

Article

Compensation for Marine Ecological Damage: From ‘Tasman Sea’ to ‘Sanchi’

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Abstract: The research on marine ecological compensation is aimed to protect the marine environment and sustainably utilize marine ecosystem services, and is an important institutional instrument for coordination of the relationships among environmental, economic and other social interests. The legal mechanism of marine ecological compensation should be an important way to effectively deal with the contradictions (for examples: the value loss of marine ecosystem services, destruction of marine biodiversity, etc.) in marine eco-environmental protection. This paper firstly introduces the case of the “Sanchi” ship accident, which is regarded as the first collision case of a tanker carrying gas condensate in world shipping history, and also provides a detailed analysis of the “Tasman Sea” ship case which is regarded as the first compensation claim for marine ecological damage in China, and makes some related discussions on marine ecological compensation concerning the two cases. Then, the paper probes into the research theme from four aspects: China’s legislative deployment, the legal connotation of marine ecological damage (including the current legal status of compensation claims, subjects of compensation claims, the compensation scope and the evaluation system.), major challenges in legal practice, and remediation of marine ecological damage in China. Finally, the paper provides some suggestions on marine ecological damage compensation for the final settlement in the “Sanchi” case, and tries to explore the future trend of the research theme based on the China’s marine strategy.

Keywords: Sanchi ship; oil spill accident; marine ecology; ecological damage compensation



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1. Introduction

The Panamanian oil tanker “Sanchi” collided with the Hong Kong cargo ship “CF Crystal” on 6 January 2018, about 160 nautical miles east to the Yangtze Estuary. The Sanchi caught fire and exploded; and finally sank after nine days of the explosion. According to the information from the Ministry of Transport in China, the “Sanchi” tanker carried about 111,300 tons of gas condensate on board, which is the first collision and explosion accident of oil tanker carrying gas condensate in world shipping history [1]. The East China Sea Branch of the State Oceanic Administration (SOA) has submitted a complaint to the Shanghai Maritime Court, and filed a lawsuit against Hong Kong Changhong Group, the owner of the “CF Crystal” ship, for a huge amount of marine ecological damage compensation of RMB 1.28 billion yuan. As there is no precedent for the emergency disposal and follow-up work of a gas condensate spill accident, it poses a challenge to the relevant laws of marine environmental protection in China.

1.1. Impact of the “Sanchi” Ship Accident on Marine Environmental Damage

Generally speaking, the impact of oil spill on the environment will be evaluated from two aspects: one is the degree of the impact on the environment; and the other is the duration of the impact on the environment [2]. The consequence of such damage to the marine environment caused by a combination of various factors including the amount of oil spill, types of oil products, and weather conditions at the time of the accident and

the geographical environment of the sea area where the accident occurred [2]. Various factors may lead to completely different damage results. Taking the tanker “Braer” oil spill accident in 1993 as an example, although the oil spill amount was as high as 84,700 tons, most spilled oil was naturally dispersed due to the oil’s own nature and severe weather conditions at the time the accident occurred. Therefore, compared with other oil spill accidents of the same scale (like the tanker “Sea Empress” oil spill accident in 1996) [3], the Braer incident had a relatively minor impact on the ecological environment of the incident locality: the Shetlands and its surrounding waters, and most of the damage were short-term. However, in the Exxon Valdez accident in 1989, the 38,000 tons of spilled oil were less than half the amount of oil spilled by the Braer accident, but as the spilled oil was hard to disperse in nature plus weather conditions, the incident eventually caused serious ecological damage to marine mammals and birds on the coast and in the surrounding sea areas at the incident site [2].

In the “Sanchi” accident, about 113,000 tons of gas condensate and more than 1000 tons of fuel oil were leaked and exploded. The total area of pollution clearance reached 107.2 square nautical miles. Although the exact damage result of the accident has been undisclosed to the public so far, on account of the wreckage of the ship sunken with a huge amount of gas condensate and the accident site located in the East China Sea with rich marine ecological resources, it is reasonably estimated that the accident has caused serious damage to the marine environment.

Compensation for damage caused by marine pollution has always been a controversial issue in the claims for oil spill accidents, as it often concerns the assessment of marine ecological imbalance and biodiversity reduction [4]. Chinese law traditionally aims to indemnify personal injuries or property damage and has no coverage for ecological damage compensation [5]. This legal loophole has brought difficulties to judicial practice in dealing with marine environment protection cases. However, the issue of adequate compensation for damage to the marine ecological environment is significantly important and challenges the polluter-pays principle in environmental law. In addition, it is unfair and unjust if the victims of oil spill accidents could not get adequate protection and sufficient indemnification. Therefore, the discussion on several critical issues concerning the Chinese compensation mechanism of marine ecological environment damage in relation to the “Sanchi” accident is necessary and helpful for the improvement of relevant Chinese rules.

1.2. Literature Review

Ecological compensation is a compensation mechanism for damaged marine ecosystems, in order to realize the paid and sustainable use of marine resources in the process of marine development and utilization [6]. Through the carding and analysis of research at home and abroad for the last decades, it shows that at present, there are three main ecological compensation modes in the world: (1) economic compensation, (2). resource compensation, and (3) habitat compensation [7]. However, the research focus varies between domestically and internationally.

