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Compensating for Natural Resource Damage Caused by Vessel-Induced Marine Oil Pollution: Comparing the International, U.S., and Chinese Regimes****

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INTRODUCTION

Many have pointed to the fact that the spectacular economic growth in China has come at a high price, including serious natural resource damage. Increasing literature is available now, both in and outside of China, on the available regulatory instruments that China is increasingly using to prevent natural resource damage. An issue which has received less attention is the ex post compensation for natural resource damage, especially when damage is only caused to natural resources and no individual damage—be it property loss or individual injury—is involved.

Both Europe and the United States have been confronted with spectacular cases of marine oil pollution. The Amoco Cadiz (1978), Erika (1999), and Prestige (2002) are well-known incidents that will last in the memory of many Europeans. The same is undoubtedly true with the Exxon Valdez (1989) in the United States, which gave rise to the promulgation of the Oil Pollution Act of 1990.¹ So far, with the exception of a few “minor” incidents, China has been spared from similar catastrophes. However, China is increasingly becoming a major oil-importing nation and has a very long coastline that could potentially be exposed to marine pollution. This raises the question, how can a rapidly developing economy like China, with its huge oil demand, deal with the restoration of the environment after an oil spill and adequately compensate the victims?

The aim of this Article is to address the question of whether China would be able to compensate future victims and restore the environment in the event of a marine oil spill. Indeed, the mere fact that there would be no individual victim does not mean that there would be no damage—this can only lead to a different claimant than in the case where an individual victim suffers a loss.

¹ See, e.g., *Oil Pollution Act Overview*, U.S. EPA, <http://www.epa.gov/osweroel/content/lawsregs/opaover.htm> (last modified Nov. 1, 2013).

In China, general environmental liability rules have been established under the General Principles of Civil Law, the Environmental Protection Act, and the newly adopted Tort Liability Law of 2009. However, these general rules make no explicit reference to natural resource damage. Many hurdles exist with respect to *locus standi*, causation, and the assessment of natural resource damage. The only domain in which compensation seems to work, not only on paper but also in practice, is the domain of marine oil pollution where international conventions have played an important role. In this research, we use marine oil pollution to show how natural resource damage claims can be compensated in China. Not only liability rules are discussed; this research also tries to find out how a financial security system can contribute to better prevention and compensation. The insurance products, especially the coverage provided by protection and indemnity clubs (P&I Clubs) and environmental compensation funds, are also addressed. We realize that marine oil pollution is still quite a broad concept, involving pollution from vessels, pipelines, and offshore facilities. This research will focus on vessel-induced pollution. Pollution resulting from pipelines and offshore facilities will not be not addressed.

To further understand the system in China and in order to provide a comparative perspective, the international compensation system for oil pollution and the compensation regime established under the Oil Pollution Act in the United States are discussed. It is interesting to focus on the international regime and the U.S. Oil Pollution Act since they have been created largely as a reaction to major oil pollution incidents. To a limited extent, the 1992 Civil Liability Convention (CLC of 1992) and the 1992 Fund Convention extend the compensation system to natural resource damage. A more comprehensive compensation regime is established in the United States. China is a member of the CLC of 1992. China's domestic legislation also allows public authorities to file a claim for a portion of natural resource damage. A comparison between the international, U.S., and Chinese systems will show to what extent natural resource damage caused by marine oil pollution is compensable in those different systems. It will equally show how different combinations of liability rules and compensation instruments (insurance, risk sharing pools, and environmental funds) can be used to achieve the goals of prevention and compensation for natural resource damage.

This Article is set up as follows: First, a general introduction will discuss the compensation for natural resource damage in China, using

marine oil pollution as an example. Second, we will focus on liability rules and compensation instruments applicable to marine oil pollution under the international regime and in the United States. Third, we will focus on the compensation system for natural resource damage in China. Fourth, we will compare the liability rules and compensation scheme in all three systems. Finally, we will end with several observations.

I

COMPENSATION FOR NATURAL RESOURCE DAMAGE IN CHINA: GENERAL OVERVIEW

A. Basis of Liability

Traditionally, both civil law and environmental statutes provide remedies for environmental damage in China. Environmental liability rules are found both in the General Principles of Civil Law of 1986 (GPCL)² and in the Environmental Protection Act of 1989 (EPA).³ However, there are some differences between the provisions in these two acts.

Article 124 of the GPCL stipulates that “[a]ny person who pollutes the environment and causes damage to others in violation of State provisions for environmental protection and the prevention of pollution shall bear civil liability in accordance with the law.”⁴ According to this provision, the violation of a relevant regulation is a prerequisite to establishing liability. This requirement, however, is contradictory to Article 41 of the EPA: “[a] unit that has caused an environmental pollution hazard shall have the obligation to eliminate it and make compensation to the unit or individual that suffered direct losses.”⁵ The latter provision introduces strict liability without requiring the violation of a regulation.

² General Principles of Civil Law of the People’s Republic of China [Zhonghua Renmin Gongheguo Minfa Tongze] (promulgated by the Nat’l People’s Cong., Apr. 12, 1986, effective Jan. 1, 1987) (China), *available at* http://www.china.org.cn/china/legislations/form2001-2010/2011-02/11/content_21898337.htm.

³ Environmental Protection Law of the People’s Republic of China [Zhonghua Renmin Gongheguo Huanjing Baohu Fa] (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 26, 1989, effective Dec. 26, 1989) (China), *available at* <http://www.china.org.cn/english/environment/34356.htm>.

⁴ General Principles of Civil Law of the People’s Republic of China, art. 124.

⁵ Environmental Protection Law of the People’s Republic of China, art. 41.

In Chinese legal scholarship and in case law, debates raged over which provision prevailed, as well as how to interpret the violation requirement under the GPCL.⁶ The introduction of a new Tort Liability Law (TLL)⁷ in 2009 has ended these debates. The TLL has a specific chapter (Chapter VIII) dealing with environmental liability, which reiterates the strict liability for environmental damage, without requiring the violation of a relevant regulation: “[w]here any harm is caused by environmental pollution, the polluter shall assume the tort liability.”⁸

Although the environmental liability provisions under the GPCL and the EPA have not been formally abrogated,⁹ the provisions likely play a minor future role because victims are expected to rely on the new TLL.¹⁰

B. Scope of Liability: Is Natural Resource Damage Covered?

The provisions mentioned above provide the basis for environmental liability in China. However, these provisions do not make clear which type of damage is covered. For example, Article 124 of the GPCL does not clarify what constitutes “damage to others.” To apply this provision in practice, one has to consider the general provisions under the GPCL. For example, Article 106 provides that “[c]itizens and legal persons who through their fault encroach upon State or collective property or the property or person

⁶ See Michael Faure & Hu Weiqiang, *Towards a Reform of Environmental Liability in China: An Economic Analysis*, 13 ASIA PAC. J. ENVTL. L. 225, 231–33 (2010) (discussing debates over which provision prevailed).

⁷ Tort Liability Law of the People’s Republic of China [Zhonghua Renmin Zongghe Guo Qinquan Zeren Fa] (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 26, 2009, effective July 1, 2010) (China), available at http://www.procedurallaw.cn/english/law/201001/t20100110_300173.html.

⁸ *Id.* art. 65.

⁹ The TLL does not include any provisions on abrogating the inconsistent provision in earlier legislation.

¹⁰ Article 83 of the Law on Legislation holds that

[i]n the case of national law, administrative regulations, local decrees, autonomous decrees and special decrees, and administrative or local rules enacted by the same body, if a special provision differs from a general provision, the special provision shall prevail; if a new provision differs from an old provision, the new provision shall prevail.

Law on Legislation [Lifa Fa] (promulgated by the Standing Comm. Nat’l People’s Cong., Mar. 15, 2000, effective July 1, 2000), art. 83 (China), available at http://www.novexc.com/legislat_law_00.html.

of other people shall bear civil liability. Civil liability shall still be borne even in the absence of fault, if the law so stipulates.”¹¹

This provision requires encroachment of property or person to establish liability, without using the term “property right” or “personal right.”¹² The expression is clearer under Article 2 of the TLL:

Those who infringe upon civil rights and interests shall be subject to the tort liability according to this Law. ‘Civil rights and interests’ used in this Law shall include the right to life, the right to health, the right to name, the right to reputation, the right to honor, right to self image, right of privacy, marital autonomy, guardianship, ownership, usufruct, security interest, copyright, patent right, exclusive right to use a trademark, right to discovery, equities, right of succession, and other personal and property rights and interests.¹³

These provisions use infringement of “civil rights and interest” instead of “civil right” as a requirement to establishing liability.¹⁴ The term “civil rights and interests” is further defined by listing specific rights and interests.¹⁵ The catchall expression also enables an interest to be protected under the TLL even without being established as a “civil right” or explicitly included in the list.¹⁶ It is still unclear, however, whether the damage to the environment itself without personal injury and property damage can be compensated under the TLL.

In both the United States and in Europe, this type of damage has been explicitly admitted as compensable. For example, the Comprehensive Environmental Response, Compensation and

¹¹ General Principles of Civil Law of the People’s Republic of China [Zhonghua Renmin Gongheguo Minfa Tongze] (promulgated by the Nat’l People’s Cong., Apr. 12, 1986, effective Jan. 1, 1987), art. 106 (China), *available at*, http://www.china.org.cn/china/LegislationsForm2001-2010/2011-02/11/content_21898337.htm.

¹² *Id.*

¹³ Tort Liability Law of the People’s Republic of China [Zhonghua Renmin Zongghe Guo Qinquan Zeren Fa] (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 26, 2009, effective July 1, 2010) art. 2 (China), *available at* http://www.procedurallaw.cn/english/law/201001/t20100110_300173.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ The language of “and other personal and property rights and interests” in Article 2 of the TLL implies that the rights and interests listed before are not exclusive. *See* Mo Zhang, *Tort Liabilities and Torts Law: The New Frontier of Chinese Legal Horizon*, 10 RICH. J. GLOBAL L. & BUS. 415, 429–30 (2011).

Liability Act (CERCLA) and the Oil Pollution Act (OPA) introduced liability for natural resource damage explicitly.¹⁷ In U.S. legislation, “natural resources” refers to “land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States . . . , any state or local government or Indian tribe.”¹⁸ The scope of natural resources is defined by its relationship to the public authority but not by ownership.¹⁹ Thus not only the public natural resources but also the privately owned ones are encompassed under the heading of “natural resource damage.” In Europe, the Council Directive on Environmental Liability (ELD) established a liability framework for three types of environmental damage.²⁰ In this research, the term natural resource damage is used, which refers to the damage to the environment itself without involving personal injury and property damage. However in China, the GPCL, EPA, and the newly adopted TLL do not clarify the issue of natural resource damage. It is not clear, on the one hand, whether an obligation exists to cleanup and to restore the damaged environment; and on the other hand, whether this type of damage, such as the enjoyment of the environment, costs of preventive measures, or restoration measures are compensable.

In addition to those general statutes, there are some specific environmental statutes in China that contain an environmental liability provision, such as the Water Pollution Prevention Act

¹⁷ See 42 U.S.C. § 9607(a) (2012); 33 U.S.C. § 2702(b)(2) (2012); see also James Boyd, *A Market-Based Analysis of Financial Insurance Issues Associated with US Natural Resource Damage Liability*, in 5 TORT AND INSURANCE LAW: DETERRENCE, INSURABILITY AND COMPENSATION IN ENVIRONMENTAL LIABILITY 258, 258–302 (Michael ed., 2003) (discussing, in detail, natural resource damage liability in the United States).

¹⁸ 15 C.F.R. § 990.30 (2013).

¹⁹ See James Boyd, *Financial Responsibility for Environmental Obligations: Are Bonding and Assurance Rules Fulfilling Their Promise?*, in AN INTRODUCTION TO THE LAW AND ECONOMICS OF ENVIRONMENTAL POLICY: ISSUES IN INSTITUTIONAL DESIGN 417 (Timothy Swanson ed., 2002).

²⁰ Directive 2004/35/CE, of the European Parliament and of the Council of 21 April 2004 on Environmental Liability with Regard to the Prevention and Remedying of Environmental Damage, 2004 O.J. (L 143) 56 [hereinafter ELD], available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:143:0056:0075:en:PDF>. Instead of “natural resource damage,” the term “environmental damage” is used in the ELD, which refers to damage to protected species, habitats, waters, and land. *Id.* art. 2(1).

(WPPA),²¹ the Air Pollution Prevention Act (APPA),²² and the Solid Waste Pollution Prevention Act (SWPPA).²³ However, neither the WPPA nor the APPA have specific relevance for natural resource damage. Although Article 85 of the SWPPA obliges polluters to restore the damaged environment, there is no practical guidance on how to determine the existence of such damage and how to restore the environment.²⁴ The only field where damage to the environment is explicitly admitted as compensable and an operable procedure exists is marine oil pollution. The Marine Environment Protection Act²⁵ authorizes public authorities to claim for damage and such cases do exist in practice.²⁶

C. Quantification

Even if natural resource damage is admitted as compensable, a practical problem still arises as to how to quantify this type of damage. The damaged environmental elements may not always have a market value. Moreover, even if they do, the natural resources do not have a use value that can be quantified easily. Equally, if not more importantly, these resources do not have non-use value. This can

²¹ Law of the People's Republic of China on Prevention and Control of Water Pollution [Zhonghua Renmin Gongheguo Shuiwuran Fangzhi Fa] (promulgated by the Standing Comm. Nat'l People's Cong., Feb. 28, 2008, effective June 1, 2008), art. 85 (China).

²² Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution [Zhonghua Renmin Gongheguo Daqi Wuran Fangzhi Fa] (promulgated by the Standing Comm. Nat'l People's Cong., Apr. 29, 2000, effective Sept. 1, 2000), art. 62 (China), available at http://english.gov.cn/laws/2005-09/07/content_29877.htm.

²³ Law on the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste [Zhonghua Renmin Gongheguo Gutifeiwu Wuranhuanjing Fangzhi] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 29, 2004, effective Apr. 1, 2005), art. 85 (China), available at http://www.fdi.gov.cn/1800000121_39_1135_0_7.html.

²⁴ *Id.* ("It is necessary to get rid of dangers, compensate losses according to law and take measures to reconstitute to the previous environmental condition if any environmental pollution by solid wastes is caused.").

²⁵ Marine Environmental Protection Law of the People's Republic of China [Zhonghua Renmin Gongheguo Haiyang Huanjing Baohu Fa] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 25, 1999, effective Apr. 1, 2000) (China), available at http://www.ml.gov.cn/mlenglish/laws/200710/t20071012_656329.htm.

²⁶ The way in which marine oil pollution is compensated for in China will be discussed in further detail in Part IV of this Article.

include cultural, esthetic, and ecological values.²⁷ Therefore, how to quantify this type of damage is a critical question.

In the United States, concrete natural resource damage assessment rules have been established under CERCLA and OPA.²⁸ After a long debate, a restoration-based approach has been established to assess natural resource damage. This means that when natural resource damage occurs, it should be restored to the initial condition and the restoration costs and lost natural resources services during the restoration period are compensable.²⁹ When restoration is not possible in the United States, other monetary valuation methods can be used.³⁰ Though these methods are far from perfect and have caused hot debates, the assessment rules themselves have provided an operational procedure to quantify natural resource damage and have led to many restoration efforts in practice.³¹

In Europe, even though compensation for environmental damage under the ELD is still in its early development stage, the Directive itself has provided brief guidance on quantification issues.³² For

²⁷ Use value is derived from the actual use of the environment and can be evaluated by market values. Nonuse value, however, cannot be measured by the market value. Usually the existence value and intrinsic value are regarded as nonuse values. For a discussion of the different types of values natural resources may have, see Jeffrey C. Dobbins, *The Pain and Suffering of Environmental Loss: Using Contingent Valuation to Estimate Nonuse Damages*, 43 DUKE L.J. 879, 898–908 (1994), and Allan Kanner & Tibor Nagy, *Measuring Loss of Use Damages in Natural Resource Damage Actions*, 30 COLUM. J. ENVTL. L. 417, 421–24 (2005).

²⁸ CERCLA authorized the Department of Interior (DOI) to develop assessment rules for natural resource damage. See 43 C.F.R. §§ 11.10–11.93 (2013). OPA directed the National Oceanic and Atmospheric Administration to develop natural resource damage assessment rules. See 15 C.F.R. §§ 990.10–990.66.

²⁹ Initially, a so-called “lesser of rule” was followed under the DOI rules: the damages were limited to the lesser of the restoration costs and the diminution of use value. A shift towards a restoration-based approach was triggered by two cases: *Ohio v. U.S. DOI*, 880 F.2d 432, 442 (D.C. Cir. 1989), and *Colorado v. U.S. DOI*, 880 F.2d 481 (D.C. Cir. 1989).

³⁰ See Boyd, *supra* note 17, at 271–75.

³¹ Though there is no official data on how many natural resources claims have been made after the promulgation of CERCLA and OPA, an Environmental Law Institute research study shows that until 2006, there were at least 273 cases involving one or more federal trustees submitting claims for natural resource damage. Among those, 132 cases were CERCLA related, leading to settlement and judgment values of \$722,433,600; and 48 cases were OPA related, with a value of \$126,290,530. See ENVTL. LAW INST., *MITIGATION OF IMPACTS TO FISH AND WILDLIFE HABITAT: ESTIMATING COSTS AND IDENTIFYING OPPORTUNITIES* 74, 80 (2007), available at http://www.elistore.org/Data/products/d17_16.pdf.

³² ELD, *supra* note 20, Annex II.

biodiversity damage and damage to protected waters, a restoration-based approach is also adopted.³³

However, in China, the assessment of natural resource damage remains unclear, with the exception of the fishery losses caused by water pollution.³⁴ For example, quantifying soil pollution is still difficult. Not only is prior information on background levels often missing, appropriate standards to evaluate the extent a polluted site should be restored are also lacking.³⁵ In response to this situation, the government began its effort to develop methodologies to assess natural resource damage and recently started trials in some areas.³⁶ The Ministry of Environmental Protection published a Recommendation Method on Assessing Environmental Damage in 2011.³⁷ The Recommendation gives general guidance on how to assess pure environmental damage but is not a binding standard to be applied in the court.³⁸

D. Environmental Insurance

The above sections addressed the difficulties in establishing liability for natural resource damage in the Chinese legal framework. However, even when a legal provision on liability for natural resource damage is in place, such a provision alone cannot guarantee compensation in practice. The damage may be large and can exceed the financial capacity of the polluters. In some circumstances the polluter may not be identifiable. Those situations will not only lead to the environment being unrestored and the damage uncompensated,

³³ *Id.*

³⁴ *See infra* Part IV.A.

³⁵ Interview with Dr. Cai, South-China Inst. of Env'tl. Scis., in Guang Zho, China (Aug. 11, 2011) (interview transcript on file with authors).

