press 1980) 3.

³⁶JFM Koppenjan and B Enserink, 'Public-Private Partnerships in Urban Infrastructures: Reconciling Private Sector Participation and Sustainability' (2009) 69 *Public Administration Review* 284, 285–286.

³⁷S Del Percio, 'Revisiting Allied Tube and Noerr: The Antitrust Implications of Green Building Legislation and Case Law Considerations for Policymakers' (2009) 34 *William and Mary Environmental Law and Policy Review* 239; Ogun (n 13) 591.

³⁸GA Akerlof, 'The Market for Lemons: Quality, Uncertainty and the Market Mechanism' (1970) 84 *Quarterly Journal of Economics* 488.

³⁹Y Li and K Van Veld, 'Green, Greener, Greenest: Eco-Label Gradation and Competition' (2015) 72 *Journal of Environmental Economics and Management* 164.

⁴⁰C Shapiro, 'Premiums for High-Quality Products as Returns to Reputations' (1983) 98 *Quarterly Journal of Economics* 659.

⁴¹E Dufflo et al, 'What Does Reputation Buy? Differentiation in a Market for Third-Party Auditors' (2013) 103 *American Economic Review* 314.

⁴²GS Becker, 'A Theory of Competition among Pressure Groups for Political Influence' (1983) 98 *Quarterly Journal of Economics* 376; DC North, JJ Wallis and BR Weingast, *Violence and Social Orders* (Cambridge University Press 2009) 24–26.

⁴³Miller (n 24); SB Schindler (n 15) 311–312.

⁴⁴Ayres and Braithwaite (n 3) 103.

⁴⁵ibid 120.

⁴⁶H Gerlach, 'Self-Reporting, Investigation, and Evidentiary Standards' (2013) 56 *Journal of Law and Economics* 1061; A Pfaff and CW Sanchirico, 'Big Field, Small Potatoes: An Empirical Assessment of EPA's Self-Audit Policy' (2004) 23 *Journal of Policy Analysis and Management* 415; C Green et al, 'Evaluation of EU ETS Monitoring, Reporting and Verification Administration Costs' (Publications Office of the European Union 2016).

TABLE 1 Environmental standard-setting in China

Category		Publisher	Binding effect	Code
Public	Mandatory national standards	State Council	Mandatory	GB
	Voluntary national standards	Standardization Administration Committee	Voluntary	GB/T
	Sector standards	Ministries or departments of the State Council	Voluntary	HJ/T
	Local standards	Governments at the provincial and municipal level	Voluntary	DB/T
Private	Industry-based standards	Non-profit organizations approved by the State Council ('social organizations'), such as research institutes, professional associations and industry alliances	Voluntary	T

Source: National People's Congress Standing Committee (NPCSC), 'The Standardization Law of the PRC, Order No. 78 of the President of the People's Republic of China' (enacted 29 December 1988, published 1 April 1989, amended 4 November 2017, and came into effect 1 January 2018) <http://www.npc.gov.cn/zgrdw/npc/xinwen/2017-11/04/content_2031446.htm> arts 10–24; SAC and Ministry of Civil Affairs (MCA), 'Regulation for the Administration of Private Standards made by Social Organizations' (published and came into effect 9 January 2019) <<http://images3.mca.gov.cn/www2017/file/201901/1547801421687.pdf>>; State Council (SC), 'Regulation for the Administration of Social Organization Standards' (published 25 October 1998, amended and came into effect 6 February 2016) <http://www.gov.cn/gongbao/content/2016/content_5139379.htm>.

An interesting question which has, to the best of our knowledge, not been developed in the literature yet (and which we will also not discuss in further detail) is what the driving forces are to develop private standards. Again, a public interest perspective could argue that when the economic environment is such that private standards could be developed at lower administrative costs, with greater flexibility and higher innovation, that one could expect them to emerge. The private interest approach might, to the contrary, argue that when the industry would see possibilities of using private standardization as tools of capture and rent-seeking, the creation of private standards could be expected. It would be interesting (as a point for further research) to examine in a dynamic perspective whether that corresponds with the development of private standardization in practice.

3 | PRIVATE STANDARDIZATION FOR THE ENVIRONMENT: THE CASE OF CHINA

3.1 | Environmental standardization in China

The standards used in China differ with respect to enforcement, depending on the issuer of the particular standards (public or private standards). The Standardization Administration Committee (SAC) is responsible for the management, supervision and coordination of standardization in China. By 2020, there were around 6361 public standards for environmental protection and resource use, with mandatory standards accounting for almost half of the existing public environmental standards.⁴⁷

Environmental standards in China can be categorized into ambient standards, emission standards, monitoring standards, baseline standards and management standards.⁴⁸ Ambient standards are target

standards for total environmental quality control. Performance standards include emission standards that require environmental compliance by individual emitters and environmental management standards concerning the operation of an environmental management system and environmental performance assessment.⁴⁹ Specification standards include monitoring standards requiring the use of methods or techniques for measurement, inspections and information disclosure; baseline standards to predetermine the safe level of a particular pollutant affecting human health or the ecosystem; and standards to specify the application of certain abatement technologies.⁵⁰

In principle, the standards as such do not produce any legal effects. Compliance is mandatory if required in public regulation. For instance, emission standards or ambient standards developed by the central government are mandatory, according to the Standardization Law of 2017.⁵¹ Local governments or private parties can only set targets or emission standards more stringent than their central counterparts.⁵²

There has been much discussion on public environmental standards in China. The following sections focus on the role of the private sector in environmental standardization and how the private sector interacts with public regulation. Table 1 summarizes the applicable environmental standards in China. Each of the standards receives a particular code indicating the issuer and the effect of the standard (Table 1). A capital 'T' in the code means that the standards are voluntary. 'GB' implies that the standards are issued by the central government, namely, the State Council (SC), whereas

⁴⁷Standardization Administration Committee (SAC), 'Information Platform for Public Standards by Sector' <<http://hbba.sacinfo.org.cn/stdList>>; State Administration of Market Regulation (SAMR), 'Platform for Social Group Standard Information—Environment, Health, and Safety' <<http://www.ttbz.org.cn/Home/Standard/?CNL1Code=N>>.