Foreign countries (mainly the developed countries) incline to protect the environment and maintain ecological balance through government subsidies, financial assistance, eco-taxes (green environmental taxes) and varied funds; and to a large extent, the theme research is carried out around these methods [8]. International governance of marine ecological compensation, quantification of inter-generational compensation of marine resources and improvement of applicability ecological compensation mode are the key points of the theme research by present. Correspondingly, due to the relatively late start of domestic research on ecological compensation, Chinese research [9] mainly focuses on the basic theory of marine ecological compensation, the construction of compensation mechanisms, the quantification of marine ecosystem service value standards, the quantification of marine ecological damage restoration standards, inter-generational compensation of marine resources, and practice reference for international governance of marine ecology [10].

In summary, ecological compensation is not only conducive to the protection of marine resources, but also conducive to the sustainable development of the marine economy. Since 2015, the research on marine ecological compensation in the social sciences has continued to expand, including marine protected areas, marine ecological management, marine ecological compensation scope, marine policies and other aspects [11].

Many studies on marine ecological compensation management show that policy intervention is the most effective method [12] and the system payment for ecological services is a kind of powerful economic tool [13]. In recent year, more attention has been paid to the research of habitat restoration at home and abroad, especially for oil spill accidents, land reclamation and other damage to marine ecology. In this regard, some Chinese scholars divide habitat restoration into two categories: (1) stop loss compensation; (2) gain type compensation [14]. Such classification may promote the theme research in terms of normative and operability.

Although the selection of (marine) ecological compensation modes will be affected by many factors like technical feasibility and economic efficiency, no matter which mode is concerned, effective laws and policies are key factors in the successful implementation of marine ecological protection. There is great practical and theoretical significance for in-depth research of the legal mechanism construction on marine ecological compensation.

2. Chinese Laws Applicable to Damage Compensation for Marine Pollution

China's specialized legislation on marine environmental protection began in the 1970s. The Law on Marine Environmental Protection (MEPL) was first passed in 1982 and amended substantially in 1999 [15], as the first comprehensive legislation to protect the marine environment. However, over the past three decades, the relevant Chinese legislation mainly focused on marine pollution, especially in respect of oil-pollution from ship sources, without sufficient attention paid to marine pollution caused by other pollution sources such as drilling platforms. Moreover, up to now, China has not yet promulgated a complete specialized legislation on compensation for damage to marine environmental pollution [16]. Therefore, the legal basis of marine pollution damage compensation in China needs to be discussed from three aspects: international law, domestic legislation, and the choice and application of relevant laws.

2.1. Application of International Law

In the international sphere, the 1982 United Nations Convention on the Law of the Sea (UNCLOS) [17] provides a global legal framework for the protection of the marine environment [18], especially creating a legal regime for the prevention and control of vessel-source pollution [19]. According to Churchill and Lowe, "Under UNCLOS, the legislative or enforcement jurisdiction that a State may exercise in respect of a particular vessel varies according to whether it is a flag, coastal or port State" [20]. In other words, UNCLOS has stipulated the legislative and enforcement jurisdiction over a particular vessel respectively in order to balance the interests between flag and coastal States [21].

Since the birth of the UNCLOS, the international community has entered into an era of systematizing legislation on the prevention and control of marine pollution, which means there are corresponding conventions to deal with different stages of oil-spilled accidents. These conventions can be well categorized by each different purpose and function respectively, such as safety regulations for oil spill prevention, emergency preparedness regulations, treaties on pollution damage compensation schemes, etc. [22] In addition to UNCLOS, the International Maritime Organization (IMO) is responsible for formulating international conventions on the prevention and control of ship-source pollution [23]. Through these conventions, state parties can fully recognize the importance of precautionary and preventive measures to avoid oil pollution in the first instance, and further recognize that in the event of an oil pollution incident, prompt and effective action can minimize the damage which may result from such an incident [24].

China is a signatory to many of these international conventions, particularly with respect of marine environmental protection. Take conventions on prevention and control of ship-source pollution as an example, China ratified UNCLOS in 1996; ratified MARPOL and its Annex I and II in 1983; also ratified MARPOL Annex III in 1994, Annex IV and VI in 2006, Annex V in 1988; ratified SOLAS in 1994; ratified the Anti-Fouling Convention in 2011, which came into force on 17 June 2011. At present, China has signed the following international conventions on civil compensation for oil pollution damage: the 1992 International Convention on Civil Liability for Oil Pollution Damage from Ships and the 2000 Protocol (hereinafter referred to as “92CLC” and “2000 Protocol”) [25], the 1992 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage and the 2003 Protocol [26] (hereinafter referred to as the “92 Fund Convention” and the “2003 Protocol”) and the 2001 International Convention on Civil Liability for Fuel Pollution Damage (hereinafter referred to as the “Fuel Convention”).