³⁶ Several Opinions on Evaluation of the Environmental Pollution Damage [Guanyu Kaizhan Huanjing Wuran Sunhai Jianding Pinggu Gongzuo De Ruogan Yijian] (promulgated by the Ministry of Env'tl. Prot., May 25, 2011, effective May 25, 2011) (China).

³⁷ Recommendation on Methods of Assessing Environmental Damage [Huanjing Wuran Sunhai Shue Jisuan Tuijian Fangfa] (promulgated by the Ministry of Env'tl. Prot., May 25, 2011, effective May 25, 2011) (developed by the Chinese Academy for Environment Planning) (China).

³⁸ Section 5 of the Recommendation provides explicitly that this document mainly applies to the pilot areas to guide damage assessment and provide advice in settling environmental disputes or judging environmental pollution cases. The Recommendation uses soft words, such as “guide” and “advice”, and is not legally binding. *See id.*

insolvency will allow polluters to externalize harm to society and lead to underdeterrence.³⁹ To alleviate such problems, environmental insurance and other compensation instruments—such as risk sharing pools and environmental funds—and the use of capital markets can play a role.

The most popularly used compensation mechanism to address natural resource damage—or more broadly, general environmental damage—is insurance.⁴⁰ The introduction of environmental liability insurance is favored in literature in order to guarantee compensation and to avoid underdeterrence.⁴¹ Literature even argues for the adoption of mandatory insurance when there is serious concern about insolvency.⁴² However, most Chinese legislation, including the newly adopted TLL, is silent on compulsory insurance,⁴³ with again the only exception being marine oil pollution.⁴⁴ In this field, there is not only a legal obligation for certain types of ships to seek insurance coverage, but also in practice, insurance coverage does exist for parts of natural resource damage.⁴⁵

Environmental insurance has a rather short history in China. The government only recently issued a policy to encourage the

³⁹ See Peter-J. Jost, *Limited Liability and the Requirement to Purchase Insurance*, 16 INT'L REV. L. & ECON. 259, 259–76 (1996); Mattias K. Polborn, *Mandatory Insurance at the Judgment-Proof Problem*, 18 INT'L REV. L. & ECON. 141, 141–46 (1998).

⁴⁰ For the discussion about using insurance to cover environmental liability, see Kenneth S. Abraham, *Environmental Liability and the Limits of Insurance*, 88 COLUM. L. REV. 942, 949–50 (1988); Jeffrey Kehne, *Encouraging Safety Through Insurance-Based Incentives: Financial Responsibility for Hazardous Wastes*, 96 YALE L.J. 403 (1986); Haitao Yin et al., *Risk-Based Pricing and Risk-Reducing Effort: Does the Private Insurance Market Reduce Environmental Accidents?*, 54 J.L. & ECON. 325 (2011).

⁴¹ See, e.g., MICHAEL G. FAURE & TON HARTLIEF, POLICY ISSUES IN INSURANCE: INSURANCE AND EXPANDING SYSTEMIC RISKS 211–20 (2003).

⁴² When a serious insolvency risk exists, the insured only have incentives to buy insurance up to his amount of assets rather than the whole damage he may cause. Under this situation, compulsory insurance will make them internalize the whole costs they create. See Michael Faure & David Grimeaud, *Financial Assurance Issues of Environmental Liability*, in 5 TORT AND INSURANCE LAW: DETERRENCE, INSURABILITY, AND COMPENSATION IN ENVIRONMENTAL LIABILITY, *supra* note 17, at 7. Gerhard Wagner, *(Un)insurability and the Choice Between Market Insurance and Public Compensation Systems*, in 22 TORT AND INSURANCE LAW: SHIFTS IN COMPENSATION BETWEEN PRIVATE AND PUBLIC SYSTEMS 87, 110 (William Van Boom & Michael Faure eds., 2007).

⁴³ See also Faure, *supra* note 6, at 237.

⁴⁴ See *infra* Part IV.C.

⁴⁵ For example, the China Shipowners Mutual Assurance Association, a Protection & Indemnity Club in China, has a long history in covering pollution liability. See *infra* Part IV.C.

development of an environmental insurance market. The document, *Opinion on the Development of Environmental Pollution Liability Insurance*, was issued by the Ministry of Environmental Protection and China Insurance Regulatory Commission in 2007.⁴⁶ It requires local authorities to make efforts in environmental liability insurance research and experiments.⁴⁷

In practice, the environmental insurance market has developed rapidly since 2007.⁴⁸ There are already several types of products available in the market, such as a general liability insurance policy with an extension to pollution risks, stand-alone environmental liability insurance, and premises pollution liability insurance.⁴⁹ Theoretically, without specific exclusions, product liability insurance and property damage insurance may also cover some types of environmental damage.⁵⁰ However, the market is still in a stage of early development. Many limits and difficulties remain, such as the lack of incentives to buy insurance because of the low risk of liability and the adverse selection problem, meaning that only high-risk polluters have incentives to seek insurance coverage.⁵¹ Recently, the Ministry of Environmental Protection issued a document that requires some industries with high environmental risks, such as the ones related to heavy metals (mining, smelting, chemicals), to obtain environmental liability insurance.⁵² Hence, a mandatory environmental insurance policy is developing. However, given the recent history of such a document, how mandatory insurance will be

⁴⁶ Opinion on the Development of Environmental Pollution Liability Insurance Guanyu [Huanjing Wuran Zeren Baoxian Gongzuo De Zhidao Yijian] (promulgated by the Ministry of Env'tl. Prot. & China Insurance Regulatory Comm'n, Dec. 4, 2007) (China).

⁴⁷ *Id.*

⁴⁸ Zhou Daoxu, Fahui Baoxian Zuoyong, & Jianshe Lvse Jingji, *Guanyu Jianli Woguo Huanjing Wuran Zeren Baoxian Zhidu de Ruogan Sikao* [Using Insurance to Build a Green Economy: A Few Thoughts on Developing Environmental Liability Insurance], INS. INST. CHINA, http://www.iic.org.cn/D_resZL/index_lw_view_read.php?id=10121 (last visited Nov. 16, 2013).

⁴⁹ Interview with Ms. Zhang Jing and Ms. Jean Wu, representatives of the Munich Reinsurance Co., in Beijing, China (Sept. 15, 2011) (transcript on file with the authors).

⁵⁰ This, however, is rarely used in practice and thus remains a theoretical possibility.

⁵¹ Interview with Ms. Zhang Jing and Ms. Jean Wu, *supra* note 49.

⁵² Opinions on Experiments of Mandatory Environmental Pollution Liability Insurance [Guanyu Kaizhan Huanjing Wuran Qianghi Zeren Baoxian Shidian Gongzuo De Zhidao Yijian] (promulgated by Ministry of Env'tl. Prot., Feb. 21, 2013) (China).

established in China and whether it will play a significant role will have to wait to be seen.

E. Marine Oil Pollution as an Example

The above sections show that many obstacles exist in China in compensating for natural resource damage. On the one hand, the legal basis is lacking in establishing liability for natural resource damage; on the other hand, the penetration rate of environmental insurance is still low.⁵³ This makes the restoration of and compensation for natural resource damage rare. There is one exception, however, in the marine oil pollution area. Legislation explicitly admits the compensable nature of certain types of natural resource damage, such as prevention costs and restoration costs. Moreover, some standards exist to assess fishery losses, including the natural fishery losses.

Not only are legal obstacles in establishing liability alleviated, but some compensation instruments are in place or under development to cover oil pollution damage, such as insurance/risk sharing pools and oil funds.⁵⁴ Hence, this article focuses on marine oil pollution to show how natural resource damage is compensated in China, and how the regime can be further improved to promote the compensation for and prevention of natural resource damage. After briefly presenting the compensation models in the international regime and in the United States, we will return to the case of China with a focus on the compensation of natural resource damage caused by marine oil pollution.

II

THE COMPENSATION SYSTEM IN INTERNATIONAL CONVENTIONS FOR NATURAL RESOURCE DAMAGE CAUSED BY MARINE OIL POLLUTION

A. Overview of the International Compensation Regime of Marine Oil Pollution Damage

The international regime specifically dealing with marine oil pollution compensation has been developing since the late 1960s as a

⁵³ See Zhou DaoXu, *Woguo Huanjing Wuran Zeren Baoxian Fazhan de Lujing Xuanze Yu Zhidu Gouxiang* [Research on the Socialized Methods to Manage Environmental Pollution Risks: The Pathway and Regime for the Development of Environmental Liability Insurance], 18 ENVTL. ECON. 23 (2011).

⁵⁴ See *infra* Part IV.

reaction to some major oil spill incidents. Initially, in response to the Torrey Canyon spill in 1967, two international conventions were introduced to provide compensation for pollution victims. These conventions are the International Convention on Civil Liability for Oil Pollution Damage of 1969 (CLC of 1969)⁵⁵ and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage of 1971 (Fund Convention of 1971).⁵⁶

The CLC of 1969 imposes strict liability exclusively on the registered shipowner up to a certain amount.⁵⁷ It also requires compulsory insurance or a financial guarantee for pollution liability.⁵⁸ The Fund Convention of 1971 was later adopted to provide a second tier of compensation, given that the strict liability of the CLC of 1969 was considered harsh.⁵⁹ With the contribution of oil cargo owners to the Fund, it was believed that the harsh burden on the shipping industry could be alleviated to a certain extent.⁶⁰ Since then, an international regime on marine oil pollution compensation has been established.

Later catastrophic oil pollution incidents illustrated the insufficiency of the international regime (e.g., the Amoco Cadiz in 1978, Tanio in 1980, and Exxon Valdez in 1989). As a result, the international conventions were revised in 1992,⁶¹ whereby the amount

⁵⁵ See International Convention on Civil Liability for Oil Pollution Damage of 1969, Nov. 29, 1969, 973 U.N.T.S. 3 [hereinafter CLC of 1969]. The CLC of 1969 was later amended in 1992. CLC of 1992 to Amend the International Convention on Civil Liability for Oil Pollution Damage, Nov. 27, 1992, 1956 U.N.T.S. 255 [hereinafter CLC of 1992], reprinted in INT'L OIL POLLUTION COMPENSATION FUNDS, LIABILITY AND COMPENSATION FOR OIL POLLUTION DAMAGE 5–17 (2011).

⁵⁶ International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, Dec. 18, 1971, 1110 U.N.T.S. 57 [hereinafter Fund Convention of 1971].

⁵⁷ CLC of 1969, *supra* note 55.

⁵⁸ *Id.*

⁵⁹ Fund Convention of 1971, *supra* note 56.

⁶⁰ Hui Wang, *Shifts in Governance in the International Regime of Marine Oil Pollution Compensation: A Legal History Perspective*, in 21 TORT AND INSURANCE LAW: SHIFTS IN COMPENSATION FOR ENVIRONMENTAL DAMAGE 197, 218–19 (Michael Faure & Albert Verheij eds., 2007).

⁶¹ In fact, the international conventions were first revised in 1984. See Protocol of 1984 to Amend the International Convention on Civil Liability for Oil Pollution Damage (May 25, 1984), reprinted in 15 J. MAR. L & COM. 613 (1984). However, the entry into force of the Protocols in 1984 relied on the ratification of the United States. According to Article

of compensation was substantially increased and the scope of compensation was expanded. Despite the changes, the general principles of liability sharing between the shipping and oil industry, including strict liability, limitation of liability, compulsory insurance, and channeling of liability remain.

Again, later incidents, Erika in 1999 and Prestige in 2002, triggered further changes to the international conventions. The amount of compensation was increased by approximately fifty percent in 2000.⁶² Later in 2003, a Supplementary Fund Protocol was adopted to establish a so-called Supplementary Fund to provide a third tier of compensation.⁶³ Membership in the Supplementary Fund is optional, and any state that is a member of the 1992 Fund may join the Supplementary Fund.⁶⁴ As of October 4, 2013, twenty-nine states have ratified or acceded to the Supplementary Fund Protocol,⁶⁵ 123 states have ratified or acceded to the CLC of 1992,⁶⁶ and 111 states had ratified or acceded to the Fund Convention of 1992.⁶⁷

13 of the 1984 Protocol, it only enters into force “twelve months following the date on which ten States including six States each with not less than one million units of gross tanker tonnage have deposited instruments of ratification, acceptance, approval or accession with the Secretary-General of the Organization.” *Id.* art. 13. The United States is one of the six countries. Since the United States decided to take its own action through the Oil Pollution Act of 1990, Pub. L. No. 106-580, 104 Stat. 484 (codified at 33 U.S.C. §§ 2701–2762), it was clear that the United States would never ratify the international conventions. On the other hand, the occurrence of major pollution incidents shows that changes in the Protocol of 1984, such as an increased amount of compensation, were needed. As a result, major changes in the Protocol of 1984 were adopted in the CLC of 1992 and the need for U.S. ratification was eliminated. *See* Wang, *supra* note 60, at 204–05.

⁶² Wang, *supra* note 60, at 209.

⁶³ Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, May 16, 2003, 2004 O.J. (L 78/32) (Eur.) [hereinafter Supplementary Fund Protocol], *reprinted in* INT’L OIL POLLUTION COMPENSATION FUNDS, *supra* note 55, at 43. The Supplementary Fund Protocol entered into force on March 3, 2005. INT’L OIL POLLUTION COMPENSATION FUNDS, *supra* note 55, at 3.

⁶⁴ INT’L OIL POLLUTION COMPENSATION FUNDS, *supra* note 55, at 3.

⁶⁵ *Parties to the International Liability Compensation Conventions*, IOPC FUNDS, <http://www.iopcfunds.org/about-us/membership/map/> (last visited Nov. 16, 2013).

⁶⁶ IMO, STATUS OF MULTILATERAL CONVENTIONS AND INSTRUMENTS IN RESPECT OF WHICH THE INTERNATIONAL MARITIME ORGANIZATION OR ITS SECRETARY-GENERAL PERFORMS DEPOSITARY OR OTHER FUNCTIONS 262 (Sept. 30, 2013), *available at* <http://www.imo.org/About/Conventions/StatusOfConventions/Documents/Status%20-%202013.pdf>. In contrast, only thirty-six states are parties to the CLC of 1969. *Id.* at 244.

⁶⁷ *Parties to the International Liability Compensation Conventions*, *supra* note 65.

The International Group of Protection and Indemnity Clubs has introduced, on a voluntary basis, two agreements to increase the maximum amount of compensation for small tankers (STOPIA: Small Tanker Oil Pollution Indemnification Agreement)⁶⁸ and to indemnify the Supplementary Fund for fifty percent of the compensation payments it has made to the claimants if the ship involved in the incident is covered by the agreement (TOPIA: Tanker Oil Pollution Indemnification Agreement).⁶⁹ These two voluntary agreements went into force in 2006.

The CLC of 1992 replaced the CLC of 1969.⁷⁰ Although the Fund of 1971 and the Fund of 1992 are coexisting, the Fund of 1971 does not handle new cases and only focuses on the unsettled cases.⁷¹ Therefore, the discussion in this Article will mainly focus on the 1992 Conventions.

B. Natural Resource Damage Compensation Under the International Regime

1. Basis of Liability

The CLC of 1992 provides that the registered shipowner shall be held strictly liable for pollution damage caused by discharge of oil from the ship.⁷² Moreover, it further provides that the liability is exclusively imposed on the shipowner, and there is a list of parties whose liability for oil pollution damage compensation is explicitly excluded.⁷³ This is the so-called channeling provision⁷⁴ whereby the

⁶⁸ INT'L GRP. PROT. & INDEM. CLUBS, SMALL TANKER OIL POLLUTION INDEMNIFICATION AGREEMENT (STOPIA) (2006), available at http://www.iopcfunds.org/fileadmin/IOPC_Upload/Downloads/English/STOPIA-TOPIA.pdf.

⁶⁹ INT'L GRP. PROT. & INDEM. CLUBS, TANKER OIL POLLUTION INDEMNIFICATION AGREEMENT (TOPIA) (2006), available at http://www.iopcfunds.org/fileadmin/IOPC_Upload/Downloads/English/STOPIA-TOPIA.pdf.

⁷⁰ CLC of 1992, *supra* note 55.

⁷¹ *Parties to the International Liability and Compensation Conventions*, *supra* note 65.

⁷² CLC of 1992, *supra* note 55, art. III(1); *see also id.* art. I(3) (“‘Owner’ means the person or person, registered as the owner of the ship or, in the absence of registration, the person or persons owning the ship. However, in the case of a ship owned by a State and operated by a company which in that State is registered as the ship’s operator, ‘owner’ shall mean such company.”).

⁷³ *Id.* art. III(4).

⁷⁴ *See infra* Part V.B.1.

liability is directed at one particular party—in this case, the shipowner.

2. *Amount of Compensation*

Under the international regime, the liable party is not required to pay the full amount of compensation, but instead, his liability is capped at a certain amount.⁷⁵ This mechanism of limited liability has a long tradition in maritime law. However, at its origin—when it applied to the shipowner, who limited his liability vis-a-vis the cargo owner—it applied in a contractual situation.⁷⁶ In such a setting, the parties can negotiate in advance on the care to be taken, and a limited liability will be reflected in the contract price, that being the freight.⁷⁷ Whereas in the case of marine oil pollution, when the shipowner limits his liability towards the victims who do not stand in a contractual situation with the shipowner, the care taken by the shipowner will be suboptimal, and the costs of pollution incidents will be externalized.⁷⁸

The amounts of compensation under the CLC have been increased a few times since its adoption. The table below provides a summary of the compensation amount under the international regime through history.

⁷⁵ CLC of 1992, *supra* note 55, art. V.

⁷⁶ Wang, *supra* note 60, at 220.

⁷⁷ When a contractual relationship exists, theoretically, the two parties can negotiate for the content of the contract if the transaction costs are not prohibitively expensive. This can lead to efficiency automatically without legal intervention. However, in practice, the contract may not necessarily lead to efficiency given the information asymmetry and different bargaining power of the two parties. See ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 291–92 (5th ed. 2009).

⁷⁸ For a further discussion, see Michael Faure & Hui Wang, *Financial Caps for Oil Pollution Damage: A Historical Mistake?*, 32 *MARINE POL'Y* 592 (2008).

Table 1: Amount of Compensation by the Shipowner Under the International Regime⁷⁹

	CLC 1969 (SDR)	CLC 1992 (SDR)	2000 Protocol (SDR)
Ships ≤ 5,000 tons	133 (204.41 USD) per ton	3 million (4.61 million USD)	4.51 million (6.93 million USD)
Ships > 5,000 tons	133 (204.41 USD) per ton	3 million (4.61 million USD) + 420 (645.5 USD)/additional ton	4.51 million (6.93 million USD)+ 631 (969.8)/additional ton
Overall limit	14 million (21.52 million USD)	59.7 million (91.75 million USD)	89.77 million (137.97 million USD)

3. Scope of Compensation of Natural Resource Damage

Under the CLC of 1992, the concept of pollution damage is defined as

- (a) loss or damage caused outside the ship by contamination resulting from the escape or discharge of oil from the ship, wherever such escape or discharge may occur, provided that compensation for impairment of the environment other than loss of profit from such impairment shall be limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken;
- (b) the costs of preventive measures and further loss or damage caused by preventive measures.⁸⁰

This definition delimits the scope of compensable environmental damage. It provides that environmental damage *per se* is compensable but only so far as it is reasonable and only where reinstatement is actually undertaken or to be undertaken.⁸¹ However, the scope of environmental damage under the international regime is not so easy to demarcate in practice. Disputes often take place on the quantification of damage, the state as environmental trustee, and ecological

⁷⁹ The original unit of account used in the Conventions is special drawing right (SDR) as defined by the International Monetary Fund (IMF). For the convenience of comparison, all the units of account mentioned in this article are changed to USD as per exchange rate provided by the IMF on December 28, 2012: 1 SDR=1.53692 USD.