⁴⁸Ministry of Ecology and Environment (MEE), 'Regulation of Ecological and Environmental Standards of the PRC' (published 15 December 2020, came into effect 1 January 2021) <http://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202012/t20201218_813921.html> art 4.

⁴⁹MEE, 'The 13th Five-Year-Plan for Environmental Standardization in China' (published and came into effect 19 April 2017) <<http://www.mee.gov.cn/gkml/hbb/bwj/201704/W020170414581772760139.pdf>> Part IV, Section 1.

⁵⁰ibid Part IV, Section 1, art 3; MEE, 'Regulation for the Administration of Baseline Standards for Environmental Factors' (published and came into effect 19 April 2017) <https://www.mee.gov.cn/gkml/hbb/bgg/201704/t20170425_412875.htm> art 4.

⁵¹National People's Congress Standing Committee (NPCSC), 'The Standardization Law of the PRC, Order No. 78 of the President of the People's Republic of China' (enacted 29 December 1988, published 1 April 1989, amended 4 November 2017, and came into effect 1 January 2018) <http://www.npc.gov.cn/zgrdw/npc/xinwen/2017-11/04/content_2031446.htm> art 10.

⁵²MEE, 'Regulation for the Administration of Local Ambient and Emission Standards' (published 28 January 2010, came into effect 1 March 2010) <https://www.mee.gov.cn/gkml/hbb/bl/201002/t20100208_185585.htm> art 8.

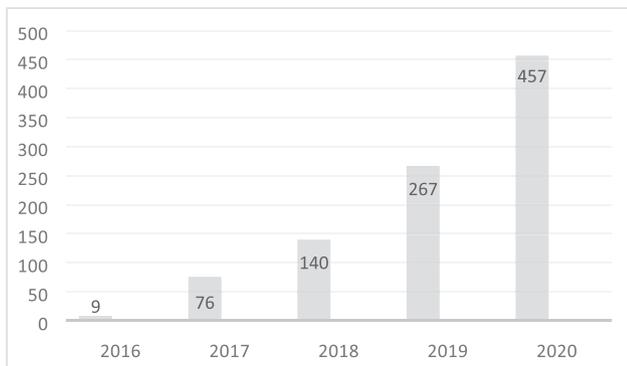


FIGURE 1 Number of industry-based private environmental standards in China.

Source: Data derived from State Administration of Market Regulation (SAMR), 'Platform for Social Group Standard Information—Environment, Health, and Safety' <<http://www.ttbz.org.cn/Home/Standard/?CNL1Code=N>>

standards with the 'HJ' code are those issued by the environmental department within the central government. Standards with the 'DB' code are those issued by local governments.⁵³ Private standards for environmental governance are mostly industry-based standards established by self-regulatory organizations (e.g. professional associations, industry alliances, NGOs and research institutes). There are also standards made by, and applied to, individual firms, namely, enterprise standards. This article mainly focuses on industry-based private standards as they exhibit more regulatory characteristics than standards made by enterprises.

One important point in the context of China is that the distinction between public and private standards may in some cases be blurred, given the overwhelming influence of the government in the Chinese economy. Some could argue that the industries that have developed private environmental standards are in some cases closely related to the government (and may be State-owned enterprises), which to some extent might make the distinction between private and public standards more complicated. However, precisely for that reason, we refer to private standards in the context of China as industry-based standards (of course realizing that the industry can have strong links to the government). The term 'public standard' is then reserved for standards formally issued and enforced by the various governmental levels in China. It is also for that reason that in China's legislation the term 'group standards' is used rather than 'private standards'. However, as the literature we discussed in the theoretical framework (Section 2) rather refers to private standards, we refer to those industry-based standards in China still (in accordance with that literature) as private standards, as the concept of group standards is not known in the literature and would therefore be confusing.

⁵³SAC and SAMR, 'China Standard Text Code', GB/T 23732-2009 (published 6 May 2009, came into effect 1 November 2009) <<http://std.samr.gov.cn/gb/search/gbDetailed?id=71F772D8217CD3A7E05397BE0A0A82A>>.

3.2 | The benefits of private standardization in environmental governance in China

Industry-based standards in China have mushroomed in recent years as private actors were encouraged by the law to set standards more stringent than public ones.⁵⁴ The top five sectors for private environmental standard-setting in China include manufacturing, water management, construction, waste management, and environmental and ecological services. Apart from domestic standards, popular international private standards can be seen in the Chinese market, such as the ISO 14001 standard for the environmental management system, the National Sanitation Foundation International standards for food and drinking water, the LEED standard for buildings⁵⁵ and the FSC standard for wood products (Figures 1 and 2).⁵⁶

3.2.1 | Reduced information costs in making technical standards

Governments may reduce the administrative costs of developing environmental standards, using expertise from the private sector in a specialized area. It is assumed in the law and economics literature that target standard-setting could be the most cost-effective while performance standards are said to be comparatively more costly. In China, governments are responsible for making most of the target standards, that is, standards for total environmental quality control ('ambient standards'). Private standard-setters tend to make specification standards for detailed methods or techniques for measurement and green production.⁵⁷ There are also private performance standards for environmental management in the manufacturing or commercial sector.⁵⁸ Table 2 provides an overview of the types of private standards used in China.

One example could be the manufacturing industry in China taking the lead in developing private environmental standards to implement targets set in China's Green Industrial Development Plan 2016–2020.⁵⁹ The China Association for Standardization (CAS) established a series of standards for green supply chain management for electronic products (T/CAS 311), with a particular interest in extended producer responsibility for hazardous e-waste management throughout the life-cycle of products.⁶⁰ In 2019, T/CAS 311 was incorporated into a public rating system made by the Ministry of Industry and Information Technology (MIIT).⁶¹

⁵⁴NPCSC (n 51) art 18.

⁵⁵CBRE (n 18) 3; Zou (n 19).

⁵⁶FSC (n 20); Zhao et al (n 20).

⁵⁷SAMR, 'National Standards—Standards for the Environment, Health, and Safety', found in 'National Public Service Platform for Standards Information' <<http://std.samr.gov.cn/gb/gbQuery>>.