2.2. Domestic Legislation

At present, the basic legal framework for damage compensation on marine environmental pollution in China is the model of “general law + departmental regulations”, which can be divided into four categories [27]: laws, administrative regulations, departmental rules including national standards or norms formulated by relevant departments of the State Council, and local laws adopted by provincial (or other competent) legislators [28] (please refer to Table 1 given as follows for the details of Chinese laws on marine environmental protection). The previous three levels have a universal binding force in China, but the fourth one only works in local areas. Additionally, in order to smooth the working system in judicial practice, the Supreme People’s Court of China has also promulgated several judicial interpretations on compensation for marine pollution damage, especially the Provisions of the Supreme People’s Court on Trial of Disputes over Compensation for Marine Natural Resources and Eco-environment Damage which was just implemented in 2018. It shows that Chinese legislation has valued marine ecological interests more and more, and the working mechanism of marine eco-environment damage compensation in China has been gradually established.

Table 1. List of laws, administrative regulations, departmental rules and judicial interpretation concerning marine environmental protection and pollution prevention in China.

| Laws and Regulations (Effective and Latest) | Adoption Date | Effective Date | Level of Authority |
|--|------------------|------------------|-------------------------------|
| Law of the People’s Republic of China on Marine Environmental Protection (2017 Amendment) | 25 December 1999 | 5 November 2017 | Laws |
| Fisheries Law of the People’s Republic of China (2013 Amendment) | 31 October 2000 | 28 December 2013 | |
| Maritime Code of the People’s Republic of China | 7 November 1992 | 1 July 1993 | |
| Law of the People’s Republic of China on the Administration of Sea Area Use | 27 October 2001 | 1 January 2002 | |
| Law of the People’s Republic of China on the Exploration and Development of Resources in Deep Seabed Area | 26 February 2016 | 1 May 2016 | |
| Tort Law of the People’s Republic of China [29] | 26 December 2009 | 1 July 2010 | |
| Civil Code of the People’s Republic of China [30] | 28 May 2020 | 1 January 2021 | |
| Special Maritime Procedure Law of the People’s Republic of China | 25 December 1999 | 1 July 2000 | Administrative Regulations |
| Regulations of the People’s Republic of China Concerning Environmental Protection in Offshore Oil Exploration and Exploitation | 29 December 1983 | 29 December 1983 | |
| Regulations of the People’s Republic of China on the Dumping of Wastes at Sea (2017 Amendment) | 6 March 1985 | 1 March 2017 | |

Table 1. Cont.

| Laws and Regulations (Effective and Latest) | Adoption Date | Effective Date | Level of Authority |
|---|-------------------|------------------|--|
| Regulations on the Prevention and Control of Marine Environmental Pollution by Land-based Pollutants | 25 May 1990 | 1 August 1990 | |
| Administrative Regulation on the Prevention and Treatment of the Pollution and Damage to the Marine Environment by Marine Engineering (2017 Amendment) | 06-25-1990 | 1 March 2017 | |
| Regulations of the People's Republic of China on the Prevention of Environmental Pollution from Ship Recycling (2017 Amendment) | 18 May 1988 | 1 March 2017 | |
| Regulation on the Prevention and Control of Vessel-induced Pollution to the Marine Environment (2017 Amendment) | 9 September 2009 | 1 March 2017 | |
| Regulations of the People's Republic of China on the Protection of Aquatic Wild Animals (2013 Amendment) | 5 October 1993 | 7 December 2013 | |
| Regulations of the People's Republic of China on Nature Reserves (2017 Amendment) | 9 October 1994 | 7 October 2017 | |
| Measures of the People's Republic of China for the Implementation of Civil Liability Insurance for Vessel-induced Oil Pollution Damage (2013 Amendment) | 19 August 2010 | 31 August 2013 | Departmental Rules by the Ministry of Transport |
| Recommended Methods for Environmental Damage Assessment (2nd Version) | 24 October 2014 | 24 October 2014 | Departmental Rules by the Ministry of Environmental Protection |
| Measures for State Compensations for Losses Caused by Marine Ecological Damage | 21 October 2014 | 21 October 2014 | Departmental Rules by the State Oceanic Administration |
| Measures for the Implementation of the Regulation of the People's Republic of China on the Administration of Environmental Protection for Offshore Oil Exploration and Exploitation (2016 Amendment) | 20 September 1990 | 8 January 2016 | |
| Measures for the Implementation of the Regulations of the People's Republic of China on the Dumping of Wastes at Sea (2017 Amendment) | 25 September 1990 | 29 December 2017 | |
| Administrative Measures of the People's Republic of China for Nature Reserves for Aquatic Plants and Animals (2014 Amendment) | 17 October 1997 | 25 April 2014 | Departmental Rules by the Ministry of Agriculture |
| Provisions of the Supreme People's Court on Several Issues Concerning the Trial of Cases of Disputes over Compensation for Vessel-induced Oil Pollution Damage | 4 May 2011 | 1 July 2011 | Judicial Interpretations |
| Interpretation of the Supreme People's Court on Several Issues concerning the Application of Law in the Conduct of Environmental Civil Public Interest Litigations | 6 January 2015 | 7 January 2015 | |
| Interpretation of the Supreme People's Court of Several Issues on the Application of Law in the Trial of Disputes over Liability for Environmental Torts | 1 June 2015 | 3 June 2015 | |
| Interpretation of the Supreme People's Court on Several Issues Concerning the Trial of Cases of Disputes over Compensations for Damage to Marine Natural Resources and Eco-environment Damage | 29 December 2017 | 15 January 2018 | |

Source: prepared by the authors.