⁸⁰ CLC of 1992, *supra* note 55, art. I(6).

⁸¹ David Wilkinson, *Moving the Boundaries of Compensable Environmental Damage Caused by Marine Oil Spills: The Effect of Two New International Protocols*, 5 J. ENVTL. L. 71, 84–85 (1993).

restoration.⁸² It is often up to the national courts to decide where the lawsuits are brought and to interpret the meaning of vague terms such as “reasonable measures.”⁸³

Although there is no authoritative interpretation of the international conventions, the International Oil Pollution Compensation Fund has developed, through years of experience with handling compensation claims, a Claims Manual containing specific criteria for the assessment of environmental damage.⁸⁴ The Claims Manual is not designed as an authoritative interpretation of the international conventions but rather is meant to assist claimants by giving a general overview of the Fund’s obligation to pay contribution.⁸⁵ However, the Claims Manual may serve as a useful guideline.

As far as compensation for environmental damage is concerned, the Claims Manual provides that

[c]ompensation is payable for the costs of reasonable reinstatement measures aimed at accelerating natural recovery of environmental damage. Contributions may be made to the costs of post-spill studies provided that they relate to damage which falls within the definition of pollution damage under the Conventions, including studies to establish the nature and extent of environmental damage caused by an oil spill and to determine whether or not reinstatement measures are necessary and feasible.⁸⁶

The Claims Manual further provides that “reasonable costs associated with the capture, cleaning and rehabilitation of wildlife, in particular birds, mammals and reptiles” are to be compensated.⁸⁷

For the criteria of “reasonableness,” there should be a sufficiently close link of causation between the loss or damage and the contamination. Such a close link may be considered in the light of such factors as (1) “[t]he geographic proximity of the claimant’s business activity to the contaminated area”; (2) “[t]he degree to which a claimant’s business is economically dependent on an affected

⁸² Michael Mason, *Civil Liability for Oil Pollution Damage: Examining the Evolving Scope for Environmental Compensation in the International Regime*, 27 MARINE POL’Y 1, 3–5 (2003).

⁸³ For a discussion of the different explanations of the compensable in member states, see Mason, *supra* note 82.

⁸⁴ See INT’L OIL POLLUTION COMPENSATION FUND 1992, CLAIMS MANUAL (Dec. 2008), available at www.iopcfunds.org/uploads/tx_iopcpublications/2008_claims_manual_e.pdf.

⁸⁵ *Id.* at 5.

⁸⁶ *Id.* at 13.

⁸⁷ *Id.* at 12.

resource”; (3) “[t]he extent to which a claimant had alternative sources of supply or business opportunities”; and (4) “[t]he extent to which a claimant’s business forms an integral part of the economic activity within the area affected by the spill.”⁸⁸ Moreover, claims for compensation for environmental damage, calculated by theoretical models in accordance with abstract models, are inadmissible.⁸⁹ Punitive damage based on the degree of fault of the wrongdoer is also not compensable.⁹⁰

C. Compensation Instruments for Oil Pollution Damage

1. Insurance

To guarantee the availability of compensation, the CLC regime requires compulsory financial security. The CLC requires the owner of a ship registered in a contracting state and carrying more than 2,000 tons of oil as cargo to maintain insurance or other financial security up to his limits of liability.⁹¹ In addition to insurance, the financial security can also be a bank guarantee or a certificate delivered by an international compensation fund.⁹² The most popularly used instrument is insurance, especially protection and indemnity policies.

Insurance for ocean-going ships is mainly provided by Protection and Indemnity (P&I) Clubs.⁹³ Thirteen P&I Clubs form the International Group of P&I Clubs (the Group).⁹⁴ The Group arranges reinsurance together for the Clubs.⁹⁵ It is reported that the thirteen principal clubs provide liability cover for approximately ninety

⁸⁸ *Id.* at 29.

⁸⁹ *Id.* at 36.

⁹⁰ *Id.*

⁹¹ CLC of 1992, *supra* note 55, art. VII(1).

⁹² *Id.* art. VII(2).

⁹³ See 5 FAURE & HARTLIEF, *supra* note 41, at 165–66; T.G. Coghlin, *Protection and Indemnity Clubs*, 1984 LLOYD’S MAR. & COM. L.Q. 403, 403–16.

⁹⁴ *Welcome to the International Group of P&I Clubs*, INT’L GRP. P&I CLUBS, <http://www.igpandi.org/> (last visited Nov. 6, 2013).

⁹⁵ *Id.*

percent of the world's ocean-going tonnage⁹⁶ and ninety-eight percent of the world's tanker fleet.⁹⁷

P&I coverage usually includes "unlimited reimbursement for claims arising from the following: 1) liabilities in respect of persons, 2) liability in respect of cargo, 3) collision with ships or with fixed and floating objects, 4) salvage, 5) compulsory wreck removal, 6) fines imposed by government agencies, 7) quarantine expenses, 8) towage liabilities, 9) "sue and labor" and legal costs, 10) any other liabilities which the club's directors deem proper to cover, and 11) limited reimbursement for "oil pollution claims which arise from the entered vessels."⁹⁸ The oil pollution claim means "a liability, cost, loss or expense, howsoever incurred, in respect of or relating to an escape or discharge of oil or any threat or consequence of such escape or discharge, but excluding liability for loss of or damage to such oil."⁹⁹ The term "liability" in this expression is determined by international conventions and national legislations applicable in each case.¹⁰⁰ One important source in that respect is the CLC.

One important characteristic of P&I Clubs is that they are risk-sharing agreements rather than private commercial insurance.¹⁰¹ The

⁹⁶ *Id.*

⁹⁷ BRIT. MAR. TECH. LTD, WORK PACKAGE 2.1—QUALITY & EFFICIENCY 8 (Oct. 2005), available at http://www.maritime-transport.net/mtso/downloads/Public_Information/MTCP_report_Maritime_Insurance_Study.pdf. *Id.*

⁹⁸ Norman J. Ronneberg, Jr., *An Introduction to Protection & Indemnity Clubs and the Marine Insurance They Provide*, 3 U.S.F. MAR. L.J. 1, 7–9 (1990). Ronneberg's analysis was based on the Swedish Club's 1990 rulebook. SVERIGES ANGFARTYGS ASSURANS FORENING, 1990 RULEBOOK (1990). The similar coverage can also be found in the 2010 rulebook of the United Kingdom P&I Club. U.K. P&I CLUB, LIST OF CORRESPONDENTS RULES AND BYE-LAWS (2010), available at http://www.ukpandi.com/fileadmin/uploads/uk-pi/Documents/2010RulesandCorrespondents_01.pdf. In the rulebook, the "unlimited" reimbursement does not mean that the Club should pay the full costs which fall into the categories; instead, the reimbursement is subject to the limitation of liability set by law. *Id.* at 35. For oil pollution claims, the compensable sums are determined by Directors of the Club. *Id.*

⁹⁹ U.K. P&I CLUB, *supra* note 98, at 35.

¹⁰⁰ Paul Bennett, *Environmental Governance and Private Actors: Enrolling Insurers in International Maritime Regulation*, 19 POL. GEOGRAPHY 875, 888 (2000).

¹⁰¹ Risk-sharing agreement means the sharing of potential losses among the participants of the pool. For the discussion of the characteristics of risk-sharing agreements, see Michael Faure, *Alternative Compensation Mechanisms as Remedies for Uninsurability of Liability*, 29 GENEVA PAPERS ON RISK & INS. 455 (2004).

shipowners are both insurers and insured.¹⁰² This gives them incentives to exercise mutual monitoring via the P&I Clubs.¹⁰³

The International Group provides reinsurance for the P&I Clubs. At this moment, for the shipowners' policies, each Club retains the first \$8 million as their retentions.¹⁰⁴ The amount between \$8 million and \$6.09 billion is divided among all the Clubs.¹⁰⁵ The captive insurer of the Group—Hydra Insurance Company and reinsurance with the international insurance market—also plays an important role in providing reinsurance for the upper layers.¹⁰⁶ This brings the upper limit of the reinsurance program to \$3,070 million. In this amount, the limit for compensation for oil pollution is limited to \$1,070 million.¹⁰⁷ The large market share of P&I Clubs and the potential restrictions on competition by its Pooling agreement and International Group Agreement have led to anticompetition concerns from the European Commission.¹⁰⁸

2. *Compensation Funds*

In addition to the financial security, compensation funds are also established to complement the compensation available from the CLC of 1992. There are three international funds at this moment. The IOPC Fund of 1971, established under the Fund Convention of 1971, has been denounced by most countries, and the Fund Convention

¹⁰² See Di Jin & Hauke Kite-Powell, *Environmental Liability, Marine Insurance and An Optimal Risk Sharing Strategy for Marine Oil Transport*, 10 MARINE RESOURCE ECON. 1, 4 (1995).

¹⁰³ For a discussion of the deterrent effect of risk-sharing agreements, see Göran Skogh, *A European Nuclear Accident Pool*, 33 GENEVA PAPERS ON RISK & INS. 274 (2008).

¹⁰⁴ *IG of P&I Associations*, AM. CLUB, <http://www.american-club.com/page/international-group-of-pi-associations> (last visited Nov. 16, 2013).

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *International Group of P and I Associations*, AM. CLUB, http://www.american-club.com/files/files/2013_Reinsurance_Diagram.pdf (last visited Nov. 16, 2013).

¹⁰⁸ The European Commission opened formal proceedings to investigate whether the agreements between the P&I Clubs might infringe upon European antitrust rules. *Antitrust: Commission Opens Formal Probe into Marine Insurance Agreements*, EUROPA (Aug. 26, 2010), http://europa.eu/rapid/press-release_IP-10-1072_en.htm. This investigation closed in 2012 with the conclusion that the investigation cannot confirm the concerns over antitrust issues. *Antitrust: Commission Closes Investigation in P&I Clubs Case*, EUROPA (Aug. 1, 2012), http://europa.eu/rapid/press-release_IP-12-873_en.htm.

ceased to be in force as of May 2002.¹⁰⁹ The current maximum compensation under the 1992 Fund, after an increase in 2000, is 203 million SDR (311.99 million USD) (including the payment under the CLC of 1992), and the compensation under the Supplementary Fund reaches 750 million SDR (1152.69 million USD) (including the payment under the 1992 Conventions).¹¹⁰

The total amount available for compensating oil pollution damage under the international regimes is provided in Table 2.

Table 2: Compensation for Pollution Damage Under the International Regime

	CLC 1969 (SDR)	CLC 1992 (SDR)	2000 Protocol (SDR)
Ships ≤ 5,000 tons	133 (204.41 USD) per ton	3 million (4.61 million USD)	4.51 million (6.93 million USD)
Ships > 5,000 tons	133 (204.41 USD) per ton	3 million (4.61 million USD)+ 420 (645.5 USD)/additional ton	4.51 million (6.93 million USD) + 631 (969.8 USD)/additional ton
Aggregate amount	14 million (21.52 million USD)	59.7 million (91.75 million USD)	89.77 million (137.97 million USD)
	IOPC Fund 1971 (SDR)	IOPC Fund 1992 (SDR)	2000 Protocol (SDR)
Overall limit	60 million (92.22 million USD)	135 million (207.48 million USD)	203 million (311.99 million USD)

III

COMPENSATION SYSTEM FOR NATURAL RESOURCE DAMAGE CAUSED BY MARINE OIL POLLUTION IN THE UNITED STATES

A. Overview of the U.S. Regime

The United States has participated vigorously in the discussion on an international regime for marine oil pollution compensation, but it never ratified any of the international conventions. This is largely due

¹⁰⁹ *The Old Regime: The 1969 Civil Liability Convention and the 1971 Fund Convention*, IOPC FUNDS, <http://www.iopcfunds.org/about-us/legal-framework/the-old-regime-1969-clc-and-1971-fund-convention/> (last visited Nov. 6, 2013).

¹¹⁰ *The 1992 Fund Convention*, IOPC FUNDS, <http://www.iopcfunds.org/about-us/legal-framework/1992-fund-convention-and-supplementary-fund-protocol/> (last visited Nov. 6, 2013).

to the dissatisfaction with the international regime, such as “the pre-emption of states laws, low-liability limits,” and channeling liability to shipowners.¹¹¹ When the Exxon Valdez accident occurred in Alaska in 1989, the U.S. Congress quickly passed OPA in 1990, which provides the basic compensation system at the federal level in the U.S.¹¹² OPA has some similarities with the international regime, such as strict liability and limited liability with compulsory financial guarantee.¹¹³ However, it has some substantial differences as well: the scope of compensable damage is much wider, liability is not channeled, and higher liability limits apply with more possibilities for the potential responsible parties to lose their right to limit their liability.¹¹⁴ OPA does not preempt state laws, which means that states can still impose additional liability or financial responsibility.¹¹⁵

B. Compensation System for Natural Resource Damage Under OPA

1. Basis of Liability

As in the CLC, OPA also imposes liability on the responsible parties.¹¹⁶ Unlike the international regime established through the CLC, OPA does not channel liability to one particular party but provides a joint and several liability of the shipowner, operator, and demise charterer.¹¹⁷

2. Amount of Compensation

OPA also establishes limits on oil pollution liability for different types of facilities. With the exception of an offshore facility, a cap is established for the total sum of removal costs and damages.¹¹⁸ The

¹¹¹ Michael G. Faure & Hui Wang, *Civil Liability and Compensation for Marine Pollution-Lessons to be Learned for Offshore Oil Spills*, 8 OIL, GAS, & ENERGY L. INTELLIGENCE 1, 3 (2010).

¹¹² Steven Swanson, *OPA 90(10): The Oil Pollution Act of 1990 After Ten Years*, 32 J. MAR. L. & COM. 135, 135 (2001).

¹¹³ For an introduction to the liability and compensation system under OPA, see Albert Verheij, *Shifts in Governance: Oil Pollution*, in 21 TORT AND INSURANCE LAW: SHIFTS IN COMPENSATION FOR ENVIRONMENTAL DAMAGE, *supra* note 60, at 133, 170–75.

¹¹⁴ For a comparison between these two systems, see *id.* at 133–95. See also *infra* Part V.

¹¹⁵ 33 U.S.C. § 2718 (2012).

¹¹⁶ *Id.* § 2702(a).

¹¹⁷ *Id.* § 2701(32)(A).

¹¹⁸ *Id.* § 2704(a).

cap is the greater of a per incident cap and a per gross ton cap.¹¹⁹ In 2006, the Coast Guard and Maritime Transportation Act (CGMTA) increased the cap.¹²⁰ The CGMTA also established different caps for single-hull and double-hull tankers.¹²¹ In 2009, the Coast Guard made a further increase to the cap.¹²²

Table 3: Comparison of Liability Limits Under OPA 90 and the Coast Guard and Maritime Transportation Act of 2006.

Vessel	OPA 90 liability limits (USD)	2006 (2009) liability limits (USD)
Single hull tanker > 3,000GT	1,200/GT or 10 million	3,000 (3,200)/GT or 22 million (23.496 million)
Single hull tanker ≤3,000 GT	1,200/GT or 2 million	3,000 (3,200)/GT or 6 million (6.408 million)
Double hull tanker > 3,000GT	1,200/GT or 10 million	1,900 (2,100)/GT or 16 million (17.088 million)
Double hull tanker ≤3,000 GT	1,200/GT or 2 million	1,900 (2,100)/GT or 4 million (4.272 million)
Any vessel other than a tanker	600/GT or 0.5 million	950 (1,000)/GT or 0.8 million (854,400)

First, the single-hull tanker mentioned in the CGMTA includes single-hull tankers with double sides only or a double bottom only.¹²³ Second, the amount of limitation is always the higher of the two amounts in comparison.¹²⁴ In 2009, the Coast Guard made its first consumer-price index (CPI) adjustment to the liability limits, increased the limits for double-hull tankers from 1,900 to 2,000 USD per gross ton, and increased single-hull tankers from 3,000 to 3,200 USD per gross ton.¹²⁵

In spite of those caps, a responsible party can lose its right to limitation if the incident was proximately caused by “gross negligence or willful misconduct of” or “the violation of an applicable Federal safety, construction, or operating regulation.”¹²⁶ A responsible

¹¹⁹ *Id.*

¹²⁰ Coast Guard and Maritime Transportation Act of 2006, Pub. L. No. 109-241, 120 Stat. 516.

¹²¹ *Id.*

¹²² Consumer Price Index Adjustments of Oil Pollution Act of 1990 Limits of Liability—Vessels and Deepwater Ports, 74 Fed. Reg. 31357 (July 1, 2009).

¹²³ Coast Guard and Maritime Transportation Act of 2006 § 603(a)(1)(A).

¹²⁴ *Id.* § 603(a).

¹²⁵ Consumer Price Index Adjustments of Oil Pollution Act of 1990 Limits of Liability, 74 Fed. Reg. at 31360.

¹²⁶ 33 U.S.C. § 2704(c)(1)(A)–(B) (2012).

party may also face unlimited liability if it fails to report an incident, provide requested cooperation in connection with removal activities, or comply with an order of the President.¹²⁷ Even when a responsible party can revoke the limitation under OPA, the party may still face unlimited liability under applicable state law.

3. Scope of Compensation of Natural Resource Damage

OPA allows compensation for the removal costs. Under OPA, “‘remove’ or ‘removal’” means “containment and removal of oil or a hazardous substance from water and shorelines or the taking of other actions as may be necessary to minimize or mitigate damage to the public health or welfare.”¹²⁸ In order to clean up, removal is the first step taken after oil pollution. Broadly speaking, removal cost is also one part of natural resource damage. But the United States treats removal costs differently from other damages, including natural resource damage.

Under OPA, responsible parties are liable for removal costs and damages.¹²⁹ The term “damages” includes the following: natural resources, real or personal property, subsistence use, revenues, profits and earning capacity, and public services.¹³⁰ It is clear from this definition that the term “natural resource damage” does not include removal costs. This dichotomy is different from the structure in the ELD, under which the term “environmental damage” includes both the emergency response and restoration afterwards.¹³¹ Hence, when discussing the compensation for ecological damage in the United States, one should bear in mind that both removal costs and natural resource damage are relevant. Removals are undertaken immediately to prevent or mitigate the damage. Only when there is still damage

¹²⁷ *Id.* § 2704(c)(2)(A)–(C).

