Proceedings of the 2nd International Conference on Interdisciplinary Humanities and Communication Studies
DOI: 10.54254/2753-7048/28/20231239

Tort Liability for Trans-boundary Marine Environmental Pollution: Japan's Radioactive Wastewater Discharge into the Sea as an Entry Point

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Abstract: Currently, the problem of trans-boundary marine environmental pollution is becoming increasingly prominent and Japan's insistence on discharging nuclear wastewater despite protests from other countries has raised concerns among the population. Researchers have found that international conventions and other sources of international environmental law are lack of a liability system for trans-boundary environmental pollution. Therefore, this paper looks for gaps by applying the normative analysis method to retrieve the relevant liability system at the institutional level in order to compare and analyze it, and secondly, using the case analysis method to think about how to improve the liability system through case law practical perspective. The study concludes that it can be constructed from two perspectives, namely the responsibility of the State and the tort responsibility of private subject to adopt the system of tortious responsibility and both serve in parallel with that caused by environmental pollution compensate for damage. Due to the irreversibility of environmental pollution, initiating legal proceedings for redress after the event is often not the ultimate goal. Therefore, the ex-ante blocking mechanism need to be further improved and domestic law needs to be constantly improved to compensate for the shortcomings of international law. That help our country deal with the marine environmental pollution to provide methods and ideas.

Keywords: trans-boundary environmental pollution, tort liability undertaking, nuclear wastewater discharge

1. Introduction

Human beings survive on the same planet together, despite geographical and political boundaries, and the environment on which they depend is closely connected, not limited by the man-made national boundaries. Therefore, the consequences of environmental damage in one country could affect several other countries as well and the Earth's ecosystem as a whole.

On April 13, 2021, Japan officially made a decision that is to support the radioactive water discharge program, which contains water harmful to the marine environment. The Japanese government claimed that most of the radioactive substances in the nuclear effluent had been removed or reduced to below safety standards after ALPS's treatment. Lacking of communication

DOI: 10.54254/2753-7048/28/20231239

and negotiation with costal neighboring states, the government of Japan initiated the procedure of releasing nuclear wastewater into the sea without authorization, which has aroused fierce opposition and widespread concern among neighboring nations and the international community. As discharged water will inevitably be absorbed by marine organisms, it will jeopardize human health through the food chain. Furthermore, the ocean currents will cause the radioactive elements contained in the nuclear effluent to be dispersed all over the world, leading to incalculable impacts and damages to the global marine ecosystem. The indifference of Japanese government facing serious marine pollution is an unprecedented blow to the current international order and institutional framework.

This case reflects the lack of relevant institutions. Although present international law system has the basic regime of environmental protection, only the obligatory content, uncertain and non-mandatory provisions of the responsibility are included, which results in the failure of environmental pollution prevention and control in advance. Nowadays, most of the researches base only on the legal theory of the illegality of cross-border environmental infringement and violation of the obligation, whereas there is still a large gap of this part concerning undertaking environmental infringement liability. Thus, when transnational pollution occurs, how to determine the responsibility of the infringing party and make it bear the adverse consequence is an urgent problem.

This paper takes the discharge of Japanese nuclear sewage into the sea as an entry point to discuss international law issues involved in outstanding trans-boundary environmental pollution infringement cases. Firstly, it uses normative analysis to find out what international laws, substantive and procedural provisions bind any countries on trans-boundary marine pollution. Secondly, the case analysis method is used to provide direction and experience for the implementation of the institution by utilizing the existing jurisprudence of international law. Last but not least, it explores the way of assuming liability for trans-boundary marine environmental infringement in the case of nuclear sewage discharge and conducts research from the perspectives of who enjoys the right of action, who is the defendant, the standard of proof, and the enforcement of the judgment. In addition, when international law fails to properly tackle the problem of trans-boundary environmental pollution, in order to achieve the purpose of protecting marine environment, how to improve the domestic law to make up for the shortcomings of the international law provides countermeasures for Chinese response to the marine environmental crisis.