Generally speaking, China's legislation on marine environmental protection is centered on the Marine Environmental Protection Law (the MEPL). The adoption of several amendments of the MEPL is China's domestic response to legal developments at the international sphere [31]. Through the MEPL, relevant treaty obligations of UNCLOS and the IMO's conventions for the prevention and control of marine pollution are well reflected in the Chinese law. For example, Chapter 8 of the MEPL specifically stipulates the prevention and control of pollution damage to the marine environment caused by vessels and the related operations, and lays particular stress on the technical provisions in respect of ship equipment and facilities. In addition, the Regulations on the Prevention and Control of Vessel-Induced Pollution to the Marine Environment, implemented in 2010, are also on marine environmental protection and ship-source pollution control in China. Thus, China is gradually forming a three-in-one model of oil-spilled accident management system, which is "prevention–emergency–compensation", despite the fact that there is still a large workload for constructing a complete legal compensation mechanism for marine environmental damage.

Furthermore, it is noteworthy that the Civil Code of PRC has come into force since the beginning of the year of 2021. The implementation of the Civil Code is not only the landmark event of Chinese legislation, but also has meaningful implications in regard to (marine) eco-environment protection. Firstly, Article 9 of the Civil Code sets up the green principle [32], by which resource saving and environment protection have become legal obligations for each civil subject. It shows that newly enacted Chinese Civil Code accentuates the dependency of human society on its natural environment, and pays more attention on the environment value. Secondly, Chapter 7 of Book Seven Tort Liability of the Civil Code specifically stipulates the liabilities for environmental pollution and ecological damage [33] which breaks the limit of the compensation scope by traditional tort liabilities. By the polluter-pays principle, traditional tort liabilities for environment pollution aim to indemnify personal injuries or property damage; and the environment is just regarded as a legal object, which people treat it as a media to trigger tort claims caused by environment pollution or environment damage. As for the damage to the environment per se, it is basically beyond the compensation scope stipulated by tort laws. However, Chapter 7 of Book Seven Tort Liability of the Civil Code illustrates that the Civil Code values the equity and justice to ecology and provides the institutional guarantee for the ecological protection.

2.3. Choice and Application of Laws

In dealing with marine pollution damage compensation cases, especially when there are foreign-related factors involved, it raises an issue on the choice and application of rules between international conventions and domestic laws.

Usually, treaty obligations in international conventions shall be introduced into specific domestic laws to be applied and implemented at the national level. A typical example is that, in order to adopt and implement UNCLOS properly, China promulgated the Law on the Territorial Sea and the Contiguous Zone and the Law on the Exclusive Economic Zone and the Continental Shelf. In addition, taking the prevention of vessel-source pollution as an example, China's implementation of the obligation on "Prevention of Operational Pollution by Ships" under MARPOL Convention is through fulfilling "the emission standards about abandonment of ship sources such as garbage, sewage and ballast water in the sea areas under China's jurisdiction" as stipulated in Article 15 of the Regulations on the Management of Marine Environment for the Prevention and Control of Marine Pollution by Ships in 2010 (the Regulations on MMEPCMPS). Article 11 of the Regulations on MMEPCMPS "to strengthen China's jurisdiction as a flag state by establishing a safety operating-system to prevent ship-source pollution" is also reflecting China's fulfillment of the obligation to apply ISM Code under the SOLAS Convention [34].

However, what if an international convention has not yet been internalized into domestic law, or what if the provisions of the Convention are inconsistent with related domestic law in China? The Constitution of China does not stipulate the relationship

between international treaties and domestic laws. For a long time, the applicable norms of China's foreign-related civil laws are attached to the civil substantive law. Therefore, the choice and application of laws largely depend on the judges to decide in judicial practice. Usually, before 2021 when the Civil Code came into force, international conventions and domestic laws could run in parallel with their respective legal effects, and the choice and application of relevant rules had to refer to the provisions of Articles 142 and 146 [35,36] of the General Principles of Civil Law. However, after the entry into force of the Civil Code, which has replaced the General Principles of Civil Law, international treaty status becomes a legal lacuna as it is not mentioned in the Civil Code [37]. Hence, the choice and application of laws either can refer to the Law on Application of Laws to Foreign-Related Civil Relations [38], or follow judicial precedents. In short, China adopts the "internal and external dual system" on the application of laws in maritime and commercial cases [39]. That is to say, in foreign-related cases within the scope of civil and commercial affairs, when the international treaties concluded by China differ from domestic laws, international treaties may take precedence over domestic laws and both parties can directly apply international treaties. For example, the Maritime Code of PRC does not make any specific provisions on oil pollution damage compensation; instead, it spares Chapter 8 and Chapter 11 for the provisions of the ship collision and limitation of liability respectively. However, the 92CLC imposes strict liability on the owner of a ship [40], and in order to ensure that the Maritime Code is compatible with the Convention, Article 208 [41] stipulates that the provisions on limitation of liability shall not apply to the claims for oil pollution damage stipulated by the 92CLC. In addition, when there are disputes arising over the understanding of the provisions of the Convention, the guidance both given by the Oil Pollution Guide and Claims Manual issued by the International Maritime Committee (IMC) in 1994 can be referred to [42].