¹²⁸ *Id.* § 2701(30).

¹²⁹ *Id.* § 2702(a).

¹³⁰ *Id.* § 2702(b)(2)(A)–(F).

¹³¹ According to the ELD, when there is an imminent threat of environmental damage, the operator shall take preventive measures and remedial measures. ELD, *supra* note 20, art. 5. The operator shall bear the costs of these actions and if the competent authorities have taken such measures themselves, they shall recover the costs from the operator. *Id.* art. 8. The term “preventive measures” is defined as “any measures taken in response to an event, act or omission that has created an imminent threat of environmental damage, with a view to preventing or minimising that damage.” *Id.* art. 2. So it is a concept similar to emergency response in the U.S. law.

left after the removal is it necessary to make a natural resource damage assessment to quantify the remaining damage and restore the environment.

How to determine the scope and quantify the damage has long been a problem perplexing people when calculating the damage to the environment. OPA gives a definition to the term “natural resource damage,” which includes “(A) the costs of restoring, rehabilitating, replacing, or acquiring the equivalent of, the damage natural resources; (B) the diminution in value of those natural resources pending restoration; plus (C) the reasonable cost of assessing those damages.”¹³²

This definition is quite broad. Restoration is used as the primary method to evaluate the loss of natural resources and the diminution of services.¹³³ In addition to restoration costs, other alternatives and interim losses pending the restoration are also compensable.¹³⁴ OPA authorizes federal authorities, state authorities, and Indian tribes as trustees of natural resources to assess and quantify the damage.¹³⁵ It also requires the National Oceanic and Atmospheric Administration (NOAA) to promulgate regulations for the assessment of natural resource damage.¹³⁶ The assessment made according to these regulations has the force and effect of a rebuttable presumption.¹³⁷

In 1996, NOAA promulgated the final rule concerning natural resource damage assessments.¹³⁸ This regulation prescribes a concrete procedure and assessment method. Under the NOAA assessment rule, restoration is defined as any action to “restore, rehabilitate, replace, or acquire the equivalent of” the damaged natural resources.¹³⁹ To compensate for interim losses, the NOAA rule also adopts a restoration-based approach: compensatory restoration is allowed to compensate for the lost “natural resources and services that occur from the date of the incident until recovery.”¹⁴⁰ When determining

¹³² 33 U.S.C. § 2706(d)(1)(A)–(C).

¹³³ VALERIE ANN LEE ET AL., *THE NATURAL RESOURCE DAMAGE ASSESSMENT DESKBOOK: A LEGAL AND TECHNICAL ANALYSIS* 16 (reprt. 2007).

¹³⁴ 33 U.S.C. § 2706(d)(1).

¹³⁵ *Id.* § 2706(c).

¹³⁶ *Id.* § 2706(e)(1).

¹³⁷ *Id.* § 2706(e)(2).

¹³⁸ Natural Resource Damage Assessments, 61 Fed. Reg. 440 (Jan. 5, 1996) (codified at 15 C.F.R. pt. 990).

¹³⁹ 15 C.F.R. § 990.30 (2013).

¹⁴⁰ *Id.*

compensatory restoration, trustees should use a resource-to-resource or service-to-service approach to compensate for the lost natural resources service or value.¹⁴¹ If these approaches are not possible, trustees can use other evaluation techniques to “estimate the dollar value of the lost services and select the scale of the restoration action that has a cost equivalent to the lost value.”¹⁴² A variety of valuation techniques may be used to calculate the monetary value, including the disputed contingent valuation technique.¹⁴³

According to OPA and the NOAA assessment regulation, an assessment can be made in one of two ways: either the trustees can conduct the assessment and make claims against the responsible parties for the costs, or the trustees can conduct the assessment together with the participation of the responsible parties.¹⁴⁴ The most common approach would be a cooperative assessment involving both the trustees and responsible parties in the assessment procedures.¹⁴⁵ A cooperative approach is desirable because it can promote fast restoration and avoid costly and time-consuming litigation. An early involvement of the responsible parties and even insurers can also make the risks more predictable for the insurers and can thus enhance the insurability of natural resource damage. Though it has been subject to many challenges since its promulgation, the NOAA assessment regulation provides practicable guidance in tackling the debatable and difficult task of natural resource damage assessment.¹⁴⁶

¹⁴¹ *Id.* § 990.53(d)(2). See Keith B. Letourneau & Wesley T. Welmaker, *The Oil Pollution Act of 1990: Federal Judicial Interpretation Through the End of the Millennium*, 12 U.S.F. MAR. L.J. 147, 188 (2000) (“Resource-to-resource restoration actions are designed to restore the damaged natural resource to an equivalent quantity of the same or comparable resource. . . . A service-to-service restoration action is one designed to restore lost services to an equivalent quantity.”).

¹⁴² 15 C.F.R. § 990.53(d)(3)(ii).

¹⁴³ Letourneau & Welmaker, *supra* note 141. A contingent valuation method is a method to value natural resources by doing surveys and asking people what monetary value they would like to place on certain resources. It is not based on actual market transactions but is hypothetical, assuming people will respond to the surveys as in an actual transaction. See Frank B. Cross, *Natural Resource Damage Valuation*, 42 VAND. L. REV. 269, 315–19 (1989).

¹⁴⁴ 33 U.S.C. § 2706(a)(c) (2012); 15 C.F.R. § 990.14(c).

¹⁴⁵ Craig H. Allen, *Proving Natural Resource Damage under OPA 90: Out with the Rebuttable Presumption, in with APA-Style Judicial Review?* 85 TUL. L. REV. 1039, 1055–56 (2011).

¹⁴⁶ For a more detailed analysis of the NOAA assessment regulation, see Charles B. Anderson, *Damage to Natural Resources and the Costs of Restoration*, 72 TUL. L. REV.

4. State Laws

OPA does not preempt state legislation. States can still have their own liability legislation concerning oil pollution.¹⁴⁷ In the United States, thirty of the fifty States have a coastline. All but six of these coast states have legislation on vessels liability.¹⁴⁸

States may have liability rules that diverge from OPA's by allowing a broader definition of the responsible parties, higher liability limits, or even unlimited liability.¹⁴⁹ For example, cargo owners are admitted as responsible parties explicitly in some states, such as Alaska, California, Maryland, and New Jersey.¹⁵⁰ In some other states, cargo owners are also potentially liable; though they are not explicitly listed as responsible parties, the broad definition of responsible parties does not exclude cargo owners.¹⁵¹

Some states impose strict and unlimited civil liability for cleanup costs, natural resource damages, and private losses caused by oil pollution, including pure economic losses, such as Alaska, California, North Carolina, and Rhode Island.¹⁵² In some other states, unlimited liability is only established for certain categories of damage, such as in Washington (for cleanup costs and damages to persons or property), Maryland (for cleanup costs, damage to real and personal property, and natural resource damages), Massachusetts (for natural resource damages), and Florida (for natural resource damages, damage to real and personal property, and losses consequential upon property damage).¹⁵³

A comprehensive discussion of the state oil pollution statutes is not within the scope of this Article. However, it is worth noting that the state statutes, in addition to OPA, make vessels coming into American

417, 466–84 (1997); Letourneau & Welmaker, *supra* note 141, at 186–89; James S. Seevers, Note, *NOAA's New Natural Resource Damage Assessment Scheme: It's Not About Collecting Money*, 53 WASH. & LEE L. REV. 1513 (1996).

¹⁴⁷ Robert Force et al., *Deepwater Horizon: Removal Costs, Civil Damages, Crimes, Civil Penalties, and State Remedies in Oil Spill Cases*, 85 TUL. L. REV. 889, 978–79 (2011).

¹⁴⁸ *Id.*

¹⁴⁹ For a short summary of the states' legislation, see COLIN DE LA RUE & CHARLES B. ANDERSON, *SHIPPING AND THE ENVIRONMENT* app. 3 at 1163–81 (2d ed. 2009) and Force et al., *supra* note 147.

¹⁵⁰ See DE LA RUE & ANDERSON, *supra* note 149; Force et al., *supra* note 147.

¹⁵¹ See *supra* note 150.

¹⁵² Force et al., *supra* note, 147, at 979.

¹⁵³ *Id.*

ports face potentially unlimited liability.¹⁵⁴ This is quite different than the international regime. Besides, some of the stricter state statutes often require a higher financial responsibility.¹⁵⁵ Whether and to what extent the combination of unlimited liability and financial responsibility in states can contribute to better cost internalization and safer records also deserves more attention.

C. Compensation Instruments

1. Financial Responsibility

Liability itself cannot guarantee cost internalization and compensation. To ensure the availability of compensation in case of damage, OPA requires potential responsible parties to establish and maintain evidence of financial responsibility up to a certain level.¹⁵⁶ To ensure the capacity of public authorities to remove pollution in case of damage and to provide further protection to victims, the Oil Spill Liability Trust Fund was established.¹⁵⁷

OPA requires some vessels and offshore facilities to provide evidence of financial responsibility. The responsible party for “(1) any vessel over 300 gross tons . . . using any place subject to the jurisdiction of the United States; [and] (2) any vessel using the waters of the exclusive economic zone to transship or . . . oil destined for a place subject to the jurisdiction of the United States” is required to provide evidence of financial responsibility “sufficient to meet the maximum amount of liability” set in OPA.¹⁵⁸

The parties who are required to provide evidence of financial responsibility expanded to the responsible parties of “any tank vessel over 100 gross tons using any place subject to the jurisdiction of the United States” under the Coast Guard Authorization Act in 2010.¹⁵⁹

¹⁵⁴ In some states, vessels face unlimited liability according to state law. *See id.*

¹⁵⁵ *See* Inho Kim, *A Comparison Between the International and US Regimes Regulating Oil Pollution Liability and Compensation*, 27 *MARINE POL'Y* 263, Annex B (2003).

¹⁵⁶ 33 U.S.C. § 2716 (2012).

¹⁵⁷ Lawrence Kiern, *Liability, Compensation and Financial Responsibility under the Oil Pollution Act of 1990: A Review of the First Decade*, 24 *TUL. MAR. L.J.* 481, 545 (2000).

¹⁵⁸ 33 U.S.C. § 2716(a)(1)–(3).

¹⁵⁹ *Id.* § 2716(a)(3) (codifying the Coast Guard Authorization Act of 2010, Pub. L. No. 111-281, 124 Stat. 2905 (2010)).

For the identified offshore facilities, different levels of financial responsibilities are required based on the type of facilities. For an offshore facility located seaward of the seaward boundary of a State, the level is set at \$35 million.¹⁶⁰ For an offshore facility located landward of the seaward boundary of a State, the level is set as \$10 million.¹⁶¹ The responsible party of a deepwater port is required to provide financial responsibility sufficient to meet its maximum liability established under OPA.¹⁶²

Potential responsible parties can use various methods to establish their financial responsibility, including the following: insurance, surety bond, guarantee, letter of credit, qualification as a self-insurer, or other evidence.¹⁶³ As a guarantor under OPA, one has to accept the direct action by claimants.¹⁶⁴ Further, “the guarantor may not invoke any other defense that might be available in proceedings brought by the responsible [parties] against the guarantor.”¹⁶⁵

If potential responsible parties can demonstrate the required financial responsibility, a certificate of financial responsibility (COFR) is issued.¹⁶⁶ Traditionally, insurance has been the most popularly used method to meet financial responsibility.¹⁶⁷ Well before the promulgation of OPA, P&I Clubs were the primary providers of maritime liability insurance.¹⁶⁸ Even though they remained insurance providers, they refused to act as guarantors under OPA.¹⁶⁹ In addition to P&I Clubs, many other insurers and shipping industries have shown their concerns or criticisms towards OPA and the financial responsibility regulations issued by the Coast Guard.¹⁷⁰ Major issues include potential unlimited liability under OPA and states’ statutes and the capacity of the reinsurance market and the possibility of a direct action against guarantors.¹⁷¹ The critics even predicted that

¹⁶⁰ *Id.* § 2716(c)(1)(B)(i).

¹⁶¹ *Id.* § 2716(c)(1)(B)(ii).

¹⁶² *Id.* § 2716(c)(2).

¹⁶³ *Id.* § 2716(e).

¹⁶⁴ *Id.* § 2716(f)(1).

¹⁶⁵ *Id.* § 2716(f)(1)(C).

¹⁶⁶ Inho Kim, *Financial Responsibility Rules Under the Oil Pollution Act of 1990*, 42 NAT. RESOURCES J. 565, 570 (2002).

¹⁶⁷ *Id.* at 571.

¹⁶⁸ *See id.*

¹⁶⁹ DE LA RUE & ANDERSON, *supra* note 149, at 57.

¹⁷⁰ Kiern, *supra* note 157, at 558–70.

¹⁷¹ DE LA RUE & ANDERSON, *supra* note 149, at 56–58; Kiern, *supra* note 157, at 561–62.

OPA of 1990 would result in the so-called “train-wreck” scenario, which refers to the withdrawal of most vessels from U.S. trade and the possibility of a related disruption in the U.S. economy.¹⁷²

In spite of the doubts, the “train wreck” never materialized. Though refusing to act as guarantors under the OPA, the P&I Clubs still provide oil pollution coverage in the United States at the price of additional premiums.¹⁷³ Besides, several alternatives started to emerge as the “guarantors”—such as the Shoreline Mutual Insurance Association and the First Line and Arvak Ltd.—after the issue of the Coast Guard’s Interim Final Rule on Financial Responsibility.¹⁷⁴ Some larger tanker operators can also satisfy their responsibility through surety bond or self-insurance.¹⁷⁵ Those instruments have been developed for the financial responsibility purpose under the invisible hand of the U.S. oil market.¹⁷⁶ It is worth noting that those instruments are not designed to replace but to complement the P&I policies.¹⁷⁷ Usually, their coverage requires membership in a P&I Club.¹⁷⁸ The P&I Clubs remain to assume oil pollution costs in most cases, and only when the P&I Clubs fail to provide coverage will the risks fall within the scope of the new instruments.¹⁷⁹

In addition to the financial responsibility required by OPA, some state statutes also have provisions on financial responsibility. Some of the states require financial responsibility from parties other than the ones under OPA, such as owners of oil (California).¹⁸⁰ Some states require a higher level of financial responsibility than the federal level, such as Alaska (for tank vessels and oil barges carrying crude oil, \$400.20 for each barrel of storage capacity or \$133,400,000, whichever is greater), California (\$1 billion for owners and operators of tankers, large barges, and owners of oil), and Washington (\$500

¹⁷² See Financial Responsibility for Water Pollution (Vessels), 59 Fed. Reg. 34210, 34225-26 (July 1, 1994); Import Disruption Possible if Pollution Liability Is Not Resolved, Hart’s Petromoney, Mar. 21, 1994, at 1 (cited by Lawrence Kiern, *supra* note 157, at 566 n.625).

¹⁷³ Kim, *supra* note 166, at 578–79.

¹⁷⁴ *Id.* at 577.

¹⁷⁵ DE LA RUE & ANDERSON, *supra* note 149, at 61–63.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

¹⁷⁹ Kim, *supra* note 166, at 577, 581–82.

¹⁸⁰ DE LA RUE & ANDERSON, *supra* note 149.

million for a tank vessel that carries oil as cargo).¹⁸¹ To make it possible for potential responsible parties to meet their higher financial responsibility, some states allow the use of membership in a P&I Club as evidence of financial responsibility, such as Virginia and California.¹⁸² The California statute does not provide a right of direct action.¹⁸³ Virginia lists the instruments that are subject to direct action, such as insurance, guaranty, or surety.¹⁸⁴ Virginia does not require P&I Clubs to be subject to direct action.¹⁸⁵

2. *Compensation Funds*

Though the COFR can ensure a certain extent of compensation, damage may remain uncompensated if the limit of the COFR or liability is exceeded. In response to an accident, the public authorities may need to take removals and make natural resources assessment and then seek the costs from liable parties. The prolonged claim procedure may influence the capacity of public authorities to make a prompt response. To fill in those gaps, the Oil Spill Liability Trust Fund (OSLTF) was established.¹⁸⁶

The Fund is available for the removal costs of the trustees consistent with the National Contingency Plan.¹⁸⁷ These costs include the costs incurred by the trustees in assessing the natural resource damage and developing and implementing the restoration plans, removal costs incurred by other parties determined to be consistent with the National Contingency Plan, uncompensated removal costs and damages, and related administrative costs.¹⁸⁸ Except under some limited situations, the claims should be presented to the responsible parties or their guarantors first.¹⁸⁹ OPA limits payments by the OSLTF for removal costs and damages in each incident to \$1 billion.¹⁹⁰ A sublimit for natural resource damages payments is set at \$500 million per incident.¹⁹¹ The per incident limit for removal costs

¹⁸¹ *Id.*

¹⁸² *Id.* at 60.

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ Kim, *supra* note 166, at 567.

¹⁸⁷ 33 U.S.C. § 2712(a)(1) (2012).

¹⁸⁸ *Id.* § 2712(a)(1)–(5).

¹⁸⁹ *Id.* § 2713(a).

¹⁹⁰ 26 U.S.C. § 9509(c)(2)(A)(i) (2012).

¹⁹¹ *Id.* § 9509 (c)(2)(A)(ii).

and damages was increased to \$2.7 billion under the Energy Policy Act of 2005.¹⁹²

The OSLTF is financed from several sources: a tax on crude oil transported to or produced in the United States, the transfers from the previously existing pollution funds, interest on the Fund principal from U.S. Treasury investments, and recovery of costs from responsible parties or their guarantors and penalties.¹⁹³ The tax on oil is the major part of the fund, which was set as five cents per barrel initially for a five-year period.¹⁹⁴ In 1994, the balance of the OSLTF reached \$1 billion and the tax expired.¹⁹⁵ The tax was reinstated by the Energy Policy Act of 2005 and increased by the Energy Improvement and Extension Act of 2008 to eight cents per barrel until 2016 and nine cents per barrel in 2017.¹⁹⁶ After paying removal costs and damages, the OSLTF can recover from responsible parties.¹⁹⁷ According to an implementing report by the OSLTF, the annual recovery from the financial year 2004 to 2008 fluctuates from \$7 million to \$16 million, which means that sixteen percent of the OSLTF removal and claims expenditures were recovered.¹⁹⁸

IV

COMPENSATION SYSTEM FOR NATURAL RESOURCE DAMAGE CAUSED BY MARINE OIL POLLUTION IN CHINA

A. Scope of Compensable Damage and Quantification of Damage

As mentioned earlier, marine oil pollution in China deserves a separate discussion since it is one of the few cases where the liability and compensation instruments for natural resource damage seem to be working adequately. This may be explained by the fact that some international conventions that China has joined oblige Member States to introduce a financial security (like compulsory insurance) to cover

¹⁹² Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified at 42 U.S.C. §§ 13211–13574).

¹⁹³ 26 U.S.C. § 9509(b).