⁵⁸SAMR, 'China Standardization Report 2019' (11 November 2019) <<http://www.samr.gov.cn/bzcx/sjdt/gzdt/202009/P020200910331877427036.pdf>> 22.

⁵⁹Ministry of Industry and Information of the PRC (MIIT), 'Green Industrial Development Plan 2016–2020' (published 30 June 2016) <<https://www.miit.gov.cn/n1146285/n1146352/n3054355/n3057267/n3057272/c5118197/part/5118220.pdf>>.

⁶⁰China National Institute of Standardization (CNIS), 'Report on Standardization by Social Groups in China 2020' (China Quality and Standards Publishing & Media Co., Ltd. 2020) 97.

⁶¹MIIT, 'Evaluation Standards for Green Supply Chain Management in the Electronics Sector' (published and came into effect 23 November 2018) <<https://www.miit.gov.cn/cms/files/filemanager/oldfile/miit/n1278117/n1648113/c6507721/part/6507729.pdf>>.

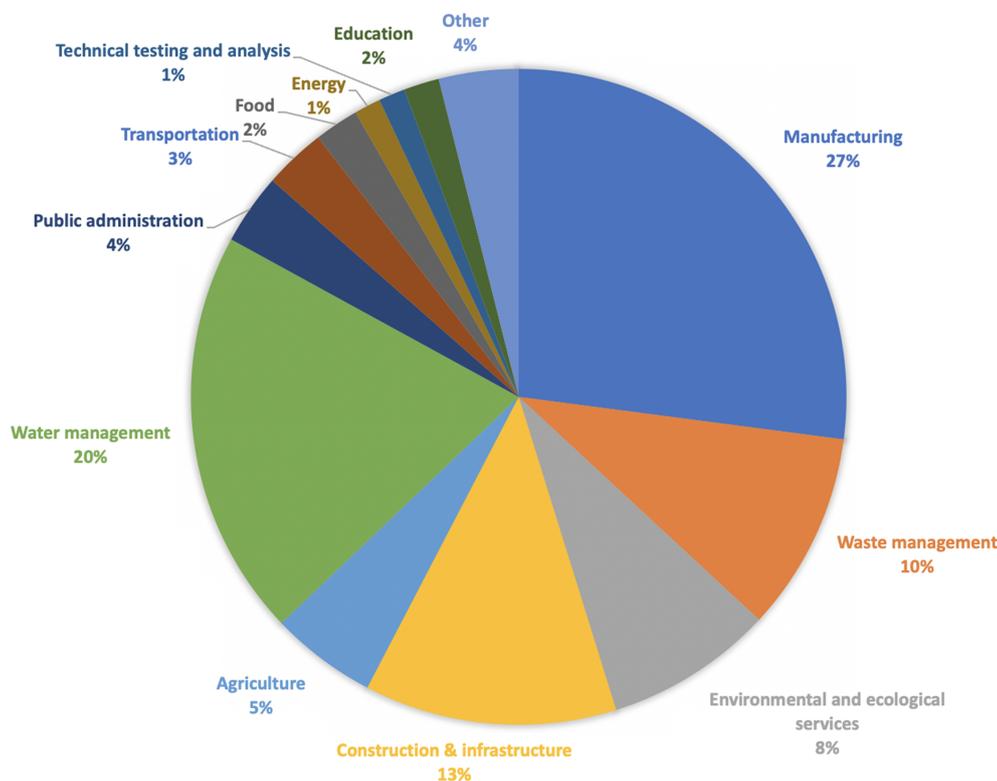


FIGURE 2 Private environmental standards by sector.

Source: Data derived from SAMR, 'Platform for Social Group Standard Information—Environment, Health, and Safety' <<http://www.ttbz.org.cn/Home/Standard/?CNL1Code=N>> [Color figure can be viewed at wileyonlinelibrary.com]

TABLE 2 Private environmental standards in China by category

Target	Performance		Specification			Total
	Emission	Environmental management	Monitoring	Baseline	Abatement technology	
1	9	146	67	3	231	457

Source: SAMR, 'Private Standards by Category' <<http://std.samr.gov.cn/tb?initnode=N>>.

3.2.2 | Reduced administrative costs in enforcing standards

Apart from developing standards, the private sector also helps to oversee and verify compliance, reducing administrative costs for the government to enforce environmental standards and regulations. For private parties, a study showed that the adoption of ISO 14001 provided a positive incentive for regulatory compliance in China.⁶² In the public sector, inventories for public procurement policies require governments to buy environmentally friendly products.⁶³ For instance, the Green Public Procurement Inventory refers to specific products or manufacturers with a China Environmental Label (CEL) certified by the China Environmental United Certification Center (CEC).⁶⁴ The CEC used to consist of several public institutions under ministries of

the central government and was reorganized into a State-owned, not-for-profit, legal entity for independent third-party certification in 2002.⁶⁵

Nevertheless, the theoretical framework suggests that incorporating one single certification into public regulation may result in an administrative monopoly and inefficiently low standards. One of the solutions is to have suppliers compete with products certified in line with higher standards. Instead of referring to CEL as the only certification, the updated Green Public Procurement Inventory incorporates minimum performance standards for the different types of environmental products in public procurement.⁶⁶ Products with a better environmental performance than the CEL-certified products should also be selected in public procurement.⁶⁷ Some other areas also have seen diversity in private certification or verification. Some private

⁶²W McGuire, 'The Effect of ISO 14001 on Environmental Regulatory Compliance in China' (2014) 105 *Ecological Economics* 254.

⁶³B Denjean et al, 'Green Public Procurement in China: Quantifying the Benefits' (April 2015) <<https://www.iisd.org/sites/default/files/publications/green-public-procurement-china-quantifying-benefits-en.pdf>> 15–16.

⁶⁴Ministry of Finance (MOF), 'Green Public Procurement Inventory' (published and came into effect June 2017, replaced 1 February 2018) <<http://www.mof.gov.cn/gp/xxgkml/gks/201706/PO20170620485179507792.pdf>>.

⁶⁵CEC, 'General Situation of CEC' <<http://en.mepcec.com/content/25.html>>.