2. Sources of International Law on Marine Environmental Pollution

2.1. Soft-Law Documents

The Declaration on the Human Environment (the Declaration), coming out in 1972, is a milestone in the development of modern international environmental law. It stipulated for the first time that national environmental pollution could not spread to other States or to areas outside of the limits of national control and established the international law obligation to prevent, mitigate and contain of the marine environmental pollution.

Article 12 of the World Chart for the Nature (1982) indicates that discharges of pollutants into natural systems should be avoided, using the most practicable means or special precautions in the place where pollutants were produced. These measures are taken to prevent the release of radioactive or toxic wastes. This text further discussed the obligation to prohibit the dumping of wastes.

Environment Outlook to the Year 2000 and Beyond (1987) devoted a special section for the marine environmental pollution issues in international law, emphasizing the need for all interested States to ratify and implement conventions and agreements for the detection and regulation of

DOI: 10.54254/2753-7048/28/20231239

human activities in the propose of the protection of marine environment, which includes dumping of hazardous and radioactive wastes. Where legal instruments are not yet in place, governments can develop policies and domestic laws to regulate the occurrence of trans-boundary environmental pollution.

Soft-law documents are declaratory in nature, not legally binding [1]. Only outline, principle-based obligations were set out without specific operative content. Nevertheless, the international environmental protection obligations it addresses, namely, the prohibition of domestic pollution from causing pollution outside the country and the timely prevention and control of pollution, establish in principle, initially, that States no longer enjoy the freedom to discharge wastes into the sea at will which cause environmental pollution.

2.2. International Conventions

2.2.1. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (The London Convention)

This Convention defines pollution from marine dumping sources. It is applicable where the pollution occurs beyond the sea frontier zone of each State, and makes substantive and procedural provisions for the dumping of wastes as well. Dumped wastes are categorized and disposal of wastes with high level's pollution into the sea is completely prohibited, while dumped substances where the pollutional effects do not meet the "high level" criterion are permitted to be dumped into the sea only if have they been determined by the International Atomic Energy Agency (IAEA). This is the only global convention that deals specifically with pollution from dumped waste.

2.2.2. United Nations Convention on the Law of the Sea, 1982

This Convention (hereinafter referred to as "UNCLOS"), known as the Chart of the Oceans, establishes principles and obligations under international law. It is important to adhere to these regulations concerning all ocean and maritime activities. The original regulations of the marine environmental protection obligation are Article 192 General obligation of protection, Article 194 "States shall, individually or jointly, take all measures necessary to prevent, reduce and control pollution of the marine environment from any source", Article 195 Prevention of regional pollution transfer and Article 197-201 Principle of international cooperation. From the point of view prevention of marine environmental pollution, all these texts emphasize international cooperation, as well as intra-regional cooperation. As a full contracting party, Japan is obliged to comply with provisions of the Convention on "Protection and preservation of the Marine Environment", which requires it not to poison the ocean. However, discharging nuclear effluent into the sea would pollute the oceanic environment and would transfer and disperse domestic pollution to the world as time goes by. Consequently, its responsibility to prevent and control imminent marine pollution must be determined in accordance with international law [2].

UNCLOS embodies the Declaration and expands the scope of marine environment protection, by including the world's marine environment as a whole, which means that polluting oceans is no longer considered as a tacit freedom. This global convention establishes a broad legal framework for marine environmental protection, providing a basis for victimized States to file lawsuits and for polluting States to assume responsibility, and establishes international oversight to urge polluting States to better fulfill their obligations [3].

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2.3. General Principles of Law

There are common principles in a variety of international documents. They have been used in the handling of international affairs and are therefore also the basis of judgement, which can be cited for international dispute cases. Only those principles that are of general guiding significance in international environmental law and reflect law's characteristics and form the basis of it could be called general principles of the law. The followings are currently recognized and accepted by States.