3. Critical Issues on Marine Ecological Damage Compensation in Chinese Legal Practice—"Tasman Sea" Ship Case

The "Tasman Sea" Case handled by Tianjin Maritime Court in 2004 [43] is the first compensation claim for marine ecological damage in China [44]. This case took 7 years to be decided, and the final result of Tasman Sea Case on compensation nearly broke China's judicial records: 10 groups of plaintiffs (including Oceanic Administration, Fisheries Bureau, about 1500 fishermen and farmers) submitted indemnity claims for RMB 170 million in total against the two defendants for oil pollution damage by ship collision, but it was not until 2009 when a mediation agreement was made through the Supreme People's Court that the defendants received the order to compensate RMB 15.1342 million following the final ruling. With such a great disparity between the claims and judicial result, it was deemed as a failure for the first case of "claim against marine ecological pollution damage" in China. Some issues exposed during the trial are worthy of consideration, which may have precedential significance for the subsequent proceedings of marine ecological damage compensation for the "Sanchi" ship accident.

3.1. Difficulties That SOA Faces When Claiming Ecological Environment Damage on Behalf of the Nation

To succeed in compensation for marine eco-environment damage, the first issue to be dealt with is the pending standing of claimant and plaintiff under the environmental public litigation in China. As international conventions on oil pollution damage do not define the standing for the claims on oil-spilled ecological damage, countries have to establish corresponding domestic laws to cope with this issue, for example, in the United States, the "public trust doctrine" provides legal basis for the qualification of claimant in action for ecology by the federal or state governments.

Both the 69 and 92 CLC do not specify the scope of victims suffering from oil pollution damage. As per Clause 2 and Clause 6 of Article 1 of the 69CLC, victims can include "person suffering from pollution damage who can submit compensation claim against such pollution damage". The definition of "person" given by Clause 2 above refers to

“any individual or partnership or any public or private body, whether corporate or not, including a State or any of its constituent subdivisions”. In China’s legislation, with regard to the claimant qualification as state subject for (marine) resources loss and environment degradation in public litigation of marine environment, Clause 2 of Article 89 in the MEPL provides that: “For any damages caused to marine ecosystems, marine aquatic resources or marine protected areas that result in heavy losses to the State, the interested department empowered by the provisions of this Law to conduct marine environment supervision and control shall, on behalf of the State, claim compensation to those held responsible for the damages.” This clause not only lays down the legal foundation of claim for damage to the marine ecological environment against the person liable, but also endows national administrative bureaus with the qualification of plaintiff to file a claim for compensation on behalf of the nation.

Furthermore, as per regulations of Article 5 of MEPL [45], there are a large number of government departments that have supervision authority of the marine environment including the national environment protection department, the national marine department, the national maritime department, the national fishery department, the military environment protection department, and the coastal local-governments above the county level. With the fact that many governmental departments can file a lawsuit for ecological damages against the person liable for marine ecological environment; such a litigation mode of multiple (claim) subjects leads to issues like vague delimitation of duties, overlap claims for compensation and lawsuit inefficiency [46], emerging in ecological damage litigation. For examples, in the Tasman Sea Case, SOA and the fishery department respectively filed the lawsuits for ecological environment damage in terms of loss of ocean ecological function services, loss of marine environment capacity and loss of national fishery resources [47]. Hence, in the “M/V Ocean Success” oil spill case in 1997 [48], it was the fishery department who claimed for the loss of natural fishery resources on behalf of the Chinese government. Besides, overlapping claims for compensation by different governmental departments, might affect an in-time redress for eco-environment damage. For instance, in the Tasman Sea Case, the defendants defended themselves and declaimed that there were overlap claims for ecological damage indemnities from various plaintiffs, so that the defendants could disclaim the most of compensation requirements by this key reason. Lastly, multiple subjects of litigation may increase costs of liability investigation and give the court the burden of a heavier workload, and thus it shall finally affect the court efficiency.

In spite of defects in litigation by multiple subjects, at present it still hardly makes possible a litigation mode of a single subject, such as the SOA representing the Chinese government to file the claims of compensation for marine eco-environment damage against the plaintiff, because the current legislation in China seems to prefer the mode of multiple subjects of litigation. The litigation subjects under Clause 2 of Article 89 in China’s MEPL and Article 3 [49] of the newly implemented Judicial Interpretations of the Supreme People’s Court on Several Issues Concerning the Trial of Cases of Disputes over Compensations for Damage to Marine Natural Resources and Eco-environment Damage (SPC Interpretation of CDMNRED) are denoted with “departments with supervision authority of marine environment”. Furthermore, the latest judicial interpretation shows a tendency of strengthening the mode of multiple subjects of litigation [50].

3.2. *Scope of Compensation for Ecological Damage*

The issue of the scope of compensation for a claim in marine pollution caused by ship oil-spilled accidents always raises great controversy worldwide. Neither 92CLC or the Fund Convention (also the Bunker Convention and the HNS Convention) clearly defines the accurate definitions of “environment damage” and “pollution damage”, nor clearly identifies the damage categories [51–53]. In the context of the related conventions, the international legislation almost confirms that any direct actual and quantifiable economic loss and cost caused by pollution damage should be included in the compensation scope.