⁶⁶MOF and SAMR, 'Announcement of Improving the Implementing Rules for Green Public Procurement' (published 1 February 2019, came into effect 1 April 2019) <http://www.gov.cn/xinwen/2019-02/13/content_5365325.htm> art 3; MOF, 'Inventory for Public Procurement of Environmental Labeling Products' (published and came into effect 29 March 2019) <<http://gks.mof.gov.cn/zhengfuchaigouguanli/201903/PO20190329702478575295.pdf>>.

⁶⁷MOF and SAMR (n 66) art 5.

companies and research institutes have been appointed as third-party verifiers for the Greenfood label, which is a government-led certification scheme for organic food products in China.⁶⁸ Another example is the WWF's Global Forest and Trade Network, which engaged in implementing a pilot launched by China's State Forestry Administration in 2006. The involvement of the Global Forest and Trade Network made the Yong'an Forest Group the first enterprise with over 1,000,000 hectares of FSC-certified forest in southern China.⁶⁹

Private standardization also reduces administrative costs for the central government to oversee environmental compliance at the local level. Bureaucrats in the local governments in China manipulated or faked emission data, which increased administrative costs for the central government to oversee environmental quality and set target standards.⁷⁰ To reduce information costs, the central government can use third-party verification to check emissions data disclosed by the local governments. In 2017, the Chinese central government published a policy to promote public-private partnerships in emissions reduction.⁷¹ The policy requires third-party monitoring from non-governmental agencies to verify environmental information disclosed by the local governments. A study has shown that data accuracy has improved with the involvement of third-party organizations, using daily air pollution data over the period 2013–2019.⁷²

The Standard for Evaluating Drinking Water Safety in Rural China (T/CHES-18) is another case in which private parties help to reduce administrative costs in enforcing public standards. Access to drinking water had long been a problem for rural residents in China. The National Standard for Drinking Water Safety and Sanitation (GB-5749) was amended in 2006.⁷³ However, the public rating system to enforce GB-5749 was outdated, and the central government was not able to establish a new rating system by the end of the 13th Five-Year Plan, because it took a long time to make and amend a public standard.⁷⁴ Consequently, T/CHES-18 was developed by the Chinese Hydraulic Engineering Society, a professional association, and applied to Chinese counties in poverty.⁷⁵

T/CHES-18 seems to feature more characteristics of public regulation than a normal private standard because the standard aims to serve a public goal rather than the (common) private interests that often underpin private collective actions. On the one hand, the

establishment of T/CHES-18 was initiated by the Ministry of Water Resources in China to implement the target of 83% coverage of drinking water supply in rural China by the end of the 13th Five-Year Plan.⁷⁶ On the other hand, the adoption of T/CHES-18 was not entirely voluntary in terms of implementation. T/CHES-18 was formulated by professional associations but mainly applied to public authorities at the county or a lower level.⁷⁷ The central government strongly promoted T/CHES-18 as a tool for the performance appraisal of local administrative staff in poverty alleviation.⁷⁸ As a result, around 832 Chinese counties adopted the rating system in T/CHES-18.⁷⁹

3.2.3 | Stimulating green technological innovations and meeting consumer preferences

Private standardization brings financial benefits to the regulated firms by stimulating innovations in terms of environmental management.⁸⁰ There has been evidence showing that compliance with ISO 14001 can yield financial benefits for firms due to improved internal legitimacy.⁸¹ Compliance with international private standards also lowers transaction costs and reduces trade barriers for firms in the global supply chain.⁸² Similarly, research has shown that FSC-certified wood products produced in China can be sold at a higher price in the European Union, the United States and Canada than non-certified products.⁸³

Industry-based private standards also provided guidelines for green product innovations that are profitable to manufacturers. The China Electrical Equipment Industry Association (CEEIA) established a set of specification standards for energy-efficient electrical equipment. Those standards are more stringent than the public standards and have adopted the most advanced techniques in the electronics sector.⁸⁴ Production capacity increased by 10% for some large manufacturers using

⁷⁶Y Qiang et al. 'Standardization by Social Groups—A Case Study' in Y Qiang (ed), *A Guidebook for Standard-setting by Social Groups* (China Quality and Standards Publishing & Media Co., Ltd. 2021) 273–274.

⁷⁷*Ibid* 278.

⁷⁸*Ibid* 277.

⁷⁹CNIS (n 60) 137.

⁸⁰W He and R Shen, 'ISO 14001 Certification and Corporate Technological Innovation: Evidence from Chinese Firms' (2019) 158 *Journal of Business Ethics* 97; G Qi et al, 'Role of Internalization Process in Defining the Relationship between ISO 14001 Certification and Corporate Environmental Performance' (2012) 19 *Corporate Social Responsibility and Environmental Management* 129; SX Zeng et al, 'ISO 14000 and the Construction Industry: Survey in China' (2003) 19 *Journal of Management in Engineering* 107; Y Zhang, C Xing and Y Wang, 'Does Green Innovation Mitigate Financing Constraints? Evidence from China's Private Enterprises' (2020) 264 *Journal of Cleaner Production* 121698, 11–12.

⁸¹N Darnall, I Henriques and P Sadosky, 'Do Environmental Management Systems Improve Business Performance in an International Setting?' (2008) 14 *Journal of International Management* 364.

⁸²T Feng et al, 'Environmental Management Systems and Financial Performance: The Joint Effect of Switching Cost and Competitive Intensity' (2016) 113 *Journal of Cleaner Production* 781.

⁸³Zhao et al (n 20).

⁸⁴CNIS (n 60) 124–125. The CEEIA constitutes an example of the point we made earlier, namely, that industry-based private standards are sometimes created by institutions closely related to the Chinese government. This is evidenced by the fact that the Charter of the CEEIA provides explicitly that one of the functions of the association is 'entrusted by relevant government departments and social organizations to undertake the formulation and revision of national standards and industry standards ... and organizing the formulation of group standards according to the law'. CEEIA, 'Charter of the CEEIA' <<http://www.ceeia.com/XHZC/1.html>> art 6(4).

⁶⁸China Green Food Development Center, 'List of Qualified Verifiers for the Greenfood Label 2020' (17 August 2020) <<http://www.greenfood.agri.cn/jgjs/ddcjcg/lssphjycjcg/201509/P020200817574350803445.pdf>>.