¹⁹⁴ NAT'L POLLUTION FUNDS CTR., U.S. COAST GUARD, OIL SPILL LIABILITY TRUST FUND (OSLTF) ANNUAL REPORT FY2004–FY2008 3 (2008), available at http://www.uscg.mil/npfc/docs/PDFs/Reports/OSLTF_Report_FY04-FY08.pdf.

¹⁹⁵ See *id.* at 2.

¹⁹⁶ *Id.*

¹⁹⁷ See *id.* at 3–4.

¹⁹⁸ *Id.*

the risks of marine pollution. Moreover, as we explained before, a long tradition of coverage via the so-called protection and indemnity clubs that oversee environmental pollution risks exists in the field of marine pollution. This also applies in China.

In China, the Marine Environmental Protection Act (MEPA) is the basic law in the field of marine environmental protection and pollution prevention. Article 90 of the MEPA stipulates the liability for marine pollution:

Whoever causes pollution damage to the marine environment shall remove the pollution and compensate the losses; in case of pollution damage to the marine environment resulting entirely from the intentional act or fault of a third party, that third party shall remove the pollution and be liable for the compensation.¹⁹⁹

In line with the EPA and the new Tort Liability Law (TLL), strict liability is established under MEPA. However, it does not further explain what constitutes “pollution damage.”

The concept of pollution damage can, however, be interpreted taking into account the conventions that China has joined and the related judicial explanations. China is a party to the CLC, which means that the definition of pollution damage under the CLC also applies to China. However, in practice, there are still debates on the scope of application of the CLC. The CLC applies to “any sea-going vessel and seaborne craft of any type whatsoever constructed or adapted for the carriage of oil in bulk as cargo.”²⁰⁰ The term “oil” is defined as “any persistent hydrocarbon mineral oil such as crude oil, fuel oil, heavy diesel oil, and lubricating oil.”²⁰¹ Thus, when the pollution involves other types of vessels or crafts, or the damage is caused by nonpersistent oil, the domestic Chinese law applies. However, even when the CLC ships and oil cause damage, there are still debates on whether the CLC applies only to ships with a foreign related issue or to all types of seagoing vessels and seaborne crafts.²⁰²

¹⁹⁹ Marine Environmental Protection Law of the People’s Republic of China [Zhonghua Renmin Gongheguo Haiyang Huanjing Baohu Fa] (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 25, 1999, effective Apr. 1, 2000), art. 90 (China), available at http://www.mlr.gov.cn/mlrenglish/laws/200710/t20071012_656329.htm.

²⁰⁰ CLC of 1992, *supra* note 55, art. I(1).

²⁰¹ *Id.* art. I(5).

²⁰² See James Hu & Yang Bo, *Application of Law in Civil Liability for Oil Pollution Damage Caused by Coastal Vessels in China*, in PREVENTION AND COMPENSATION OF MARINE POLLUTION DAMAGE: RECENT DEVELOPMENTS IN EUROPE, CHINA AND THE US 193, 193–205 (Michael Faure & James Hu eds., 2006); Michael Faure & Wang Hui,

How to interpret this notion of a “foreign related issue” is also important in determining the application of the CLC.²⁰³

As far as domestic law is concerned, a judicial explanation issued by the Supreme Court in 2011 provides guidance to the judiciary *inter alia* on damage assessment in case of vessel-induced oil pollution.²⁰⁴ This explanation applies to a “vessel-induced oil pollution incident [that] has caused or threatens to cause oil pollution damage to the territorial waters of the People’s Republic of China.”²⁰⁵ The term “oil pollution damage,” which is explained in a similar way to the CLC, covers

1. Costs of preventive measures to prevent or minimize vessel-induced oil pollution damage, and further loss or damage caused by preventive measures;
2. Property damage caused outside the vessel carrying oil by the vessel-induced oil pollution incident, and loss of earnings caused therefrom;
3. Loss of earnings caused by environmental damage resulting from oil pollution; and
4. Costs of reasonable measures which have been taken or are about to be taken to restore the contaminated environment.²⁰⁶

Under this definition, two provisions are related to natural resource damage: prevention and restoration costs. To further clarify the scope of compensable pure environmental damage (ecological damage), the court’s explanation stipulates the following:

If a vessel-induced oil pollution incident causes environmental damage, the compensation for environmental damage shall be limited to expenses on reasonable measures which have been taken

Financial Caps for Oil Pollution Damage: China and the International Conventions, in PREVENTION AND COMPENSATION OF MARINE POLLUTION DAMAGE: RECENT DEVELOPMENTS IN EUROPE, CHINA AND THE US, *supra* note 202, at 317, 329–30.

²⁰³ For example, a foreign element may be that one party involved is a foreigner, the cause of the cases happens abroad, and the subject matter is located abroad. *See* Hu & Bo, *supra* note 202, at 198–99.

²⁰⁴ Provisions of the Supreme People’s Court on Several Issues Concerning the Trial of Dispute over Compensation for Vessel-Induced Oil Pollution Damage [Zuigao Renmin Fayuan Guanyu Shenli Chuanbo Youwu Sunhai Peichang Anjian Ruogan Wenti De Guiding] (promulgated by the Judicial Comm. of Sup. People’s Ct., Jan. 10, 2011, effective July 1, 2011) (China).

²⁰⁵ *Id.* art. 1.

²⁰⁶ *Id.* art. 9.

or are about to be taken to restore the environment. Such expenses include reasonable expenses on monitoring, assessment and research.²⁰⁷

Similarly to the CLC, the court adopts a cautious attitude to explain restoration costs: only the “reasonable” measures that “have been taken or are about to be taken” are considered compensable.²⁰⁸

When compensation for natural resource damage is concerned, an unavoidable question arises as to how to quantify such damage. As discussed earlier, there are general rules to assessing natural resource damage in China. An unbinding recommendation on assessment methods is published, which gives guidance to the quantification of five types of damage: personal injury, property damage, emergency-response costs, assessment costs, and restoration costs.²⁰⁹ When restoration is possible, the restoration costs refer to the actual costs that have taken place. If the restoration is unavailable, the recommendation allows assessment with a stimulated restoration method.²¹⁰ In other words, the recommendation goes further than the 2011 explanation. The latter allows compensation for restoration costs only when restoration has taken place or is about to occur. However, under the recommendation, compensation is possible even if restoration is not possible. It is worth noting that the recommendation is not a binding document.

In the field of water pollution, there are indeed two standards guiding the quantification of fishery losses: the 1996 Rules on Calculating Fishery Losses Caused by Water Pollution Accidents²¹¹ and the 2008 Calculation Methods for Economic Losses Caused by Fishery Pollution Accidents.²¹² The 1996 rules apply both to the calculation of direct economic losses suffered by individuals and

²⁰⁷ *Id.* art. 17.

²⁰⁸ *Id.* art. 9.

²⁰⁹ Recommendation on Methods of Assessing Environmental Damage [Huanjing Wuran Sunhai Shue Jisuan Tuijian Fangfa] (promulgated by the Ministry of Env'tl. Prot., May 25, 2011, effective May 25, 2011) (developed by the Chinese Academy for Environmental Planning) (China).

²¹⁰ *Id.* § 4.5.

²¹¹ The Rules on Calculating Fishery Losses Caused by Water Pollution Accidents [Shuiyu Wuran Shigu Yuye Sunshi Jisuan Fangfa Guiding] (promulgated by the Ministry of Fishery, effective Oct. 8, 1996) (China).

²¹² Calculation Methods for Economic Losses Caused by Fishery Pollution Accidents [Yuye Wuran Shigu Jingji Sunshi Jisuan Fangfa] (promulgated by the General Admin. of Quality Supervision, Inspection and Quarantine and Standardization Admin., effective June 1, 2008) (China).

natural fishery resources that are not owned by private parties.²¹³ The 2008 standards further clarify the methods to assess natural fishery losses.²¹⁴ Together, these two documents provide practical guidance to assessing one type of natural resource damage: natural fishery losses. However, for the other types of damage, the assessment standards are still lacking.

As far as marine environmental liability is concerned, there are several other issues worth mentioning. As discussed above, strict liability is the rule for oil spills. MEPA allows three types of defenses: damage caused by war, natural calamities, and negligence or other wrongful acts in exercise of functions of competent departments responsible for the maintenance of beacons or other navigational aids.²¹⁵ MEPA is silent on how to determine liability if damage is caused by multiple tortfeasors. One new characteristic of the TLL of 2009 is that the multiple tortfeasors are severally liable for the environmental damage they caused.²¹⁶ In line with this provision, the 2011 explanation also introduces joint and several liability as the primary form of liability to deal with the multiple tortfeasor issue:

When oil has escaped from two or more vessels, and pollution damage results therefrom, if the party who suffers the damage requests that the owners of all vessels involved undertake the liability for compensation, the owners of all vessels involved shall undertake their respective liability for compensation if the damage is reasonably separable according to the quantity of oil leaked, the harm caused by their oil and other relevant factors; if the damage is

²¹³ The Rules on Calculating Fishery Losses Caused by Water Pollution Accidents § 2.

²¹⁴ Calculation Methods for Economic Losses Caused by Fishery Pollution Accidents § 4.

²¹⁵ Marine Environmental Protection Law of the People's Republic of China [Zhonghua Renmin Gongheguo Haiyang Huanjing Baohu Fa] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 25, 1999, effective Apr. 1, 2000), art. 92 (China), available at http://www.mlr.gov.cn/mlrenglish/laws/200710/t20071012_656329.htm.

²¹⁶ Tort Liability Law of the People's Republic of China [Zhonghua Renmin Zongghe Guo Qinquan Zeren Fa] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 26, 2009, effective July 1, 2010), art. 67 (China), available at http://www.procedural-law.cn/english/law/201001/t20100110_300173.html ("Where the environmental pollution is caused by two or more polluters, the seriousness of liability of each polluter shall be determined according to the type of pollutant, volume of emission and other factors.").

not reasonably separable, the owners of all vessels involved shall be jointly and severally liable, unless exonerated by law.²¹⁷

The earlier sections show that in both the United States and the international regimes, liability for oil pollution is capped (with an exception for offshore facilities, minus deepwater ports under OPA, for which removal cost liability is unlimited).²¹⁸ In China, neither the TLL nor MEPA touch upon the liability cap. However, the China Maritime Code (CMC) allows the liable party to limit its maritime liability.²¹⁹ It is worth noting that the categories of claims that are subject to the limit under the CMC are much broader than oil pollution under MEPA.²²⁰ Since China is a member-state of the CLC, which established a separate liability limit for oil pollution, the limits set in the CMC do not apply to claims for oil pollution under the CLC.²²¹ As mentioned earlier, there are debates on the application

²¹⁷ Provisions of the Supreme People's Court on Several Issues Concerning the Trial of Dispute over Compensation for Vessel-Induced Oil Pollution Damage [Zuigao Renmin Fayuan Guanyu Shenli Chuanbo Youwu Sunhai Peichang Anjian Ruogan Wenti De Guiding] (promulgated by the Judicial Comm. of Sup. People's Ct., Jan. 10, 2011, effective July 1, 2011), art. 3 (China).

²¹⁸ 33 U.S.C. § 2704(a) (2012).

²¹⁹ Maritime Code of the People's Republic of China [Zhonghua Renmin Gongheguo Haishang Fa] (promulgated by the Standing Comm. of the Nat'l People's Congress, Nov. 7, 1992, effective July 1, 1993), art. 207 (China), available at <http://www.asianlii.org/cn/legis/cen/laws/mcotproc360/>.

²²⁰ The limit under the CMC is established for the following:

- (1) 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 connection with the operation of the ship or with salvage operations, as well as consequential damages resulting therefrom;
- (2) Claims in respect of loss resulting from delay in delivery in the carriage of goods by sea or from delay in the arrival of passengers or their luggage;
- (3) Claims in respect of other loss resulting from infringement of rights other than contractual rights occurring in direct connection with the operation of the ship or salvage operations;
- (4) Claims of a person other than the person liable in respect of measures taken to avert or minimize loss for which the person liable may limit his liability in accordance with the provisions of this Chapter, and further loss caused by such measures.

All the claims set out in the preceding paragraph, whatever the way they are lodged, may be entitled to limitation of liability. However, with respect to the remuneration set out in sub-paragraph (4) for which the person liable pays as agreed upon in the contract, in relation to the obligation for payment, the person liable may not invoke the provisions on limitation of liability of this Article.

Id.

²²¹ *Id.* art. 208(2).

scope of the CLC in both academia and in case law.²²² This debate also puzzles the determination of the limit for oil pollution. To clarify this issue, the Regulation on the Prevention and Control of Vessel-Induced Marine Environment Pollution of 2009 stipulates the following:

With regard to the limitation of liability for pollution damage caused by vessels, provisions of Maritime Code of the People's Republic of China in respect of the limitation of liability for maritime claims shall apply. However, with regard to the limitation of liability for pollution damage caused by vessels carrying persistent oils in bulk to sea areas under the jurisdiction of the People's Republic of China, the provisions of the international treaties concluded or acceded to by the People's Republic of China shall apply.²²³

According to this provision, the CLC will apply as long as vessels carrying persistent oil cause the damage. Hence, it seems that the foreign-related issue is no longer necessary for the application of the CLC. If the damage is caused by an accident which does not fall into the scope of the CLC, such as damage caused by non-persistent fuel oil or fuel oil carried by vessels rather than by oil tankers, the limits under the CMC will apply.

B. Standing

To bring a claim for natural resource damage, one major obstacle in the Chinese legal system is who has the *locus standi*. According to the Civil Procedure Law, only the party who has “a direct interest in the case” can bring a lawsuit.²²⁴ However, when there is only damage to natural resources, especially publicly-owned natural resources,

²²² See *supra* note 202. For a different interpretation of the application scope in case law, see Zhang Liying, *Compensation for the Domestic Oil Pollution in China's Coast: Which Law Shall Apply?*, in MARITIME POLLUTION LIABILITY AND POLICY: CHINA, EUROPE AND THE US 359, 360–69 (Michael G. Faure et al. eds., 2010).

²²³ Regulations of the People's Republic of China on the Prevention and Control of Vessel-Induced Marine Environment Pollution [Fangzhi Chuanbo Wuran Haiyang Guanli Tiaoli] (promulgated by the St. Council, Sept. 2, 2009, effective Mar. 1, 2010), art. 52 (China), available at http://dinrac.nowpap.org/documents/law/China/Regulations_on_Prevention_Control_of_Vessel-induced_Marine_Environment_Pollution_China.pdf.

²²⁴ Civil Procedure Law of the People's Republic of China [Zhonghua Renmin Gongheguo Minshi Susongfa] (promulgated by the Nat'l People's Cong., Apr. 9, 1991, effective Apr. 9, 1991), art. 108 (China), available at <http://www.china.org.cn/english/government/207343.htm>.

determining the party who has standing to claim damages remains a difficult issue. This obstacle has made it difficult to develop environmental public interest litigation in China.²²⁵ However, this is less of a problem in the case of marine pollution. MEPA explicitly authorizes public authorities to sue for marine pollution damage:

For damages to marine ecosystems, marine fishery resources and marine protected areas which cause heavy losses to the State, the department invested with power by the provisions of this law to conduct marine environment supervision and administration shall, on behalf of the State, put forward [a] compensation demand to those held responsible for the damages.²²⁶

In China, many natural resources are owned by the state. This provision authorizes the competent public authorities to represent the state in a suit for compensation. The competent public authorities are

²²⁵ The claims for the pollution of the Songhua River by PetroChina in 2005 provide an example. An explosion occurred on November 13, 2005, at a petrochemical plant owned by PetroChina Cooperation due to an operational fault. See Wang Jin et al., *Reflections from the Transboundary Pollution of Songhua River*, in CHINA AND INTERNATIONAL ENVIRONMENTAL LIABILITY 273, 273 (Michael Faure & Song Ying eds., 2008). This explosion, and the emergency measures which were subsequently taken, led to a large spill of toxic substances into the Songhua River. *Id.* This led to a temporary stop in water supply for Harbin city, *id.*, and resulted in direct economic losses of up to 1.5 billion RMB (0.238 billion USD) in that city alone. Wang Canfa et al., *Pondering over the Incident of Songhua River Pollution from the Perspective of Environmental Law*, in CHINA AND INTERNATIONAL ENVIRONMENTAL LIABILITY, *supra* note 225, at 291. Apart from direct economic loss, this incident led to significant ecological losses as well. For an overview of the impact of the Songhua River pollution, see U.N. ENV'T PROGRAMME, THE SONGHUA RIVER SPILL CHINA—FIELD MISSION REPORT (Dec. 2005), available at http://www.unep.org/PDF/China_Songhua_River_Spill_draft_7_301205.pdf. However, the constrained standing provision in the Civil Procedure Law created a challenge for claims regarding such loss. According to the Civil Procedural Law, the plaintiff should be the party who has direct interest involved in the case. Civil Procedure Law of the People's Republic of China, art. 108 (1). However, for ecological damage that concerns only the general public but no individuals, obstacles exist when the individual tries to make a claim on behalf of the environment. After this toxic waste spill, some experts filed a civil public interest lawsuit, including nature as a joint-plaintiff, with the High People's Court of Heilongjiang. Jin et al., *supra* note 225, at 275. However, nature has no standing according to Chinese law and the experts suffered no direct loss; hence, the case was not accepted by the court. The Peking University teacher and five students sued PetroChina on behalf of the Songhua River for 10 billion RMB, but the Court didn't accept the case. See Alex Wang, *The Role of Law in Environmental Protection in China: Recent Developments*, 8 VT. J. ENVTL. L. 195, at 205 (2007).

²²⁶ Marine Environmental Protection Law of the People's Republic of China [Zhonghua Renmin Gongheguo Haiyang Huanjing Baohu Fa] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 25, 1999, effective Apr. 1, 2000), art. 90 (China), available at http://www.mlr.gov.cn/mlrenglish/laws/200710/t20071012_656329.htm.

limited to “the department invested with power by the provisions of this law to conduct marine environmental supervision and administration.”²²⁷ According to MEPA, there are four main types of public authorities involved: environmental protection agencies, ocean agencies, marine safety agencies, and fishery administrations.²²⁸ The environmental protection agencies are responsible for protecting the ocean from land-based pollutants and coastal construction projects; the ocean agencies are responsible for the supervision and administration of the marine environment, preventing pollution caused by marine construction projects, and preventing waste from being dumped into the sea; the marine safety agencies are in charge of marine environmental protection in port waters and the investigation of pollution accidents; and the fishery administrations are responsible for pollution inside fishing port waters and protecting the ecological environment in fishing zones.²²⁹ The latter three parties play a major role in suing for marine natural resource damage.

When a vessel accident leads to marine pollution, the marine safety agency “shall have the right to adopt forcible measures to avoid or reduce pollution damage.”²³⁰ In other words, the marine safety agency is responsible for the prevention measures and cleanup in case of an accident and can claim such costs later. Usually, it is easier for the marine safety agency to claim back costs rather than other agencies because cleanup costs and losses by cleanup measures can usually be calculated relatively easily and public authorities can arrest the vessel as security for the costs of cleanup and preventive measures.²³¹ In addition to such measures, if an accident leads to other environmental losses, such as lost ecological capacity, the Oceanic Agency can make a claim for the damage.²³² The fishery administration is the party who can make a claim for lost natural fishery resources.