2.3.1. The Precautionary Principle

Proposed on the ground of the lagging and irreversible nature of the consequences of pollution. It is divided into two sub-principles--damage pollution and risk pollution--with regard to whether scientific certainty is a prerequisite [4]. The former emphasizes the need to take measures and the cost of doing so, while the latter is concerned with the timing of measures. This principle aims at States taking appropriate measures to prevent damages to the environment. Where there is a risk of serious environmental harm, effective measures to prevent pollution occurrence should be taken even in the presence of scientific uncertainty, which is not a legitimate reason for inaction.

2.3.2. The No-Harm Principle

This principle was established as early as the Declaration as a guidance in determining State responsibility for trans-boundary environmental tort. It is shaped by the transnational and itinerant nature of human environmental problems. In the discourse of international environmental law, the meaning of this principle is reflected in UNCLOS, which stipulates that domestic pollution should not overstep the boundary within which it exercises its sovereign rights. Another aspect is the obligation of States not to cause damage and transfer or convert one kind of pollution into another, which requires States should not take action that directly or indirectly transfers damage or risk from one area to another or converts one kind of pollution into another when taking measures to prevent, reduce and control pollution of the marine environment.

2.3.3. The International Cooperation Principle

In accordance with the interconnected and indivisible nature of the Earth's ecological environment, which is an organic whole, trans-boundary environmental pollution cannot be solved by one country alone, but requires the full cooperation of all countries. This principle means that in the international environmental field, all members of the international community should cooperate closely and implement measures with consensus in order to protect the environment. This principle is recognized in most international legal documents, such as UNCLOS and the Declaration on the Human Environment and the Rio Declaration on Environment and Development. In this period of time, finding the best fit between the common interests of mankind and the national interests of each country will become the basic subjects of international cooperation in the future.

2.3.4. The Polluter Pays Principle

This principle defines the fundamental rule of liability for the damages of environmental pollution, meaning the legal subject that causes environmental pollution should bear the governance and economic responsibility for the source of pollution and the polluted environment, which is also recognized and advocated in the 1992 Rio Declaration on Environment and Development. As promoting the rational use of environment and resources, recognizing the attribution of responsibility and ensuring social equity, it has received widespread support from the international community.

DOI: 10.54254/2753-7048/28/20231239

2.3.5. The Principle of State Responsibility

State responsibility refers to the responsibility of a State under international law for an international wrongful act or mischief. The practice of the international community shows that State responsibility should not be limited to legal responsibility arising from international wrongful acts, but should also include international liability for injurious consequences arising out of acts not prohibited by international law.

3. Case Study

Since the adoption of the United Nations convention on the Law of the sea (UNCLOS) in 1982, the behavior of States in using and protecting marine resources has been regulated and guided by this institution, where the dispute settlement procedure is of great significance to the prevention and reduction of environmental pollution.

In 2001, Ireland filed a lawsuit to the International Tribunal for the Law of the Sea (ITLOS) against the United Kingdom's Mox Plant, which is the only case that has been solved through the international dispute settlement procedure concerning nuclear activities may endanger the marine environment. This case was that the United Kingdom had constructed the Mox plant at Sellafield, off the coast of the Irish Sea, used for the reprocessing of nuclear material. Ireland argued that the Mox would seriously damage the coastal ecosystem and local fisheries and emphasized the potential risks involved in the transportation of radioactive materials in and out plant. Although radiation levels in the oceans had not conclusively been proven to pose a risk to local fish and ecosystem. Ireland nevertheless claimed interim measures based on the precautionary principle and the fifth paragraph of article 290 of UNCLOS [5].