⁶⁹FSC (n 20); WWF, 'Certified Chinese Forest Reaches Million Hectares' (7 January 2009) <<https://www.panda.org/?156347/Certified-Chinese-forest>>.

⁷⁰X Niu et al, 'Has Third-Party Monitoring Improved Environmental Data Quality? An Analysis of Air Pollution Data in China' (2020) 253 *Journal of Environmental Management* 3; X Tang, Z Liu and H Yi, 'Mandatory Targets and Environmental Performance: An Analysis Based on Regression Discontinuity Design' (2016) 8 *Sustainability* 1, 3–4; X Li et al, 'Authoritarian Environmentalism and Environmental Policy Implementation in China' (2019) 145 *Resources, Conservation and Recycling* 86, 88–89.

⁷¹MEE, 'Rules for Promoting Third-Party Participation in Pollution Reduction and Environmental Governance' (published and came into effect 9 August 2017) <https://www.mee.gov.cn/gkml/hbb/bh/201708/t20170816_419759.htm>.

⁷²Niu et al (n 70).

⁷³National Health Commission of the PRC (NHC), Standard for Drinking Water Quality (published 29 December 2006, came into effect 1 January 2007), GB5749-2006 <<http://www.nhc.gov.cn/cmsresources/zwgkzt/wsbz/new/20070628143525.pdf>>.

⁷⁴CNIS (n 60) 134.

⁷⁵*Ibid* 132–137.

the CEEIA standards.⁸⁵ Public standards for air conditioners in China mostly focused on energy efficiency and temperature, overlooking human health and indoor air quality. The China Superalloy Innovation Strategic Alliance (CSISA), along with Midea Group, a large appliance manufacturer in China, created performance standards requiring air conditioners to achieve an optimal level of humidity and indoor air quality.⁸⁶ Air conditioners made in line with the CSISA standard turned out to be the most sold of their kind in 2018.⁸⁷

On the demand side, private standardization provides consumers with more choices and induces voluntary compliance via information disclosure. Private certification may reduce information costs for consumers, especially when public regulation fails to manage environmental and health risks. In recent years, the public has raised concerns about food poisoning cases resulting from the misuse of chemicals or contaminated land in China.⁸⁸ A study confirmed the significant impacts of certification on consumers' intentions regarding organic food purchasing.⁸⁹ However, Chinese consumers may not fully trust public food certifications. With a sample of 757 questionnaires, one study showed that Chinese consumers are sceptical about public food certification in ensuring food safety, especially the outcome-based certifications for animal-based products.⁹⁰ Some Chinese consumers have shifted to certified imported food, certified by the European Union and the US Food and Drug Administration (FDA), along with certified organic food and eco-friendly food.⁹¹ A study also showed that, in the early days, organic food promotion generally involved the private sector rather than the government.⁹² Thus, certification allowed to meet the preferences of Chinese consumers who demand 'green' products and at the same time pushed businesses to adopt certification recognized by consumers. This is particularly important for Chinese firms in the international supply chain. Chinese food producers have managed to meet food safety and quality requirements (e.g. Hazard Analysis Critical Control Point, a food safety management system included in the international standard ISO 22000) set by international trading partners.⁹³ International customers or product chains have become one of the most significant factors for the adoption of the ISO 14001 standard.⁹⁴ Likewise, in the building sector, Zeng and

colleagues found that entry into the international construction market is one of the major incentives for the construction firms in China to use ISO 14000.⁹⁵ There is also an increasing number of commercial or industrial buildings in China that choose the LEED system for green buildings due to its global recognition and reputation on the market.⁹⁶

3.3 | The limitations of private standardization in environmental governance in China

3.3.1 | Market-driven standard-setting and compliance

Private standardization is generally market oriented and may not always respect the public interest as much as government regulation should do. Overall, environmental standards in China are still largely produced by industry; private standardization by industries only plays a relatively minor role in the overall environmental quality control in China. The number of private environmental standards is relatively small compared with the number of public environmental standards in China. Even within the private sector, private environmental standards only account for around 2.4% of the existing private standards.⁹⁷ Most of the existing private environmental standards focus on emissions reduction or resource management techniques in the supply chain.⁹⁸ There have not been many private standards addressing biodiversity, sustainable land use or ecological conservation.⁹⁹ Moreover, because standards are often protected under intellectual property rights, many private environmental standards are not published. The positive spill-over effects that compliance with private environmental standards could generate will therefore not be achieved as most standards are not publically available and small- and medium-sized enterprises could not always afford them.¹⁰⁰ It is for that reason that the Chinese government decided to convert some of the private standards into voluntary public standards, as was the case with ISO 14001 (GB/T-24001).¹⁰¹ Normally, industry would have to pay to obtain ISO 14001; the publication by the Chinese government thus reduces the information costs concerning the private standards for industry.

The compliance rate with private standards can be low as the standards are mostly voluntary. Insufficient incentives for compliance may occur if the costs outweigh the benefits. The previous section showed that compliance with private environmental standards

⁸⁵CNIS (n 60) 127.

⁸⁶SAC, 'Platform for Social Group Standard Information—Artificial Atmosphere Comfort Products Part 1: Miniature-Climate Room Air Conditioner' <<http://www.ttbz.org.cn/StandardManage/Detail/23063/>>.

⁸⁷CNIS (n 60) 132.

⁸⁸K Chen, X Wang and H Song, 'Food Safety Regulatory Systems in Europe and China: A Study of how Co-regulation Can Improve Regulatory Effectiveness' (2015) 14 *Journal of Integrative Agriculture* 2205.

⁸⁹J Chen, A Lobo and N Rajendran, 'Drivers of Organic Food Purchase Intentions in Mainland China—Evaluating Potential Customers' Attitudes, Demographics and Segmentation' (2014) 38 *International Journal of Consumer Studies* 346.

⁹⁰R Moruzzo et al, 'Urban Consumer Trust and Food Certifications in China' (2020) 9 *Food* 1153.