As for Chinese laws like the MEPL and tort law included in the Civil Code, they also only provide for the general framework of marine environment damage compensation without specifying the scope of compensation for oil pollution damage [54]. Hence, due to the ambiguity in the legal definitions of “pollution damage”, it is deemed that the compensation for environment damage remains quite contested. For example, Louise de La Fayette opines that the damage to the environment is not clearly included; meanwhile it is not evidently excluded [55]. Jiayi Liu, a Chinese scholar expressed that the loss of environmental value as part of the marine ecological damages and the loss of natural resources should be included in the scope of the compensation as a claim of public interest [56,57].

In the Tasman Sea Case, the court, as per the regulations of 92CLC, constructed five categories to cover the scope of “marine pollution damage”: (1) cost for decontamination and prevention measures; (2) property damage and its subsequent damage; (3) pure economic loss (including pure economic loss from fishery and tourism, etc.) and cost for prevention measures; (4) environment damage; and (5) cost for related research and investigation after the occurrence of pollution accident [58]. However, such general inductive definitions of scope of compensation for oil pollution damage gave rise to a series of controversies in judicial practice.

Firstly, “reasonable cost for restoration” for “marine environment damage” indeed conforms to the definition of “environment damage” by the related conventions. However, what about the “environment capacity loss” and “ecological service loss” claimed by the SOA? This was also the litigious issue in the Tasman Sea Case at that time.

Secondly, it is disputable to bring claims of reduced fishery, as put forward by the fishermen and maricultural farmers into the category of “pure economic loss”. Because, despite the plaintiffs taking the responsibility to decrease the loss or reduction in production, there might be various reasons which cause the loss of production besides the production halt itself. Oil contamination might be one of the reasons for the loss of production.

The Tianjin Maritime Court heard the case with reference to related domestic laws and the 92CLC, disregarding defendants’ request to apply the IOPC Found Handbook and Guideline of CMI Oil Pollution Damage. As for the 92CLC, the damage to marine environment is supposed to be out of the scope of compensation, since the damage to the environment is beyond any legal relationship traditionally regulated by the civil tort law, in which the environment is generally treated as a legal object rather than a legal subject. However, in the Tasman Sea Case, the Tianjin Maritime Court finally classified the polluted sea area as the important sea area regulated by pollution control policies namely Action Plan for Clean Bohai Sea and Ocean Agenda 21 of China, based on Article 3 [59] of the MEPL. Then the court partially supported the plaintiffs’ claims for “marine environment damage”, and deemed that the measures taken and to be taken for reduction of oil pollution and environment recovery for Bohai Sea fall within the scope of “pollution damage” defined by Clause 6 of Article 2 of the 92CLC. In a word, the Tianjin Maritime Court gave a broad understanding of “pollution damage” defined by 92CLC, and acknowledged the marine environment capacity loss. However, at the same time, the court dismissed several claims by plaintiffs for recovery fees for ocean sediments, biotic environment of tidal flat, phytoplankton, and nekton with the reason that the plaintiffs neither provided persuasive evidence for the existence of such damage, nor confirmed the accurate amount of damages. It seemed that the adjudication organs in China still keeps a conservative attitude towards (marine) environment damage.

Thirdly, in the Tasman Sea Case, the Chinese court indirectly admitted “marine ecological damage” by recognizing “the loss of marine environment capacity” for the first time, but the court did not give an explicit definition of “ecological damage” as well as the scope of compensation. Besides, “the loss of marine environment capacity” is not a standard terminology in international law but created by the Chinese court in judicial practice; hence, any direct support cannot be found from the related conventions for such damage compensation. In addition, in spite of the fact that the Tasman Sea Case attracted great attention and “marine ecological damage” was admitted in this case, China is not

a case law country, and any judgment on each individual case is only taken as reference without binding force for similar cases in future. Therefore, if the matters like the legal status and the scope of “ecological damage” cannot get a clear and definite answer, future claims for marine eco-environment damage in China shall still face the predicament of getting insufficient compensation due to lack of adequate legal grounds.

3.3. Quantification of Marine Environment Damage

As mentioned previously, a full set of complete legislation regarding marine environment damage compensation is still absent in China, and related laws and regulations are scattered in different laws, administrative regulations and judicial interpretations. Correspondingly, uniform regulations on specific quantification procedures and calculation methods for environment damage assessment are also absent, and the relevant settlement mechanism is inconclusive as well.

Taking quantification in loss of fishery resources as an example, there exists legal lacuna in both related conventions and Chinese laws. Therefore, how to make economic pricing for fishery resources is a difficulty in judicial practice. In the Tasman Sea Case, the defendants claimed that the spilled oil did not cause medium and long term effects on marine eco-environment, because the fishery resources had recovered since the 11th months since the accident occurred. Hence, the defendants insisted that the plaintiffs should not claim for the fishery resources loss of the medium and long term. However, the court applied Provisions for the Calculation of Fishery Losses in Water Pollution Accidents (the CFLWPA Provisions) issued by Ministry of Agriculture [60] and by this calculation method, the compensation not only includes the direct economic loss, but also covers the loss of natural fishery resources, and the two kinds of loss are deemed to be indispensable to each other [61]. Although the CFLWPA Provisions issued by Ministry of Agriculture is of great practicability and guidance for the calculation of fishery loss, the legal status of such documents issued by government ministries and commissions is unclear. So, it remains uncertain whether it is feasible to apply such documents as a legal basis for court ruling. Moreover, the fishery department affiliated to the Ministry of Agriculture and marine administration department have different calculation methods regarding the loss. Thus, it is necessary to clarify the legal status of these documents issued by government ministries and commissions so as to avoid difficulties in application.