The focus of this dispute centered on whether the arbitral tribunal to be established had jurisdiction over this case and the power to prescribe provisional measures. The British side argued that the main elements of this dispute were governed by regional agreements, including the European Treaty, which provided binding means for dispute settlement. After censoring, the tribunal found that the situation was not satisfied with Article 282 of UNCLOS, concerning the interpretation and application of the Convention, and thus acquired jurisdiction. The Tribunal ultimately imposed these provisional measures: Ireland and the United Kingdom shall enhance cooperation by further exchanges of information on the possible consequences of the commissioning of the MOX plant in the Irish Sea; monitor risks or impacts of the operation of the MOX plant in the Irish Sea; devise, as appropriate, measures to prevent pollution of the marine environment which might result from the operation of the MOX plant. The case was eventually dismissed by Ireland and a separate agreement was reached between parties, which allowed the Irish College of Radiological Protection and the Garda Siochana to visit and evaluate the plant.

Regional and global environmental treaties complement each other, but there is always an oversight. The controversy will inevitably arise over the jurisdiction of disputes, which is only regulated by UNCLOS on procedural matters, where subjects of international law dominating the economic intercourses might exploit loopholes in the law to circumvent the jurisdiction of the International Tribunal for the Law of the Sea by seeking the dispute settlement procedures under the treaty that are most advantageous to their own interests.

The Uruguayan government is accused of approving the construction of pulp mills along the Uruguay River's banks between the years 2003 and 2005. Uruguay permitted Orion, the pulp mill constructed on the banks of the River, who was invested by the Finnish company Oy Metsa-Botnia, to draw water from and discharge waste water into it. Meanwhile, Argentina believed that Uruguay had breached the rights of river Uruguay residents by not complying with its notice obligations under the River Uruguay Statute. Numerous diplomatic negotiations had been conducted with

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Uruguay in that regard, on which it had been unable to reach a consensus. Consequently, Argentina filed an action before the International Court of Justice (I.C.J) in 2006, in accordance with the forum selection provision. In the meanwhile, barriers were set up by Argentine residents along significant transnational routes, prompting Uruguay to ask the International Criminal Court for interim sanctions. Argentina was demanded to dissolve the citizens' group, because these blockades were causing irreparable harm to the rights of Uruguay's disputed factory. Argentina initially contested the excess of jurisdiction of the Court that it has no power to indicate interim measures based on Uru's petition and then presented proof that those blocks had no direct impact on the development of two projects in Uruguay [6].

The focus of this dispute was the necessity for the Court to grant provisional measures in response to the requests of two parties. Argentina's request hence was dismissed on the grounds that there was no sufficient evidence produced demonstrating the causality between the construction of mills and immediate and wrongful damage to the condition of the water. As for Uruguay, the Court found that insufficient evidence had been provided to demonstrate that the blockades had led to the interruption of State-supported development projects. With respect to Argentina's question to jurisdiction, article seven of the Statute of the River Uruguay imposes an obligation on parties planning to construct or develop any project that may influence aquatic environment of the river to inform the Administrative Commission of the Río de la Plata (CARU). Additionally, any issues that might emerge under the Statute will be mediated by the effort of CARU, to the extent that the Treaty does not grant final judicial mediation authority to the International Court of Justice. Furthermore, the I.C.J. had jurisdiction over the case against Uruguay because the blockades set up by Argentina's citizens were linked closely to the rights that Uruguay was trying to defend. The I.C.J. dismissed the action of Uruguay asking for provisional measures after examining evidence provided by Argentina that it was not involved in this event.

This Pulp Mills case provides an intuitive sense for two conditions of provisional measures: 1) proof by the parties that the International Court of Justice has substantive jurisdiction; 2) the necessity of the provisional measures, that is to say the non-implementation would cause irreparable and immediate harm to the parties. According to the UNCLOS, to satisfy the condition 1, the parties should accept the jurisdiction of the International Court of Justice by bilateral or multilateral agreement, and it is necessary to include a clause in treaties or enter into a reciprocal agreement declaring that the I.C.J. has the power to settle disputes. The problem, however, is that when the necessity fails to be effectively substantiated and demonstrated, the Court refuses to prohibit, via provisional measures, otherwise lawful sovereign actions by States. To be clear, the Court's granting of requests for provisional measures was intended to prevent the parties from taking any action that might aggravate the underlying dispute or reduce the possibility of a settlement. Obviously, provisional measures are intended to be legally binding on both parties, while the legitimacy and force of provisional measures has been somewhat undermined by the fact that, owing to the vagueness of the Rules set out in the UNCLOS, the Court's method of enforcing provisional measures is lack of clarity, and there have been cases in which parties have refused to comply with the Court's orders previously. Therefore, the standard of proof for demonstrating the necessity of provisional measures is often very high. That is because the Court cannot take measures that would sacrifice the credibility of its standard of proof and it is in the interest of the Court's legitimacy to retain provisional measures as an effective weapon, so that States are able to consider any provisional measures as a binding order.