⁹¹B Wong, 'China's Packaged Food Market: Defining Characteristics' (HKTC Research, 27 March 2018) <<https://research.hktdc.com/en/article/NDMyMjA5MDI2>>.

⁹²International Trade Center (ITC), 'Organic Food Products in China: Market Overview' (ITC 2011) 11–12.

⁹³L Bai et al, 'Implementation of HACCP System in China: A Survey of Food Enterprises Involved' (2007) 18 *Food Control* 1108; Chen et al (n 89) 2205.

⁹⁴M Potoski and A Prakash, 'Green Clubs and Voluntary Governance: ISO 14001 and Firms' Regulatory Compliance' (2005) 49 *American Journal of Political Science* 235, 238–239; Q Zhu, J Cordeiro and J Sarkis, 'International and Domestic Pressures and Responses of Chinese Firms to Greening' (2012) 83 *Ecological Economics* 144.

⁹⁵Zeng et al (n 80) 107–115.

⁹⁶CBRE (n 18) 3.

⁹⁷The National Information Platform for Private Standards shows that, by 2021, there are 29,107 private standards registered, with 716 of them related to environmental governance. SAMR (n 65).

⁹⁸SAMR (n 47).

⁹⁹*ibid.*

¹⁰⁰Y Wan, H Ou and J Wei, 'Research on the Development Status and Countermeasures of Group Standards Based on the Data of National Group Standards Information Platform' (paper presented at the 4th Conference on Private Standards and Practices, 1 August 2019, Inner Mongolia, China) <<http://gb.oversea.cnki.net/KCMS/detail/detail.aspx?filename=ZSSG201908001023&dbcode=CPFD&dbname=CPFD2019>> 141.

¹⁰¹CEC, 'Procedures and Requirements for the ISO 14001 Environmental Management System Certification' (27 March 2019) <<http://www.mepcec.com/upload/201903/27/201903270809021079.doc>>.

by firms is mainly market driven. However, the costs of complying with ISO 14001 could be high, especially for small firms.¹⁰² There has been evidence showing a negative relationship between Chinese firms' financial performance and ISO 14001 adoption, and the negative impact was more significant for medium-sized firms than for large firms.¹⁰³ Similarly, in the building sector, the high initial costs of complying with the LEED standard and a long payback period made building developers hesitant to adopt the LEED certification.¹⁰⁴ Therefore, some local governments in Beijing and Shenzhen provided subsidies for projects with the LEED certification,¹⁰⁵ and the Tianjin Economic-Technological Development area provided up to US\$ 4643 for ISO 14001-certified enterprises.¹⁰⁶ A study showed that the adoption of ISO 14001 by firms was due to subsidies and technical support from the government.¹⁰⁷

Also, certification for market distinction may fail when individual consumers in the domestic market do not respond to private certification. For example, consumers with lower education levels may not read the labelling information.¹⁰⁸ Even though environmental awareness has been increasing in China in recent years, there are still gaps between willingness to support and willingness to pay. Chinese consumers are sometimes unwilling to pay more for certified green products because of the high price elasticity of demand for certain products based on income or because of a lack of faith in the various organic certifications in the market.¹⁰⁹

3.3.2 | A limited role in overall environmental quality control

Being flexible does not necessarily make private standardization react quickly to environmental risk in emergencies, although private standardization is responsive to technological innovations and market

demand. The flexibility of private standardization is somewhat undermined in China as the government is getting strict in supervising industry-based standards.¹¹⁰ Standards made by a social organization should be open to the public for comments before publishing if the standards are likely to have significant impacts on the stakeholders such as consumers.¹¹¹ Governments at the provincial level or above are empowered by the law to revoke an industry-based standard if the standard is found to clash with mandates or the public interest.¹¹² By contrast, public standard-setting is able to go through an expedited process approved by the authority in case of an emergency. For example, during the COVID-19 outbreak in China, the central environmental regulator quickly set technical standards for wastewater treatment from hospitals receiving COVID-19 patients, whereas the first private standard in this regard came out 2 months after the public standard was published in February 2020.¹¹³

Private standardization is furthermore not well suited for overall environmental quality control. Figure 2 indicated that most of the existing private standards are either performance or specification standards, but usually not target or quality standards. As a result, as indicated, private environmental standards only play a minor role in overall environmental control.

3.3.3 | Rent-seeking and greenwashing

Rent-seeking in private certification or verification could result in inefficiently low standards. For example, a Chinese company selling products to the United States offered to put an FSC label on illegal wood flooring in exchange for a 10 percent markup.¹¹⁴ There was a similar case where an FSC-accredited processing enterprise in Linyi, China, faked the FSC logo for illegally harvested plywood buyers in Europe.¹¹⁵ In the public sector, malpractice or corruption may compromise standards for environmental products in public procurement.¹¹⁶

Even with private third-party certification, compliance by regulated firms with public standards is not guaranteed due to falsified data reported and verified by private parties. Emissions data are essential for the government to set target standards or to determine fines and taxes imposed on emitters for non-compliance with public standards.¹¹⁷ To reduce information costs in monitoring, the Chinese

¹⁰²The direct cost of getting ISO 14001 certified is around US\$ 6000, and the indirect costs include US\$ 6900 for analysis and US\$ 21,600 to implement the environmental management system. Besides, the potential losses from restricted investment and the increased production costs due to ISO 14001 adoption may also negatively impact firms' financial performance. See WB Gray and RJ Shadbegian, 'Plant Vintage, Technology, and Environmental Regulation' (2001) 46 *Journal of Environmental Economics and Management* 384; A Paulraj and P de Jong, 'The Effect of ISO 14001 Certification Announcements on Stock Performance' (2011) 31 *International Journal of Operations & Production Management* 765; N Singh, S Jain and P Sharma, 'Motivations for Implementing Environmental Management Practices in Indian Industries' (2015) 109 *Ecological Economics* 1.

¹⁰³JX Wang and MZ Zhao, 'Economic Impacts of ISO 14001 Certification in China and the Moderating Role of Firm Size and Age' (2020) 274 *Journal of Cleaner Production* 123059, 4–9.

¹⁰⁴Dodge Data & Analytics, 'World Green Building Trends 2018' (2018) <<https://www.worldgbc.org/sites/default/files/WorldGreenBuildingTrends2018SMRFINAL10-11.pdf>> 14.