²²⁷ *Id.*

²²⁸ *Id.* art. 5.

²²⁹ *Id.*

²³⁰ *Id.* art. 71.

²³¹ See Special Maritime Procedure Law of the People’s Republic of China [Zhonghua Renmin Guoheguo Haishi Susong Tebie Chengxu Fa] (promulgated by Standing Comm. of Nat’l People’s Cong., Dec. 26, 1999, effective July 1, 2000), art. 21 (China), available at http://www.npc.gov.cn/englishnpc/Law/2007-12/11/content_1383565.htm.

²³² Marine Environmental Protection Law of the People’s Republic of China [Zhonghua Renmin Gongheguo Haiyang Huanjing Baohu Fa] (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 25, 1999, effective Apr. 1, 2000), art. 90

The authorization of public authorities is not only a theoretical possibility but is also used in practice. Compensation for damage caused by the ship *Tasman Sea* is an example. In 2003, the *Tasman Sea* crashed near Tianjin which led to an oil leak.²³³ The release of oil led to serious damage to the fishing industry and to the marine environment.²³⁴ The Tianjin Oceanic Agency and Fishery Agency brought claims against the transporter shortly after the accident.²³⁵ The Oceanic Agency sued for the loss of oceanic environmental capacity, loss of marine biodiversity, restoration costs, and assessment costs.²³⁶ The Fishery Agency sued for natural fishery losses.²³⁷ In the first judgment in 2004, the defendants were required to pay the Oceanic Agency for the loss of environmental capacity and assessment costs of nearly RMB 10 million (USD 1.59 million), and pay the Fishery Agency more than RMB 15 million (USD 2.38 million) for natural fishery losses.²³⁸ This was reported as the first case in China that the Oceanic Agency claimed marine natural resource damages involving foreign interests.²³⁹

(China), available at http://www.ml.gov.cn/mlenglish/laws/200710/t20071012_656329.htm (“[F]or [pollution] damages to marine ecosystems, marine fishery resources and marine protected areas which cause heavy losses to the State, the [Oceanic Agency] . . . shall, on behalf of the State, put forward [a] compensation demand to those held responsible for the damages.”).

²³³ Dan Liu, Revisiting China’s Legislation on Compensation for Marine Ecological Damages: Lessons Learned from 2011 Penglai 19-3 Oil Spill, Presentation at the International Forum on Shipping, Ports and Airports (June 2013) (transcript available at <http://www.hksoa.org/contents/attachments/Presentations/2013/IFSPA2013/Papers/M14.pdf>).

²³⁴ Xiaoqin Zhu & Lin Dong, *Legal Remedies for Marine Ecological Damage in China: As Illustrated by the Tasman Sea Oil Spills Case*, 2 J. E. ASIA & INT’L L. 391, 394 (2009).

²³⁵ Zhu Xiao, *Zhongguo Haiyang Shengtai Sunhai Suopei Diyian [The First Claim for Marine Ecological Damage in China]* 2006 GREEN LEAF 50, 50 (China).

²³⁶ Hui Ji, *Tasman Yiyou Suopeian Panpei 4200wan [42 million RMB was Awarded as Damages for Tasman Sea Oil Spill]* 26 JIAOTONGHUANBAO 28, 28 (2005) (China).

²³⁷ *Id.*

²³⁸ Zhu & Dong, *supra* note 234, at 394–95.

²³⁹ *Id.* at 394; see also Ma Jing Jing & Du Jiang, *Discussion on the National Claim System for Oil Pollution Damage from Ships*, in PREVENTION AND COMPENSATION OF MARINE POLLUTION DAMAGE: RECENT DEVELOPMENTS IN EUROPE, CHINA AND THE US, *supra* note 202, at 223–24, 231 (noting that this case has been appealed by the defendant to the High Court of Tianjin and the final judgment is not made public yet); ZHU XIAO, A STUDY OF SOCIALIZED INDEMNIFICATION FOR ECOLOGICAL DAMAGE: A JURISPRUDENTIAL PERSPECTIVE 28–30 (2007) (China).

C. Mandatory Financial Security

As noted, China is a member-state of the CLC, which introduces an obligation for shipowners to seek insurance coverage for potential liability under the Convention. Influenced by the CLC, MEPA of 1999 requires vessels to carry oil pollution liability insurance and oil funds, and MEPA also authorizes the State Council to promulgate concrete rules on those issues.²⁴⁰ However, concrete rules were only issued in 2009 through the Regulation on Vessel-Induced Pollution.²⁴¹ The Regulation requires the vessels navigating Chinese seas (with the exception of vessels with carrying capacities of less than one thousand tons carrying cargo other than oil) to buy insurance or to seek other financial security coverage.²⁴² The amount of financial security required shall be no less than the amount required under the CMC and the conventions China acceded to.²⁴³ To implement this provision, another document was published in 2010 to further clarify the types of vessels that are subject to the compulsory financial security requirement and the amount of the required security.²⁴⁴

²⁴⁰ Marine Environmental Protection Law of the People's Republic of China [Zhonghua Renmin Gongheguo Haiyang Huanjing Baohu Fa] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 25, 1999, effective Apr. 1, 2000), art. 66 (China), *available at* http://www.mlr.gov.cn/mlrenglish/laws/200710/t20071012_656329.htm.
http://www.mlr.gov.cn/mlrenglish/laws/200710/t20071012_656329.htm.

²⁴¹ *See* Regulations of the People's Republic of China on the Prevention and Control of Vessel-Induced Marine Environment Pollution [Zhonghua Remin Guoheguo Fangzhi Chuanbo Wuran Haiyang Huanjing Guanli Tiaoli] (promulgated by the St. Council, Sept. 2, 2009, effective Mar. 1, 2010) (China), *available at* http://dinrac.nowpap.org/documents/law/China/Regulations_on_Prevention_Control_of_Vessel-induced_Marine_Environment_Pollution_China.pdf.

²⁴² *Id.* art. 53.

²⁴³ *Id.*

²⁴⁴ Measures of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-Induced Oil Pollution Damage [Zhonghua Renmin Guoheguo Chuanbo Youwu Sunhai Minshi Zeren Baoxian Shishi Banfa] (promulgated by the Ministry of Transport, Aug. 19, 2010, effective Oct. 1, 2010) (China), *available at* faolex.fao.org/docs/texts/chn106766E.doc.

Table 4: The Types of Vessels and Required Financial Security²⁴⁵

Vessels with persistent oil as cargo		Vessels with non-persistent oil as cargo and non-oil tankers larger than 1000 tons (gross tonnage)	
Types of vessels (gross tonnage)	Amount of financial security	Types of vessels (gross tonnage)	Amount of financial security
(1) Lower than 5,000 tons	4.51 million SDR (6.93 million USD)	(1) 20-21 tons (not including 21)	27,500 SDR (42,265.3 USD)
		(2) 21-300 tons (not including 300)	(1) +500 SDR (768.46 USD) per ton
(2) Higher than 5,000 tons	(1) +631 SDR (969.8 USD) per ton; but the total amount is no more than 89.77 million SDR (137.97 USD)	(3) 300-500 tons	167,000 SDR (256,665.64 USD)
		(4) 501-30,000 tons	(3) +167 SDR (256.67 USD) per ton
		(5) 30,001-70,000 tons	(4) +125 SDR (192.12 USD) per ton
		(6) Above 70,001 tons	(5) +83 SDR (127.56 USD) per ton

The Implementation Rules require that Chinese vessels either buy insurance from insurers authorized by the Marine Safety Agency or acquire other financial security, such as a letter of guarantee or a letter of credit from insurers or other financial institutions determined by the Marine Safety Agency.²⁴⁶ The requirements for commercial insurance companies and P&I Clubs to be determined as qualified are also clarified in the Implementation Rules.²⁴⁷ In 2012, twenty-three insurance companies and P&I Clubs have been acknowledged by the Marine Safety Agency, including the China Shipowners Mutual Assurance Association (CSMAA) (which is basically the China P&I Club), commercial insurers, and some members of the International Group of Protection & Indemnity Clubs (IG Group).²⁴⁸

²⁴⁵ *Id.* arts. 5–6.

²⁴⁶ *Id.* art. 8.

²⁴⁷ *Id.* arts. 9–10.

²⁴⁸ CHINA MAR. SAFETY ADMIN., GUANYU GONGBU 2012 NIANDU ZHONGGUOJI CHUANBO YOUWU SUNHAI MINSHI ZEREN BAOXIAN JIGOU MINGDANDE TONGZHI [NOTICE ON THE LIST OF INSURANCE COMPANIES PROVIDING OIL POLLUTION DAMAGE LIABILITY INSURANCE FOR CHINESE VESSELS OF 2012] (Dec. 19, 2011) (China).

CSMAA is one of the leading P&I Clubs in the Asia-Pacific region, providing coverage for various kinds of third-party liability, including oil pollution. This is a so-called P&I Club, composed of shipowners that adopt a risk-sharing agreement and, in that way, mutually cover each other's losses.²⁴⁹ The CSMAA, as a P&I Club, formally functions as a risk-sharing agreement and not as an insurer, in the sense that risks are mutually shared and not shifted to a third party.²⁵⁰ However, from the victim's perspective the crucial point is that P&I Clubs compensate the losses for which the members (usually shipowners) are covered.²⁵¹ It is worth noting that the CSMAA is not a member of the IG Group.²⁵²

Rule 3, section 12 of the CSMAA clearly provides that pollution risks are covered. According to this clause, the following risks are included:

- A. Liability for loss, damage or contamination.
- B. Any loss, damage or expense which the Member incurs, or for which he is liable, as a party to any agreement approved by the Directors, including the costs and expenses incurred by the member in performing his obligations under such agreements.
- C. The costs of any measures reasonably taken for the purpose of avoiding or minimizing pollution or any resulting loss or damage together with any liability for loss of or damage to property caused by measures so taken.
- D. The costs of any measures reasonabl[y] taken to prevent an imminent danger of the discharge or escape from the entered ship of oil or any substance which may cause pollution.

²⁴⁹ See *Bye-Laws*, CHINA SHIPOWNERS MUTUAL ASSURANCE ASS'N, art. II(25) (June 29, 2006), http://www.cpiweb.org/en_baoxiantiaokuan/bye.jsp (follow the "generality" hyperlink on the left subtitle bar); see also Coghlin, *supra* note 93.

²⁵⁰ The CSMAA is the Chinese version of P&I Club, which means it has also the same characteristics as the P&I Club—being a risk sharing pool rather than commercial insurance. See FAURE & HARTLIEF, *supra* note 41, at 167–68 (noting the differences between risk sharing and insurance).

²⁵¹ One important line of the CSMAA's policies is the liability insurance, which covers damage to cargo, personal injury, pollution damage and so on. So from the perspective of the shipowner, though the ships are insured by the groups of ships themselves but not commercial insurers, his or her damage can still be covered.

²⁵² ARTHUR GALLAGHER, MARINE P & I COMMERCIAL MARKET REVIEW 2013, at 46 (2013), available at <http://www.ajginternational.com/assets/Marine-PI-Newsletters/Marine-PI-Commercial-Market-2013-09.09.13.pdf>.

E. The costs of liabilities incurred as a result of compliance with any order or direction given by any government or authority, for the purpose of preventing or reducing pollution or the risk of pollution, provided always that:

- a. such compliance is not a requirement for the normal operation or salvage or repair of the entered ship; and
- b. such costs or liabilities are not recoverable under the Hull Policies or the Hull Certificates of the entered ship.²⁵³

This rule contains no specific title concerning restoration costs. These may, however, be partially covered under the title of cleanup costs. Cleanup costs need to be reasonable and actual.²⁵⁴ Interim losses are, according to the CSMAA, difficult to evaluate and are usually not compensated.²⁵⁵

The CSMAA has an acceptance policy whereby a ship needs to be inspected before it is first covered.²⁵⁶ A classification society is designated to undertake the inspection.²⁵⁷ When the CSMAA is of the opinion that the ship is not qualified, it can either ask for improvement of safety measures or otherwise decide to refuse to cover.²⁵⁸ Refusal of coverage means, as a consequence, that the shipowner will have to try to seek coverage from another P&I Club or insurer since financial security coverage is mandatory.²⁵⁹ After the ship has been accepted, insurers conduct random inspections on the basis of the presumed quality properties of the ship and its age.²⁶⁰ A risk differentiation is applied.²⁶¹ The differences in premiums are usually based on technical differences between the ships and also on the past loss experience.²⁶² In the case of a heavy claim record, the contribution of the ship will be increased.²⁶³ Evaluation of risks takes

²⁵³ See *The Rules*, CHINA SHIPOWNERS MUTUAL ASSURANCE ASS'N, rule 3, sec. 12(d)(A)–(E) (May 29, 2011), http://www.cpiweb.org/en_baoxiantiaokuan/1_1.jsp (follow the “Protection and Indemnity Risks Covered” hyperlink on the left subtitle bar, then follow the “9” hyperlink at the bottom of the page).

²⁵⁴ Interview with representatives of the CSMAA, in Beijing, China (Aug. 22, 2011) (interview transcript on file with the authors).

²⁵⁵ *Id.*

²⁵⁶ *Id.*

²⁵⁷ *Id.*

²⁵⁸ *Id.*

²⁵⁹ *Id.*

²⁶⁰ *Id.*

²⁶¹ *Id.* For the importance of risk differentiation, see Steven Shavell, *On Moral Hazard and Insurance*, 93 Q. J. ECON. 541 (1979).

²⁶² Interview with representatives of the CSMAA, *supra* note 254.

²⁶³ *Id.*

place on the basis of the entire fleet of a shipowner rather than on the basis of one individual ship.²⁶⁴ The CSMAA is the party providing coverage to the ship, but above the amount of the so-called retention, it will purchase reinsurance from the international group of P&I Clubs.²⁶⁵ Reinsurance is purchased on a yearly basis.

D. Compensation Funds

Although China acceded to the CLC in 1980, it is not a member-state of the IOPCF of 1971 and 1992.²⁶⁶ Hence, it is not obligatory for the Chinese oil industry to contribute to the Oil Pollution Fund.²⁶⁷ However, the Regulation on Vessel-Induced Pollution requires the establishment of a domestic Vessel-Induced Oil Pollution Damage Compensation Fund (Compensation Fund).²⁶⁸ According to the regulation, all the cargo owners or their agents who receive persistent oil cargo carried by sea within maritime areas of China shall contribute to the Compensation Fund.²⁶⁹ The concrete rules to manage the fund were published recently.²⁷⁰

The Regulation on the Compensation Fund fixed the contribution at RMB 0.3 (USD 0.048) per ton of persistent oil.²⁷¹ The fund can be

²⁶⁴ *Id.*

²⁶⁵ *Id.*; see Michael Faure & Roger Van Den Bergh, *Competition on the European Market for Liability Insurance and Efficient Accident Law*, 9 MAASTRICHT J. EUR. & COMP. L. 279, 279–306 (2002) (concerning the functioning of the international group of P&I Clubs).

²⁶⁶ See IMO, *supra* note 66, at 242, 274–81, 288–95.

²⁶⁷ According to the 1992 Fund Convention, the contracting states need to ensure the annual contributions to the Fund. International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage art. X, Nov. 27, 1992, [hereinafter 1992 Fund Convention], *reprinted in* INT'L OIL POLLUTION COMPENSATION FUNDS, *supra* note 55, at 21–39. China is not a party of this Convention; hence, such an obligation does not exist.

²⁶⁸ Regulations of the People's Republic of China on the Prevention and Control of Vessel-Induced Marine Environment Pollution [Zhonghua Renmin Gongheguo Fangzhi Chuanbo Wuran Haiyang Guanli Tiaoli] (promulgated by the St. Council, Sept. 2, 2009, effective Mar. 1, 2010), art. 56 (China), *available at* http://dinrac.nowpap.org/documents/law/China/Regulations_on_Prevention_Control_of_Vesselinduced_Marine_Environment_Pollution_China.pdf.

²⁶⁹ *Id.*

²⁷⁰ Management Regulation of Collection and Use of the Vessel-Induced Pollution Damage Compensation Fund [Caizhengbu Jiaotong Yunshubu Guanyu Yinfa Chuanbo Youwu Sunhai Peichang Jijin Zhengshou Shiyong Guanli Banfade Tongzhi] (promulgated by Ministry of Finance & Ministry of Transport, effective July 1, 2012) (China).

²⁷¹ *Id.* art. 6.

used to compensate or indemnify when (1) the total amount of compensation exceeds the shipowner's limitation of liability; (2) legal defenses are available; (3) the shipowner and its insurer/guarantor cannot provide full compensation; and (4) the liable ship cannot be identified.²⁷² Three exceptions are stipulated when the Compensation Fund does not apply: when the damage is caused by wars, insurrections, or non-commercial vessels/military ships held by the government; when claimants cannot prove that the oil pollution is caused by ships; or when the damage is fully or partially caused by the victims' fault.²⁷³

One major difference between the Chinese Compensation Fund and the IOPCF is that the former establishes priority lists to provide compensation in case of insufficient capacity of the fund. On the one hand, for the claims caused by different accidents, the Compensation Fund shall deal with the compensation according to the moment of application to the fund.²⁷⁴ On the other hand, if the claims are caused by the same accident, the compensation shall be provided according to the following order: emergency response costs, cleanup costs, direct economic losses suffered by fishery and tourism industries, the costs of measures to restore the marine ecosystem and natural fishery resources, monitoring costs incurred by the management committee of the Compensation Funds, and finally other costs approved by the State Council.²⁷⁵ The upper limit of compensation by the fund for one accident is set as RMB 30 million (4.77 million USD).²⁷⁶

V

COMPARISON BETWEEN THE INTERNATIONAL, U.S., AND CHINESE SYSTEM

After having described the compensation for natural resource damage caused by vessel-induced marine oil pollution in the international regime, the United States, and China, we will now critically compare the three regimes, first focusing on the basis of liability, then turning to the liable parties, and the available amount of compensation. This also requires a comparison of the requirement of financial security and the available compensation funds. The crucial

²⁷² *Id.* art. 15.

²⁷³ *Id.* art. 16.

²⁷⁴ *Id.* art. 17.

²⁷⁵ *Id.*

²⁷⁶ *Id.* art. 18.

question is to what extent natural resource damage is compensated in the systems examined.