3.4. Interest Remedy Claims Mixed with Public and Private Interests

In the Tasman Sea Case, the claims for damage remedies by plaintiffs from different groups show a feature of private interests tangled with public interests. For example, the claim filed by SOA, as one of the plaintiffs, reflects a significant characteristic of public interests litigation: the claim for the loss of marine environment capacity, the claim for the loss of national fishery resources and the claim for the loss of marine ecological service. Meanwhile, the claims from the local fishermen and the representatives from fishery associations are mostly for proprietary rights being injured due to the accident (e.g., loss of drift netter, loss of shellfish on tidal flat, and loss of fixing netting gear). The mixture of claims of public-private interests should be adverse to the precise characterization of cases in judicial practice and bring obstacles to the joint trial of separate cases of the same origin, thus affecting the court's efficiency.

4. Reflections on the “Sanchi” Ship Case

The “Sanchi” ship burned in the East China Sea for nine days and sank with a large amount of leaking gas condensate with contaminative oil deposited on the wide area of the seabed. A series of work on decontamination, salvage, confirmation of accident liability, loss evaluation and environmental recovery make it a complex and challenging issue. Several suggestions, from the viewpoint of systemic improvement of Chinese marine ecological damage compensation, are put forward for a better protection of the Chinese

marine eco-environment as well as consideration of the ecological damage compensation awarded in the “Sanchi” Ship case.

4.1. *Introducing Pure Ecologic Damage into the Scope of Marine Ecological Damage Compensation*

It is recommended that the reimbursable damages in marine environment pollution cases should be categorized so that the pure ecological damage can be included into the scope of compensation. On the one hand, it conforms to the mega-trend with increasing attention to the ecological environment in international environment law; and on the other hand, it reduces the ambiguities in the definition of “pollution damage” in related conventions. Such ambiguities often cause parties in dispute not only to be confused with the definition of “pollution damage” with the compensation standard, but also be confused between decontamination fees and recovery fees in practice. Such confusion leads to an insufficient remedy for the environmental interest which should have deserved sufficient compensation.

With regard to compensation for damage to the (marine) eco-environment itself caused by oil pollution, definitions of “environmental damage” by oil pollution in conventions are mostly aimed at excluding the compensation for the damage of the environment itself. Since the demarcation and position of the concept “pollution damage” by 92CLC, *International Convention on Civil Liability for Bunker Oil Pollution Damage* and *HNS Convention* are essentially in agreement, it’s safely concluded that the formulation of “environmental damage” has the following evolutionary process: not clearly considered items (in other words, items that are neither explicitly included nor explicitly excluded in conventions)—damage of the environment itself is excluded in principle—only compensation for reasonable decontamination fees and environment recovery fees [62]. Louise de La Fayette even commented that ‘no matter the purposes of environment protection conventions which aim at preventing or alleviating damage to the environment, most of international conventions on civil liability aim at constructing the compensation liability for properties and the economic loss, rather than for the environment damage. As for the damage of environment itself, it only can be accessible via “cleanup fees for dangerous substance” and “environment recovery fees”. Once the cleanup and recovery fail, then the compensation for environment damage becomes impossible [55]’. However, in contrast to a strict attitude towards damage compensation for environment in international law, the judicial practice in some countries shows a kind of approval of the (marine) eco-environment damage compensation. For example, in the Erika oil spill case in

France in 2008 [63], the channeling of liability was applied for oil pollution damage, and it broke through the limit of liability subjects (normally ship owners and managers) stipulated by the 69/92 CLC [64]; the Patmos Case in Italy in 1991 made marine environment damage an independent reimbursable item [65]; and in the Haven Case also in Italy in 1991 [65,66], both the measurable and immeasurable factors were included into the compensation for marine environment damage. In the Chinese Tasman Sea Case, the Tianjin Maritime Court also gave a broad understanding of “pollution damage” defined by the 92CLC, and the admission of “the loss of marine environment capacity” substantially reflected the court’s approval for “damage on marine environment itself”, although such admission was subject to the Clause 6 of Article 2 of the 92CLC.

4.2. *Constructing an Effective Remedy-Mechanism for Marine Ecological Damage*

The main purpose to implement marine ecological compensation is to restore the ecosystem service functions by the measures of ecological restoration and conservation. Scholars have discussed the global ecosystem services and functions. For example, Robert Costanza grouped ecosystem services into 17 major categories, including nutrient cycling, food production, genetic resources, raw materials, recreation, and cultural service [67]. Despite the fact that economy, specifically monetary compensation, has been given a key role in ecosystem protection, the redress of pure economic means cannot resolve all issues of ecological loss caused by marine pollution, such as biodiversity loss, extinction of rare

or endangered species, decrease of seawater self-purification capacity and marine habitats deterioration. Hence, some environmental specialists have regarded monetary valuation as a retrogressive step in ecosystem conservation, and commented such retrogression as “undoing important sustainability principles and practices that should have been embedded in environmental policy and management action” [68].