¹⁰⁵CBRE (n 18) 3; Nanshan People's Government, 'Implementation Rules for Managing Special Funds for Green Buildings' (15 June 2017) <<http://www.gd.gov.cn/attachment/0/389/389280/2938592.doc>> art 5.

¹⁰⁶People's Government of the Tianjin Economic-Technological Development Area, 'Subsidies for Organizations Complying with ISO14001—Guidance' <<https://app.teda.gov.cn/Views/ThirdPage.aspx?C3E3598453A02BB4E15D981A0D7CF128>>.

¹⁰⁷W He et al, 'Impacts of ISO 14001 Adoption on Firm Performance: Evidence from China' (2015) 32 *China Economic Review* 43.

¹⁰⁸L Xu and L Wu, 'Food Safety and Consumer Willingness to Pay for Certified Traceable Food in China' (2010) 90 *Journal of the Science of Food and Agriculture* 1372.

¹⁰⁹J Chen et al (n 93) 349–350; Policy Research Center for Environment and Economics, 'Environmental Behavior in China 2019' (2019) <<http://www.prcee.org/zyhd/201905/W020190531610282159131.pdf>> 9–10.

¹¹⁰SAC and Ministry of Civil Affairs (MCA), 'Regulation for the Administration of Private Standards made by Social Organizations' (published and came into effect 9 January 2019) <<http://images3.mca.gov.cn/www2017/file/201901/1547801421687.pdf>>.

¹¹¹*ibid* art 9.

¹¹²*ibid* art 38.

¹¹³MEE, 'Technical Guidelines for the Treatment of Medical Wastewater During COVID-19' (published 1 February 2020) <http://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202002/t20200201_761163.html>.

¹¹⁴R Conniff, 'Greenwashed Timber: How Sustainable Forest Certification Has Failed' (*Yale Environment* 360, 20 February 2018) <<https://e360.yale.edu/features/greenwashed-timber-how-sustainable-forest-certification-has-failed>>.

¹¹⁵Y Shi, 'How Illegally Harvested Timber Is "Greenwashed" in China' (*Sixth Tone*, 16 January 2019) <<https://www.sixthtone.com/news/1003369/how-illegally-harvested-timber-is-greenwashed-in-china>>.

¹¹⁶E Schwerin and E Prier, 'Rent-Seeking Obstacles to Changing Environmental Practices and Sustainable Public Procurement in China' (2013) 15 *Environmental Practice* 240.

¹¹⁷A Zahar, 'Implementation of the Polluter Pays Principle in China' (2018) 27 *Review of European, Comparative and International Environmental Law* 304.

government also requires third-party verification in addition to inspections conducted by the government itself.¹¹⁸ Nevertheless, problems do occur with third-party verification. In the Guangdong Province, there are more than 200 private agencies that provide environmental certification and verification services. Around 70% of the third-party verifiers were found to have falsified data, according to investigations conducted by the Guangdong Bureau of Quality and Technical Supervision and the Guangdong Department of Ecology and Environment.¹¹⁹ There was even a race to the bottom among those private verifiers, who competed with low prices and expedited verification reports.¹²⁰

The reason why this misreporting occurred on a large scale was that the companies could cash in millions of Chinese Yuan for a falsified report¹²¹ and thus reap huge benefits by doing so. However, the maximum fines for providing falsified reports are US\$ 30,951 for a company and US\$ 7738 for an individual.¹²² Hence, the expected costs (of the fine) were relatively low compared with the expected benefit from misreporting. Even though non-compliance with the environmental regulation in Guangdong may lead to the verifier's qualification being revoked by the government, the verifier could apply for a new licence by establishing a new verification agency with the existing facilities and personnel.¹²³

It remains to be seen whether private standardization faces a problem of regulatory capturing or reduced competition. There is no empirical research estimating the impact of private standardization on environmental governance and the market in China. From our observations, regulatory capture does not seem to be a significant problem with private environmental standard-setting in China. The reason is that compliance with private standards in China is usually verified by a third party. Regulatory capture could also be reduced by separating the standard-setters and the regulated stakeholders, as was the case with the standard for evaluating drinking water safety in rural China.

There is also no evidence showing that private environmental standards were abused to reduce competition or create entry barriers. The government tends to refer to private performance standards or to have more than one private certification system competing in an incentive programme rather than specifying certain products or techniques. In the private sector, industry-based standards in China aimed to improve the environmental performance of manufacturers to attract customers or reduce green trade barriers in the international supply chain.

4 | DISCUSSION: THE BEST OF BOTH WORLDS

It seems that private standardization in China does indeed generate particular benefits, but that it shows specific limitations as well. To a large extent, this is in line with the theory that indicates that private standardization may have some benefits for environmental governance. One of the benefits could be the reduced administrative costs resulting from better information and expertise. It can be seen from the previous section that the Chinese government increasingly uses private certification to enforce public standards at the local or individual level. Private standards may also reduce information costs for the consumers, especially when public regulation fails in quality control. Innovation and voluntary compliance resulting from the reputational mechanism appear to be another benefit of private standardization, as predicted in theory. Compliance with higher private standards was shown to induce innovation in environmental management and improve Chinese firms' financial status. However, reputation seems to work better with Chinese firms and manufacturers engaged in the international supply chain. Also, private standardization may not necessarily score better than public standardization in terms of flexibility because public authorities are getting strict with industry-based private standardization.

Although private standardization can play a role in green practices, private standardization is generally undertaken for profit maximization and not primarily to protect the environment. As far as environmental governance is concerned, private standardization may fail to address transboundary externalities or may suffer from rent-seeking and under-enforcement. These problems of private standardization have also been observed in practice in China, along with some remedies to the problems. Indeed, China provides interesting examples indicating that it may be possible to enjoy the benefits of private standardization while remedying the potential disadvantages and, in that sense, getting the best of both worlds.