A. Basis of Liability

In all three regimes, a strict liability system is chosen as the basis for the compensation of pollution damage, including the compensation for natural resource damage. This complies with the economic findings on tort law, which hold that a finding of liability will provide incentives for the potential parties to take preventive measures,²⁷⁷ and minimize the social costs of accidents by deterring the potential injurer from doing harm to the potential victims.²⁷⁸ In the case of a bilateral accident where both parties can influence the accident risk (like the case of a marine oil pollution incident), only strict liability is optimal in the sense that both negligence and strict liability can lead to an efficient care level, but only strict liability leads to an efficient activity level of the injurer as well.²⁷⁹ Moreover, marine oil pollution is clearly a case where the influence of the injurer (tanker owner) on the accident risk is surely more important than the victim's. The party who transports oil, and hence discharges or poses risks to discharge oil into the sea—for example, a tanker owner—has a greater influence on the accident risk than the potential victims. Therefore, it is more important to control the behavior of the injurer than the victim, and imposing strict liability on the shipowner is justified.²⁸⁰

On the other hand, the victims may have an influence on the accident risks as well (although their influence is usually less

²⁷⁷ See Alberto Monti, *Environmental Risk: A Comparative Law and Economics Approach to Liability and Insurance*, 9 EUR. REV. PRIVATE L. 51 (2001) (discussing the role of liability rules as “engineering instruments”).

²⁷⁸ The deterrent effect and victim protection functions of tort law have been widely discussed in law and economics literature. See, e.g., Gary T. Schwartz, *Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice*, 75 TEX. L. REV. 1801 (1997) (showing that the tort rules may serve both the aims of deterrence and corrective justice).

²⁷⁹ See Steven Shavell, *Strict Liability Versus Negligence*, 9 J. LEGAL STUD. 1 (1980). For a summary, see Hans-Bernd Schäfer & Andreas Schönenberger, *Strict Liability Versus Negligence*, in 2 ENCYCLOPEDIA OF LAW AND ECONOMICS: CIVIL LAW AND ECONOMICS 597 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000).

²⁸⁰ See STEVEN SHAVELL, *FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW* 188–89 (2004).

compared with that of the injurer).²⁸¹ They should also be given incentives to take precautions; this is often realized by adding a comparative or contributory negligence defense to the strict liability rule. Both the CLC of 1992 and OPA provide that if the pollution resulted wholly or partially from a negligent or intentional act or omission of the victim, the tanker owner will be exonerated wholly or partially from liability.²⁸² Hence, a comparative negligence defense is added to the strict liability rule to provide the victim incentives to take care as well. As we indicated above, in China a strict liability rule applies on the basis of MEPA.²⁸³ This excludes liability in case of an intentional act or fault of a third party. Also Article 26 of the TTL explicitly provides that “[w]here the victim of a tort is also at fault as to the occurrence of harm, the liability of the tortfeasor may be mitigated.”²⁸⁴

However, strict liability may be optimal only when the injurer is solvent. If the amount of damage exceeds the injurer’s wealth, as is often the case for oil pollution damage, the injurer will consider the risk as one where he could at most lose his assets and will set his care level according to the amount of his assets, which is lower than the optimal care level required by the actual damage he could cause. Thus, the insolvency risk may lead to underdeterrence.²⁸⁵ If the injurer were judgment-proof,²⁸⁶ a regulatory solution has to take care of the danger of underdeterrence resulting from insolvency.²⁸⁷ This will be further discussed in the section related to financial security.²⁸⁸

²⁸¹ Victims in oil pollution cases can usually not contribute to the prevention of the accident itself, but they can take measures to mitigate the damage after the accident occurred.

²⁸² 33 U.S.C. § 2703(b) (2012); CLC of 1992, *supra* note 55, art. III(3).

²⁸³ *See supra* Part IV.A.

²⁸⁴ Tort Liability Law of the People’s Republic of China [Zhonghua Renmin Zongghe Guo Qinquan Zeren Fa] (promulgated by the Standing Comm. Nat’l People’s Cong., Dec. 26, 2009, effective July 1, 2010), art. 26 (China), *available at* http://www.procedural-law.cn/english/law/201001/t20100110_300173.html.

²⁸⁵ *See* William M. Landes & Richard A. Posner, *Tort Law as a Regulatory Regime for Catastrophic Personal Injuries*, 13 J. LEGAL STUD. 417 (1984) (explaining the underdeterrence effects of strict liability).

²⁸⁶ A party is said to be judgment-proof if he avoids the full degree of liability he should rightly face. *See* Rohan Pitchford, *Judgment-Proofness*, in 2 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 380, 380–83 (Peter Newman ed., 1998).

²⁸⁷ *See also* Steven Shavell, *The Judgment Proof Problem*, 6 INT’L REV. L. & ECON. 45 (1986).

²⁸⁸ *See infra* Part V.D.

B. Liable Parties

The question of who can be held liable for vessel-induced marine pollution is related on the one hand to the question of whether liability is exclusively channeled to the tanker owner, as well as to the question of whether there can be joint and several liability if more than one party contributed to the accident risk. Both issues will be discussed in turn.

1. Channeling

One major difference between the international and U.S. regimes is that the CLC exclusively channels the liability to the shipowner,²⁸⁹ while OPA imposes joint and several liability on various parties including the tanker owner, operator, and bareboat charterer.²⁹⁰ China is a contracting country to the CLC. Although there is no specific provision in Chinese law excluding the liability of other parties like in the CLC, in practice, it is always the shipowner that is held liable in the case of marine oil pollution.²⁹¹

Channeling means that the convention or statute indicates which of many possible parties can be held liable for the loss, including the damage to natural resources. The liability of other potentially liable parties is excluded.²⁹² In the oil pollution case, the liability of the tanker owner (to which liability is channeled) is limited to a certain amount, and the effect of the combination of a financial cap with channeling is that the victim can exclusively sue the tanker owner, where he is confronted with a financial cap.²⁹³ The victim has no additional possibility to bring another law suit if, as a result of the cap, his damages were not fully compensated.²⁹⁴ A suit based on tort law against the tanker owner for the amount not covered by the cap is

²⁸⁹ CLC of 1992, *supra* note 55, art. II(1)–(2).

²⁹⁰ 33 U.S.C. § 2702(a) (2012); *see also* Albert Verheij, *supra* note 113, at 175.

²⁹¹ WANG HUI, CIVIL LIABILITY FOR MARINE OIL POLLUTION 249 (2011).

²⁹² For a discussion on the channeling of liability, *see* Michael Faure & Wang Hui, *Economic Analysis of Compensation for Oil Pollution Damage*, 37 J. MAR. LAW & COM. 179, 187–88 (2006).

²⁹³ *Id.* at 206–07.

²⁹⁴ When there is channeling of liability, the victims cannot claim against other parties for their losses. This is the case in the CLC of 1992, which excludes the possibility for victims to claim against a list of parties. CLC of 1992, *supra* note 55, art. III(4).

excluded in the convention, and a suit against a third liable party is usually excluded as well because of the channeling.²⁹⁵

On the other hand, channeling may have the advantage of transaction-cost reduction. Since the victim does not have to investigate who precisely the liable injurer is, he can only sue the shipowner to whom liability is channeled.²⁹⁶ However, this seems hardly valid: the additional benefit of channeling for the victim is limited (the costs of finding out the registered tanker owner who may be primarily liable are not that high), whereas the disadvantages for the victim are huge (he or she no longer has the possibility to claim damages from other parties who may have contributed to the loss as well). From a victim's and deterrence perspective, one may well argue that a joint and several liability rule may be preferable; in that case, the victim can simply sue any of the available injurers who are all exposed to liability and claim full compensation.

Another argument advanced in favor of the channeling of liability to the tanker owner referred to the fact that the tanker owner could more easily obtain insurance coverage than other parties. However, that argument was rightly rejected in the literature: each of the other parties who influence the risk of an oil pollution incident could easily purchase liability insurance coverage as well.²⁹⁷ "Insurance rates should reflect the likelihood of a liability-inducing oil discharge and should reward safety measures with lower premiums."²⁹⁸ Also, the insurance argument hardly provides any justification for the channeling of liability that results in an inefficient exclusion of other parties than the tanker owner who could also influence the risk.

In sum, from an economic perspective, one would prefer a situation where all those who contributed in some way to the risk are exposed

²⁹⁵ *Id.* arts. III(4), V(1).

²⁹⁶ See TOM VANDEN BORRE, EFFICIENTE PREVENTIE EN COMPENSATIE VAN CATASTROFERISICO'S: HET VOORBEELD VAN SCHADE DOOR KERNONGEVALLLEN [EFFICIENT PREVENTION AND COMPENSATION OF CATASTROPHIC RISKS: THE EXAMPLE OF NUCLEAR ACCIDENT DAMAGE] 698-99 (2001) (Neth.).

²⁹⁷ Not channeled liability means that other parties like operators and charters may also be held liable. These other parties can have insurance coverage. For example, the P&I Clubs also provide coverage to charters, see *International Group of P and I Associations*, *supra* note 107. Professional liability insurance is a possibility for other professionals in oil transportation to cover their potential liability. For a list of insurance companies providing professional liability, see *Directory of Professional Liability Insurance Carriers*, NSPE, <http://www.nspe.org/ProfessionalLiability/Insurance/LiabilityDirInsCarriers/index.html> (last visited Nov. 16, 2013).

²⁹⁸ Lance D. Wood, *An Integrated International and Domestic Approach to Civil Liability for Vessel-Source Oil Pollution*, 7 J. MAR. L. & COM. 1, 40 (1976).

to liability so that they receive optimal incentives to reduce the accident risk.²⁹⁹

2. Joint and Several Liability

OPA imposes liability for vessel marine pollution jointly and severally on the shipowner, operator, and demise charterer.³⁰⁰ The inefficiency of a joint and several liability system is widely discussed in economic literature.³⁰¹ Under joint and several liability, a victim can recover full compensation from any of the tortfeasors who have jointly contributed to the loss. This is to be distinguished from a several-only liability rule, whereby each tortfeasor is only held to compensate a proportion of the damage caused by his individual action.

The efficiency of joint and several liability versus several-only liability depends, as held especially in various studies by Kornhauser and Revesz, upon the relative solvency of the parties involved.³⁰²

²⁹⁹ A consequence of holding several parties liable is that all those parties must also take insurance coverage. This may lead to increased administrative costs, which was precisely the reason why, historically, the drafters of the CLC opted for channeling of liability to the tanker owner. See Wang, *supra* note 60, at 229. However, one should ultimately wonder whether these increased administrative costs are substantially higher than the losses resulting from not exposing all parties that can influence the accident risk. It is not very likely that this will be the case.

³⁰⁰ 33 U.S.C. § 2702(a) (2012). This provision does not channel liability to shipowners exclusively, hence the other parties who can contribute to the damage, such as an operator and charter can also be held liable.

³⁰¹ See, e.g., Frank Easterbrook et al., *Contribution Among Antitrust Defendants: A Legal and Economic Analysis*, 23 J.L. & ECON. 331 (1980); Marcel Kahan, *The Incentive Effects of Settlements Under Joint and Several liability*, 16 INT'L REV. L. & ECON. 389 (1996); Daniel Klerman, *Settling Multidefendant Lawsuits: The Advantage of Conditional Setoff Rule*, 25 J. LEGAL STUD. 445 (1996); William M. Landes & Richard A. Posner, *Joint and Multiple Tortfeasors: An Economic Analysis*, 9 J. LEGAL STUD. 517 (1980); A. Mitchell Polinsky & Steven Shavell, *Contribution and Claim Reduction Among Antitrust Defendants: An Economic Analysis*, 33 STAN. L. REV. 447 (1980); Kathryn E. Spier, *A Note on Joint and Several Liability: Insolvency, Settlement, and Incentives*, 23 J. LEGAL STUD. 559 (1994).

³⁰² See Lewis A. Kornhauser & Richard L. Revesz, *Apportioning Damages Among Potentially Insolvent Actors*, 19 J. LEGAL STUD. 617 (1990); Lewis A. Kornhauser & Richard L. Revesz, *Multidefendant Settlements: The Impact of Joint and Several Liability*, 23 J. LEGAL STUD. 41 (1994); Lewis A. Kornhauser & Richard C. Revesz, *Multidefendant Settlements Under Joint and Several Liability: The Problem of Insolvency*, 23 J. LEGAL STUD. 517 (1994); Lewis A. Kornhauser & Richard L. Revesz, *Settlements Under Joint and Several Liability*, 68 N.Y.U. L. REV. 427 (1993); Lewis A. Kornhauser & Richard L. Revesz, *Sharing Damages Among Multiple Tortfeasors*, 98 YALE L.J. 831 (1989).

Under full solvency of all parties involved, joint and several liability has the advantage, so they show, in that it provides optimal incentives for prevention. It will lead to a mutual monitoring by all parties potentially exposed to the risk.³⁰³ Moreover, in case one tortfeasor is selected by the victim to compensate the damage, that tortfeasor will exercise a right of recourse against those who contributed to the loss as well.³⁰⁴ Hence, this provides incentives to all parties involved to take prevention.

The result only changes under a potential insolvency. It relates to the general point that insolvency always negatively affects incentives of tortfeasors for prevention. Under joint and several liability, insolvency leads to an exclusive liability of one party who is chosen by the victim.³⁰⁵ That party may, given the insolvency of the other actors involved, not have the opportunity to collect from others that part of the damage they caused.³⁰⁶ Insolvency thus leads to those insolvent actors externalizing harm upon others, and therefore, to insufficient incentives for prevention.³⁰⁷ Moreover, the results also change in the case of strict liability. In that case, joint and several liability may lead to underdeterrence.³⁰⁸ Given that in all oil pollution regimes we examined a strict liability rule applies, joint and several liability may therefore be problematic.

The results also change when insurance considerations are taken into account. Many have pointed to the fact that joint and several liability may increase the exposure of insurance companies and, thus, insurance premiums.³⁰⁹ Given this, many lawyers, especially when considering insurance aspects, have questioned joint and several liability.³¹⁰

From the above analysis, the American system, which imposes joint and several liability on the tanker owner and the bareboat charterer, seems (with some reservation) more in line with the

³⁰³ See *supra* note 302.

³⁰⁴ See *supra* note 302.

³⁰⁵ See *supra* note 302.

³⁰⁶ See *supra* note 302.

³⁰⁷ See *supra* note 302.

³⁰⁸ See *supra* note 302.

³⁰⁹ See Kenneth S. Abraham, *Making Sense of the Liability Insurance Crisis*, 48 OHIO ST. L.J., 399 (1987); Nancy Manzer, *1986 Tort Reform Legislation: A Systematic Evaluation of Caps on Damages and Limitations on Joint and Several Liability*, 73 CORNELL L. REV. 628 (1987).

³¹⁰ See, e.g., FAURE & HARTLIEF, *supra* note 41, at 126–27.

economic rationale, while the international system, with an exclusive channeling of liability to the registered owner, seems less effective.

C. Amount of Compensation

The general principle in tort law is *restitutio in integrum*, meaning compensation to the full amount. However, under all the regimes discussed in this paper, the international, the U.S., as well as the Chinese oil pollution liability system, the tortfeasor is not exposed to full liability since his liability is capped to a certain amount.³¹¹

As a common feature, all these liability regimes adopt at least two levels of compensation, but each level of compensation is limited. Such a limited compensation regime applies not only to natural resource damage but also to the pollution damage as a whole. Under the three liability regimes, the method to calculate the amount of compensation under the first layer largely varies: the international and Chinese regimes relate the liability limit solely to the tonnage of the vessel,³¹² while the U.S. regime relates the liability also to the (safety) structure of the vessel.³¹³ Such a difference may influence the practice that will be further discussed below.

³¹¹ See Michael Faure et al., *Economic Analysis of Financial Caps in Accident Law*, Paper Presentation at the Seventeenth Annual Conference of the European Association of Law and Economics in Ghent, Belgium (Sept. 14–16, 2000) (offering an economic analysis of financial caps).

³¹² See *supra* Table 1; *supra* Part IV.C.

³¹³ See *supra* Part III.B.2.

Table 5: Comparison of Compensation Amounts Under the Current International, U.S. and Chinese Regimes (USD)

Amount of compensation	International regime	U.S. OPA	China
First layer of compensation	CLC (2,000 Resolutions) Ships ≤ 5,000 GT: 6.93 million; Ships > 5,000 GT: 6.93 million + 969.8/additional ton; Overall limit: 137.97 million	Single-hull tankers: ≤ 3,000 GT, the higher of 3,200/GT or 6.408 million; > 3,000 GT, the higher of 3,200/GT or 22 million. Double-hull tankers: ≤ 3,000 GT, the higher of 2,100/GT or 4.272 million; > 3,000 GT, the higher of 2,100/GT or 17.088 million. Other vessels: The higher of 1,000/GT or 854,400	CLC vessels: = CLC amounts; Non-CLC vessels: 20 ≤ Ships < 21GT, 42,265.3; 21 ≤ Ships < 300GT, 42,265.3 + 768.46/GT; 300 ≤ Ships ≤ 500GT, 256,665.64; 501 ≤ Ships ≤ 30,000GT, 256,665.64 + 256.67/GT; 30,001 ≤ Ships ≤ 70,000GT, amount above + 192.12/GT; Ships ≥ 70,001 GT, above amount + 127.56/GT.
Second layer of compensation	IOPC Fund (2,000 Resolutions): 311.99 million	OSLTF: 2.7 billion	China fund: 4.77 million
Third layer of compensation	Supplementary Fund: 1,152.69 million		

At the international level, the limited liability resulted in under-compensation, which can be shown by referring to the historical evolution of the international regime. Every time a new incident with higher damage occurred, the limits were again increased since the then-existing limits apparently did not suffice to provide compensation to accident victims.³¹⁴

OPA also provides for limited liability, but the inefficiencies in the U.S. regime do not seem to be so serious as in the international regime. This is because first, the liability limits in OPA are so high

³¹⁴ See Noah Sachs, *Beyond the Liability Wall: Strengthening Tort Remedies in International Environmental Law*, 55 UCLA L. REV. 837 (2008).

that it has been challenged only on a few occasions. The data from the Coast Guard show that from the enactment of OPA in 1990 to 2009, there have been fifty-one oil discharges resulting in removal costs and damages that exceed the amended liability limits.³¹⁵ Second, the calculation of liability limits since the increase in 2006 is not only based on the tonnage but also related to the structure of the tanker—that is, the liability limit for a single-hull tanker is higher than that for a double-hull tanker of the same size.³¹⁶ This could thus still provide incentives for prevention. Third, the grant of the limitation right is under the condition that the parties have complied with certain requirements.³¹⁷ Such a right can easily be lost if the shipowners or other responsible parties do not comply with the relevant requirements or do not cooperate. Fourth, the non-preemption of state laws leaves the option open for the states to provide for unlimited liability, and there are indeed states prescribing unlimited liability in their state laws.³¹⁸ All these additional provisions mean that the limitation of liability in the U.S. regime is prescribed in an almost unlimited manner and with severe restrictions, which might alleviate, at least to a certain extent, the inefficiencies of the financial limits.