It is recommended that restoration in kind should be applied as a pivotal remedy for (marine) eco-environmental damage. The degradation of ecosystem services in polluted sea area can be restored by means of constructing artificial reefs and wetland, mangrove planting, and establishing marine ecosystem reserves, etc. Being an ecosystem approach, ecological restoration can bridge a gap between the loss of ecological value and the reasonably adequate compensation for ecological damage so that the sustainable utilization of marine resources will be guaranteed. Beside of ecosystem restoration, other remedies played a subsidiary role at the national scale are also recommended, in that in financial and administrative terms, the government may increase financial support for ecological protection by environment and resource taxation; moreover, China can strengthen the policy support in respect of marine ecology through tax credit, tax preference and green-credit policies. These tools incorporated into national planning processes will facilitate the government to develop an omnibus redressing-mechanism for the loss of (marine) ecosystem value and the degradation of ecosystem services [69].

4.3. Improving the Assessment System of Marine Environment Damage

The scope of marine ecological damage and its assessment have always been a challenge. To some extent, even with legal regulations on the full scope of ecological damage compensation, compensation will be insufficient if there are no sound assessment methods and procedures.

In recent years, SOA issued various documents on marine ecological damage assessment, and they include the 2007 Technical Guideline for Ecological Damage Assessment on Marine Oil Spilling (Technical Guideline), the 2013 Technical Manual of Marine Ecological Damage Assessment (trial implementation) (Technical Manual) and the 2014 Measures for State Compensations for Losses Caused by Marine Ecological Damage (Measures) [70–72]. Besides, the Ministry of Environment Protection and Fishery bureau affiliated to the Ministry of Agriculture also issued assessment methods for environment damage and the damage loss calculation methods respectively. Among these documents, Technical Guideline classifies objects damaged by marine oil pollution into six categories: seawater quality, environment of ocean sediments, environment of tidal flat, marine organism, typical ecosystem and marine ecosystem. Total loss of marine ecology damage by oil pollution equals to the sum of direct loss of marine ecology damage, fees for ecological restoration, recovery fees and investigation/assessment fees for biotic population. However, these policy documents only work as technical criteria. Besides, due to the lack of a uniform and systematic management of various policy documents issued by various departments and commissions, these documents could bring about conflicts and difficulties in practice.

Therefore, it is suggested that the government needs to start the construction of comprehensive and systematic legislation for a compensation system of marine ecological damage, to prepare explicit definitions for scope of compensation, and to set out standards and procedures for ecological damage and the compensation management in order to deal with practical issues with regard to marine ecological damage compensation [73]. At the same time, it is suggested that the construction of Chinese environment damage assessment should get public participation and information disclosure in the assessment system so as to guarantee an objective and neutral position of the evaluating institution as well as fair and transparent procedures generally. The *Oil Pollution Act* of the United States can be used as a reference to construct the standardized assessment procedures of “pre-assessment–recovery planning–recovery implementation.”

4.4. Setting up a Public Interest Litigation System in the Compensation Mechanism of Marine Eco-Environment Damage

The revised Environmental Protection Law of the People's Republic of China (EPL) was passed in April 2014. According to Article 58 of it [74], qualified social organizations are entitled to file lawsuits against environment pollution, ecological damage and damage to social public interest. It indicates that the public interest litigation system regulated by Article 55 of Chinese Civil Procedure Law has been implemented in ecological environment protection, and has greatly encouraged the passion of environmental protection organizations in public litigation for eco-environment protection [75].

The MEPL as a special branch of environment law, should keep the same pace with the EPL to set up its own public litigation mechanism for marine eco-environment protection. Besides, as discussed previously, the cases on oil pollution in judicial practice showed some characteristics of mixed claims for public-private interests. Therefore, it is suggested that Article 58 of the EPL can be introduced into the MEPL so that it not only can provide systematic institution of public litigation for the better protection of the marine environment, but also coordinate the unification of different laws in Chinese legal system in this respect.

5. Conclusions

The “Sanchi” ship accident raised the alarm on shipping safety for the shipping industry. However, opportunity sometimes emerges along with a risky occurrence: the Torrey Canyon accident which facilitated the enactment of the International Convention on Civil Liability for Oil Pollution Damage [76]; the Amoco Cadiz accident which urged the amendments of the International Convention on Civil Liability for Oil Pollution Damage 1969 and the Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 [77]; and the Exxon's Valdez accident which facilitated the enactment of the Oil Pollution Act of United States [78]. The “Sanchi” ship accident could be a moment for China to make essential progress in Chinese legislation on the compensation mechanism for marine eco-environment damage. It is evidenced by the 2018 judicial interpretation which is specially dealing with cases of damage compensation for marine natural resources and ecological environment, and promotes the increasing emphasis on ecological environment protection in Chinese law. It must be emphasized that the building up of a comprehensive and effective compensation mechanism for marine ecological/environmental damage is a necessity during the current construction of marine ecological civilization in China.

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