A first lesson from the Chinese experience is that the employment of private standardization should probably be differentiated, depending on the particular risks to be regulated. In China, private standards tend to work for compliance that generates positive externalities, such as technological innovations for environmental management or manufacturing. Private standards are used to go further than merely internalizing the negative externality caused by pollution. For overall environmental quality control or risk management, the Chinese standardization law usually requires mandatory public standards as a bottom line. There are some exceptional cases where private parties also make standards concerning public security, such as the evaluation standard for drinking water safety in rural China. However, the government is getting strict in supervising private standardization. The use of private standards should therefore not be generalized for all pollution risks and emergencies but should rather be differentiated. Private standardization is especially indicated in cases where operators go further than merely internalizing negative externalities (regulated by public standards) and engage, for example, in green manufacturing. The generation of those positive externalities,

¹¹⁸ibid.

¹¹⁹People's Government of Guangdong Province, 'Six Enterprises Fined for Faking Environmental Monitoring Data' (21 February 2019) <http://www.gd.gov.cn/zwgk/zdlyxxgkz/hjbh/content/post_2170940.html>; C Zhou, 'How A Corrupt Testing System Left Pollution Unchecked in China' (Caixin, 17 January 2019) <<https://weekly.caixin.com/2019-01-05/101366847.html>>.

¹²⁰ibid.

¹²¹ibid.

¹²²Guangdong People's Congress, Regulation of Environmental Protection in Guangdong (published 13 January 2015, came into effect 1 July 2015) <http://www.gd.gov.cn/zwgk/wjk/zcfgk/content/post_2524381.html> art 12.

¹²³ibid art 64; Zhou (n 123).

supplementing public regulation, can be entrusted to private standardization.

Regulatory capture can be reduced by distinguishing pure self-regulation from private standardization. As was shown in the previous section, third-party certification has increasingly played a role in the enforcement of public and private standards in China. Apart from external oversight from third parties, Chinese law also allows the government to correct or withdraw private standards lower than the mandatory standards. Moreover, regulatory capture is deemed to increase the information costs of public participation, especially in cases where intellectual property rights protect private standards. To reduce information costs, the Chinese government converted a certain version of private standards into a voluntary public standard, as happened with the ISO 14001 standard, and established an information platform for the public to check public or private standards. Chinese law also requires private standards to be open to the public for comments if the standards are likely to significantly impact target consumers or communities. The smart interaction between public and private standards may therefore (via government control) guarantee that the private standards serve not only the interests of the industry concerned but also the public interest.

Rent-seeking seems to be a major problem with the enforcement of private standards in China. Private verifiers in China were found providing falsified emission reports and testing results for their customers. A way to deal with the under-enforcement of private standards would be to improve the alternatives, such as administrative sanctions in China. For example, the Chinese government conducted on-site inspections at the firm level, as with the Yong'an Forest pilot project using the FSC. Depending on the severity of consequences, private parties will get fined or lose qualification as certifiers if they provide falsified verification for environmental compliance. Government punishment would be necessary when private standard-setters or verifiers have imperfect information about their clients' behaviour. The Chinese law, however, does not seem effective in preventing intentional violations, as the cost of non-compliance is relatively low to a private verifier, compared with the perverse incentives from providing fake verification reports.

There is always the danger that private standards could act as a barrier to trade. Currently, there has not been much evidence showing that private environmental standards are misused by private parties to create barriers to enter the Chinese market. Perhaps due to the concern about monopolies and reduced competition, the Chinese government barely incorporates private standards into mandates. Instead, the government began to include more options for standards in green public procurement rather than referring to a certain standard or supplier. Also, the Regulation for the Administration of Private Standards made by Social Organizations prohibits social organizations from using private standards for anti-competitive purposes.¹²⁴ For example, private companies tend to engage in making a technical standard, and compliance with the standard requires adoptions of patents or technologies developed by those private companies. In that case, the

patent owners may reduce competition in the sector and exclude technologies that are more efficient than those required in the standard. Therefore, the central government established the Regulation of Anti-competitive Abuse of Intellectual Property Rights, requiring a patent owner to forgo the entitlement to a patent that has been referred to in private standards, so that the patent owner cannot exclude the public from using the patent for compliance with the standard.¹²⁵

5 | CONCLUSION

Private standardization is becoming increasingly popular in many jurisdictions. The flexibility, innovation promotion and lower administrative costs of private standards are praised, and this explains their popularity as a complement to public standards, which may have particular limits (rent-seeking, capture and under-enforcement). It often leads de facto to hybridization and mutual interdependencies between public and private standards.

In this article, we focused on using standards in China in one particular area, environmental governance. We started by asking the question of the extent to which private standardization contributes to environmental governance in China, and we found substantial evidence that even though public standards may still be the main instrument of environmental governance, there is, also in China, a growing role for private standardization via different types of environmental standards. Private standardization complements public regulation in environmental governance in ways that not only reduces the administrative costs of making and enforcing standards but also stimulates green technological innovation. The advantages of private standardization lead to the interactions between private and public standards whereby sometimes private third-party certification is used to implement public standards, and public regulation sometimes incorporates private standards.

China experienced the advantages (lower administrative costs and better innovation) and disadvantages (profit maximization, rent-seeking and under-enforcement) of private standardization. Yet, China equally shows that it may be possible to shape the use of private standardization in such a way that it would be possible to enjoy the benefits while limiting the possible disadvantages. One way of implementing this idea is to use private standards mainly in domains where positive externalities are generated, and industry goes beyond the public regulation aimed at internalizing negative externalities. Another tool is to have public participation with respect to the drafting of the private standards, as is prescribed by Chinese law.

Although one always has to be careful with private standards as there is always the danger that they can lead to capturing and lower environmental quality, the Chinese experience shows that a differentiated use of private environmental standards, combined with governmental oversight, may provide scope for the use of private

¹²⁵SAMR, Regulation of Anti-competitive Abuse of Intellectual Property Rights (published 7 April 2015, came into force 1 August 2015, and amended 23 October 2020) <http://gkml.samr.gov.cn/nsjg/fgs/202011/t20201103_322857.html> art 13.

¹²⁴SAC and MCA (n 110) art 14.

standardization within the optimal mix of environmental policy instruments. An interesting point for further research could be an empirical analysis to estimate the (cost-)effectiveness of a particular private standard in environmental governance.

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