As was indicated, in China, neither the TLL nor the EPA have limits on liability.³¹⁹ However, parties can limit their liability under the CLC. Moreover, the duty to seek financial coverage is limited to the amounts specified in an implementing regulation of 2010 on vessel-induced pollution.³²⁰ Additional compensation can be provided through a national compensation fund to a limit of RMB 30 million (4.77 million USD) per accident.³²¹

D. Financial Security

The CLC, OPA, and Chinese law all have requirements on compulsory liability insurance for oil-pollution damage or other forms

³¹⁵ U.S. COAST GUARD, DEP'T OF HOMELAND SEC., OIL POLLUTION ACT (OPA) LIABILITY LIMITS: ANNUAL REPORT TO CONGRESS 3 (2009), *available at* http://www.uscg.mil/npfc//docs/PDFs/Reports/Liability_Limits_Report_2009.pdf.

³¹⁶ *See supra* Part III.B.2.

³¹⁷ 33 U.S.C. § 2704(c) (2012).

³¹⁸ *See supra* Part III.B.4.

³¹⁹ *See supra* Part IV.A.

³²⁰ *See supra* Part IV.C.

³²¹ *See supra* Part IV.D.

of financial guarantee. This requirement of financial security can be understood from an economic perspective.

It was already mentioned that a strict liability rule could be considered efficient only if there is no insolvency risk. Insolvency may pose a problem of underdeterrence. Peter Jost has pointed out that in the case of insolvency, compulsory insurance might provide an optimal outcome.³²² By introducing a duty to purchase insurance coverage for the amount of the expected loss, better results will be obtained than with insolvency—whereby the magnitude of the loss exceeds the injurer's assets.³²³ In the latter case, the injurer will consider the risk as one where he could, at most, lose his own assets and will set his standards of care accordingly. When under a duty to insure and exposed to full liability, the insurer will obviously have incentives to control the behavior of the insured. Through the traditional instruments for the control of moral hazard, the insurer can make sure that the injurer will take the necessary care to avoid an accident with the real magnitude of the loss. Thus, economic literature argues that compulsory insurance can provide better results than under the judgment-proof problem, provided that the moral hazard problem can be adequately cured.³²⁴

This economic argument shows that insolvency may cause potentially responsible parties to externalize harm: they may engage in activities causing harm that can largely exceed their assets. Without financial provisions, these costs would be thrown on society and would be externalized instead of internalized. Internalization can be reached if the insurer is able to control the behavior of the insured. The insurer could set appropriate policy conditions and require an adequate (risk-related) premium. This shows that, if the moral hazard problem can be cured adequately, insurance leads to an even higher

³²² Peter J. Jost, *Limited Liability and the Requirement to Purchase Insurance*, 16 INT'L REV. L. & ECON. 259 (1996). A similar argument has been formulated by Mattias Polborn and Goran Skogh. See Mattias K. Polborn, *Mandatory Insurance and the Judgement-Proof Problem*, 18 INT'L REV. L. & ECON. 141 (1998); Goran Skogh, *Mandatory Insurance: Transaction Costs Analysis of Insurance*, in 2 ENCYCLOPEDIA OF LAW AND ECONOMICS: CIVIL LAW AND ECONOMICS, *supra* note 279, at 521 (pointing out that compulsory insurance may save on transaction cost).

³²³ See Howard C. Kunreuther & Paul K. Freeman, *Insurability, Environmental Risks and the Law*, in THE LAW AND ECONOMICS OF THE ENVIRONMENT 302 (Anthony Heyes ed., 2001).

³²⁴ This point was made especially by Jost and Skogh. See Jost, *supra* note 322; Skogh, *supra* note 322.

deterrence than a situation without liability insurance and insolvency.³²⁵

Therefore, the requirement of compulsory insurance or other financial guarantee complies with the economic theory. The three systems examined in this respect therefore correspond with the economic standpoint.

E. Compensation Funds

From the above, it follows that if one fears those on which liability for oil-pollution damage is placed—for example, the tanker owner might be insolvent in the sense that the amount of the damage he or she may cause could be higher than his or her wealth—a duty to seek financial coverage through insurance or alternative mechanisms should be introduced.³²⁶ However, the amount of oil-pollution damage may be so large that even traditional insurance mechanisms or pooling by operators may not provide sufficient coverage. In order for such a fund to function efficiently, the duty to contribute to the fund should, in principle, only rest upon those who actually contributed to the risk and should be related to the amount of risk to which the specific activity contributes.³²⁷ In this way, the contributors to the fund are given incentives for prevention. Bad risks are punished by paying a greater contribution to the fund, and good risks are rewarded by paying less contribution. Such a fund structure is not only important from an efficiency point of view, by providing optimal incentives for prevention, but it also includes a fairness element.

Examining the financing structure of the IOPC Fund and the Chinese Oil Compensation Fund, the oil recipients pay levies and their contribution is calculated on the amount of oil received in a certain period of time.³²⁸ Consequently, the financing structure merely incentivizes the oil industry to adapt the activity level (e.g.,

³²⁵ There are, however, also a few dangers that should be taken into account when a duty to insure is introduced. One of them is that the moral hazard problem should be cured; another is that there may not be concentration on insurance markets. For these potential dangers of compulsory insurance, see Faure & Grimeaud, *supra* note 42, at 185–89.

³²⁶ See Michael G. Faure, *Alternative Compensation Mechanisms as Remedies for Uninsurability of Liability*, 29 GENEVA PAPERS ON RISK & INS. 455 (2004).

³²⁷ See Michael G. Faure, *Financial Compensation for Victims of Catastrophes: A Law and Economics Perspective*, 29 L. & POL'Y 339 (2007).

³²⁸ See *supra* Parts II.C.2, IV.D.

transporting less oil) but not to an efficient level of care. Moreover, the IOPC Fund, in the normal case, only intervenes for the amount that is not covered by the limited liability of the tanker owner,³²⁹ which is a small part of the total costs of an oil-pollution incident. It was decided during the conference that only five percent of large-scale oil casualties could not be dealt with under the existing rules.³³⁰ Effectively, this means that the oil interests would only intervene for a relatively small part of oil pollution incidents, albeit the incidents where the IOPC Fund intervenes are usually catastrophic.

The major financing source of the OSLTF is an environmental tax based on the amount of oil transported.³³¹ In this respect, the structure of the OSLTF is similar to that of the IOPC Fund at the international level. Therefore, a similar critique holds that such a financing structure only incentivizes the shipowner and other responsible parties to reduce the activity level but does not incentivize caretaking. For example, oil importers are not rewarded with a lower contribution for investments in prevention (e.g., choosing safer ships).

F. Compensation of Natural Resource Damage

It is interesting to note the different trends at international and U.S. levels with respect to environmental damage. While the United States is actively developing methods and procedures for restoring ecosystems, the international community is still debating whether claims for injury to the environment should be admissible. OPA allows recovery for the “loss of use” of natural resources and for values calculated by computer modeling, both of which have been rejected under the international regime.³³² Based on Fund Resolution No. 3, the practice under international conventions is to reject claims for damage to the environment if they are based upon “theoretical models.”³³³

³²⁹ 1992 Fund Convention, *supra* note 267, art. IV(1)(a)–(c). An exception would be the case where the tanker owner is insolvent. In this case, the Fund would, de facto, act as a guarantor towards the victim. *Id.* art. IV(1)(b).

³³⁰ Int’l Mar. Org. [IMO], *Official Records of the International Legal Conference on Marine Pollution Damage*, at 685–86, IMO Doc. LEG/CONF/C.2/SR12, 685–86 (1969).

³³¹ See *supra* note 194 and accompanying text.

³³² 33 U.S.C. § 2706(d)(1)(B) (2012); 15 CFR § 990.27 (b)(1)(iii) (2013).

³³³ Int’l Oil Pollution Compensation Fund [IOPC Fund], *Resolution*, Annex I, FUND/A/ES.1/13 (Oct. 17, 1980), available at <http://documentservices.iopcfunds.org/decisions-database/decision/decision/incident-0-decision-2212/> (follow “71/FUND/A/ES.1/13–para 11(a) and Annex I” hyperlink).

OPA provides that parties are liable to the relevant authorities for the diminution in value of natural resources pending restoration and not merely for the cost of restoration.³³⁴ By contrast, the CLC expressly limits recovery for general environmental damage to any reasonable measures of restoration actually taken or to be taken.³³⁵

Putting a value on the environment has caused difficulties in the past, and this is one of the reasons why the CLC of 1992 sought to avoid the issue. The *Antonio Gramsci* and *Patmos* cases, where attempts were made to assess compensation using an abstract quantification of damage calculated by theoretical models, have cast long shadows.³³⁶

The environmental damage quantification in the international regime is in contrast with the OPA provision where abstract quantification of nonmarket environmental damage is allowed in accordance with prescribed assessment standards.³³⁷ The current “lack of clear damage-assessment standards and compensable-value characteristics within the international regime has presented a significant obstacle to the uniform application of environmental compensation rules.”³³⁸

The way in which environmental damage is currently assessed and compensated within the international conventions has been subject to criticism. The formal requirement of the CLC is that the environment has to be damaged and that the claimant must have sustained an economic loss that can be quantified in economic terms.³³⁹ This constitutes a problem if a coastal area that suffers a spill is a protected area or a natural reserve. If this area is not open to the public—who pay an entrance fee—there would be no income loss, and hence, no economic loss that could be compensated. This strong focus on the economic value of environmental damage neglects the intrinsic value

³³⁴ 33 U.S.C. § 2706(d)(1)(B).

³³⁵ Gavin Little & Jenny Hamilton, *Compensation for Catastrophic Oil Spills: A Transatlantic Comparison*, LLOYD'S MAR. & COM. L.Q. 391, 401 (1997).

³³⁶ *Id.*; Wilkinson, *supra* note 81, at 82–88.

³³⁷ 15 CFR § 990.27 (b)(1).

³³⁸ Mason, *supra* note 82, at 4 (citing Little & Hamilton, *supra* note 335, at 405).

³³⁹ CLC of 1992, *supra* note 55, art. I(6).

of the environment and is a problematic aspect of compensation in the international regime.³⁴⁰

In addition, the international regime limits compensation to the reasonable costs of restoration.³⁴¹ As a result, unquantifiable or unquantified claims are rejected.³⁴² However, “difficulties may arise . . . in respect . . . to what extent [restoration] of the environment is ‘reasonable’ and in dealing with major spills that produce irreparable environmental damage.”³⁴³ By limiting compensation “to the costs of reasonable measures of [restoration, the CLC of 1992] may not be sufficiently broad to allow compensation where marine oil pollution incidents cause[] economically irreparable environmental damage or damage of a kind which is extensively mitigated by natural regeneration.”³⁴⁴ In response, Wilkinson has argued in favor of an application of the U.S. approach to the international regime.³⁴⁵ The result would be that the current “diminution of value test” is rejected.³⁴⁶ Such a test is simply inappropriate for environmental damage that often is not reflected in market values.³⁴⁷

Some even believed that, contrary to the Fund Secretariat’s position, claims for environmental damage should be eligible when based on a quantification of the environmental damage calculated in accordance with theoretical environmental models.³⁴⁸ By definition, it is not the economic loss that is at issue but the environmental damage, the restoration of nature, and the compensation of a theoretical economic loss. Relevant criteria for the restoration of a biological community would be the condition of the natural resources and the services that would have existed had the environmental damage not occurred, estimated on the basis of the best information available, including historical data, reference data, control data, or data on incremental changes.³⁴⁹

³⁴⁰ See Bernard Vanheule, *Oil Pollution: The International Liability and Compensation Regime*, 38 EUR. TRANSPORT L. 547 (2003). The CLC clearly states that environmental damage is compensable but only for reasonable restoration costs. See *supra* Part II.B.3.

³⁴¹ CLC of 1992, *supra* note 55, art. I(6)(a).

³⁴² See *supra* Part II.B.3.

³⁴³ Wilkinson, *supra* note 81, at 87–88.

³⁴⁴ *Id.* at 89.

³⁴⁵ *Id.*

³⁴⁶ *Id.*

³⁴⁷ *Id.*

³⁴⁸ *Id.* at 83.

³⁴⁹ See *id.* at 88.

In its post-*Erika* proposals, the European Commission, echoing French and Italian concerns, called for amendments to the CLC of 1992 to enable restorative compensation for environmental damage in a manner consistent with wider Commission proposals on civil liability for environmental damage.³⁵⁰ However, while a working group identified that there was latitude for more innovative recovery measures, it did not accept proposals to allow environmental compensation beyond economic losses.³⁵¹ Conversely, delegations from Australia, Canada, Sweden, and the United Kingdom proposed a more modest recommendation to liberalize the criteria for admissibility of restoration costs to include recovery efforts centered on the damage areas—short of substitute habitat enhancement or creation.³⁵² This proposal was not accepted either.³⁵³

From the comparative analysis of the different approaches adopted under the CLC and OPA concerning pollution damage, it seems that compensable pollution damages under OPA are broader than those under the CLC, at least as far as pure economic losses and environmental damage are concerned.

Congress intended OPA to address the consequences of discharging, or threatening to discharge, all amounts of any type of oil into navigable waters of the United States.³⁵⁴ The CLC and Fund Convention apply only to ships carrying persistent oils as bulk cargo.³⁵⁵ Thus, the conventions exclude all liability for spills of refined products such as gasoline, kerosene, and light diesel oils that are covered by OPA. OPA is expansive in the domestic context. The CLC definition of pollution damage will not encourage claims for damage to the environment beyond reasonable measures of

³⁵⁰ See Henrik Ringbom, *The Erika Accident and Its Effects on EU Maritime Regulation*, in CURRENT MARINE ENVIRONMENTAL ISSUES AND THE INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA 265 (Myron H. Nordquist & John Norton Moore eds., 2001).

³⁵¹ Int'l Oil Pollution Compensation Funds, *Record of Decisions of the Sixth Session of the Assembly*, at 7–9, 92FUND/A.6/28 (Oct. 19, 2001), available at documentservices.iopc-funds.org/meeting-documents/download/docs/2049/lang/en/.

³⁵² See *id.* at 8.

³⁵³ *Id.* at 9; INT'L OIL POLLUTION COMPENSATION FUNDS, ANNUAL REPORT 2001, at 34 (2001).

³⁵⁴ Oil Pollution Act, 33 U.S.C. § 2702(a) (2012).

³⁵⁵ CLC of 1992, *supra* note 55, art. I(1); 1992 Fund Convention, *supra* note 267, art. I(2).

restoration and for loss of profits, and the loss of use, per se, is specifically excluded.³⁵⁶

CONCLUDING REMARKS

This paper compared the compensation for natural resource damage caused by marine oil pollution in the international regime, the United States, and China. Europe, which is the main player in the international regime, and the United States have both been confronted with cases of major oil spills causing considerable natural resource damage. As a result of those incidents, the international regime has experienced many developments and refinements. Conversely, the system in China is still in full development; although, as was shown, the compensation for marine pollution damage is rather elaborate and refined when compared to the compensation for other types of environmental damage in China. The reason may be that China incorporated the CLC, which forced it to adopt a strict liability rule and mandatory financial security to guarantee the tanker owner's liability. China did not, however and for obvious reasons, join the International Fund Convention. China is a net importer of oil and, being the second largest importer of crude oil in the world,³⁵⁷ it would have automatically become the largest contributor to the IOPC Fund.³⁵⁸ Presently, China has suffered less marine-pollution incidents than other countries that are members to the Fund Convention. If China were to join the International Fund Convention, there is a great likelihood that China would be a net contributor to the IOPC Fund; that is, contributing more through taxes on the oil received in China than it would benefit from compensation via the Fund. Understandably, China instead created its own domestic fund that clearly mimics the International Fund Convention. This shows that, notwithstanding their inherent limits, the international conventions constitute an important example for countries with developing economies, like China, even if those countries do not necessarily join the conventions.

³⁵⁶ See Molly Holt & Grayson Reed Cecil, *Natural Resource Damages for Oil Spills: The International Context*, 9 NAT. RESOURCES & ENV'T 28 (1995) (comparing the position under OPA).

³⁵⁷ INT'L ENERGY AGENCY, 2012 KEY WORLD ENERGY STATISTICS, at 11 (2012). China is the second largest crude oil net importer, next to the United States. *Id.*

³⁵⁸ Given that the United States is not party to the International Fund Convention.

The United States was involved in the drafting process of the international conventions, but as a consequence of the *Exxon Valdez* incident in 1989, it chose a rapid introduction of its own oil pollution act rather than joining the international conventions, which were deemed contrary to American interests.

It has to be said that when the compensation regime for natural resource damage caused by marine pollution in the United States is compared to the regime in the international conventions, it is not difficult to argue that OPA provides better protection to pollution victims and more adequate remedies for natural resource damage, and therefore, a better internalization of the externalities caused by marine pollution. Unlike the international regime, OPA has no channeling of liability to the tanker owner but, instead, a joint and several liability regime that exposes others who contributed to the risk of marine pollution to liability. Moreover, the financial cap on the tank owner's liability is set at a much higher amount in OPA than in the international regime, and the operators can lose their right to limit liability with relative ease (e.g., when the damage was caused by gross negligence). Since OPA does not preempt state law, operators can be subject to unlimited liability when provided for in state law, as is often the case (e.g., in Alaska, California, North Carolina, and Rhode Island).

The total amount available for compensating natural resource damage under OPA is also substantially higher than under the international regime. After the latest increases, compensation in the United States (taking into account compensation via the OSLTF) could amount to \$2.7 billion, whereas under the international regime, this would be limited to a total amount of approximately \$1.5 billion. Most importantly, the definition of environmental damage, and therefore of the type of damage that can be compensated, is substantially broader under U.S. law than in the international regime. OPA seems to have taken a more ecocentric approach by generously compensating restoration costs and the costs of replacing the damaged natural resources (or the equivalent thereof), as well as the diminution in value of those natural resources needing restoration (the so-called interim losses). In the international regime, to the contrary, a more anthropocentric, even economic approach is followed by limiting compensation to those aspects of the environment that have an economic value, although this approach is criticized in legal doctrine.

The international regime can undoubtedly learn from OPA in the sense that it should consider moving to a strict, non-channeled liability, thus exposing liability to others who have also contributed to the risk of marine pollution. As in OPA, it should be easier to break the financial limits, and both the United States as well as the international regime could consider possibilities to make the contributions to the funds more risk-related in order to have those contributions also incentivize operators towards using safer ships and implementing preventive technologies.

China can learn from the experiences in the United States and in the international regime. The fact that the U.S. regime seems better able to provide adequate compensation—thanks to accurate damage assessment methods—may be an important lesson for China. Chinese practitioners complain of their legal doctrines lacking assessment standards. This limitation makes the judiciary's task in assessing natural resource damages difficult. Given the increasing oil imports in China and the fact that most of these imports are seaborne, it must be feared that China may be confronted with oil spills that threaten natural resources. With increasing environmental awareness in China, demands for adequate damage assessment and restoration measures will undoubtedly also increase. In that respect, there is an opportunity for mutual learning by comparing the situation in China with experiences in the United States and the international conventions. It is to this process of mutual learning that this Article hopes to contribute.