Both of the above cases were trans-boundary pollution incidents without consequences of damage and the existing system was unable to identify polluters' liability and to provide it remedies and compensation. Because the "framework convention" model determines that the content of the treaty can only make general and ambiguous provisions on the substantive obligations of the parties

DOI: 10.54254/2753-7048/28/20231239

and the environmental objectives to be achieved, but quite specific provisions on procedural matters such as environmental monitoring, exchange of information, notification, reporting, periodic review, consultation. Although such procedural matters could intervene before pollution damage occurs, they usually do not have a mandatory binding effect. By contrast, provisional measures that have a mandatory effect are ineffective due to the strictness of the system and standards. The resulting problem is that substantive obligations under international environmental law, such as the obligation to protect the marine environment and the obligation to prohibit the transfer of pollution, are not effectively implemented. In a word, there is a lack of legally binding liability regimes that would allow environmental dispute settlement mechanisms to be truly efficient in preventing and controlling the occurrence of pollution, as opposed to procedural matters that cannot prevent trans-boundary pollution from occurring.

4. Liability for Trans-boundary Environmental Pollution

International liability stands out from tremendous regimes amidst contemporary international law and the liability for international wrongful acts and international liability for injurious consequences arising out of acts not prohibited by international law mainly has been codified under the framework of the United Nations. However, as international liability is a sensitive issue that directly concerns the related interests of States in an international society with numerous sovereignties, its development is directly subject to the influence of international politics. The nature of Japanese nuclear sewage discharge is in a gray area, due to its refusal to take samples for fact-finding and the lack of relevant mandatory system of international law. Thus, the principle of international cooperation has been suffering a great blow. It is necessary to discuss the situation because of the impossibility of further confirmation through data to discharge sewage to meet the standards.

4.1. Liability for International Wrongful Acts

Liability for an internationally wrongful act refers to live with legal consequences of an internationally responsible subject's international wrongful act. The action constituting an international wrongful act, which is an objective constituent element of liability for an international wrongful act, often refers to a violation of an international obligation committed by the subject of international responsibility. For example, the UNCLOS, a source of international environmental law mentioned above, expressly provides the international obligations of each State to fulfill by law which is about the protection and preservation of the oceanic environment and to ensure that activities are not out of control causing pollution to other States' environment. There is no doubt that the destruction of the global marine environment which is fundamentally vital for the common survival and development of all mankind, is an international wrongful act, even an international criminal act. If Japan cooperates with other States to assist them in realizing their right to the monitoring and evaluation of risks or effects of pollution as provided for in article 204 of the UNCLOS. If it is subsequently proved that the activities permitted by the Japanese Government will pollute the marine environment, the authorities will be held accountable for a wrongful act that occurred internationally.

4.1.1. Subjects Be to Blame for International Wrongful Acts

The State needs to be fully covered by international law for international legal relations, who carries out its acts by the organs or individuals that make up the State apparatus and whose will is expressed through acts of them. Since the serious accident at the Fukushima Daiichi nuclear power plant in 2011, large quantities of nuclear-contaminated water at high concentrations have been generated daily result from the use of water to cool down the melted core and the flow of rainwater,

DOI: 10.54254/2753-7048/28/20231239

groundwater, etc. As early as December of the same year, Tokyo Electric Power Company (TEPCO) said it had formulated a "low concentration of contaminated water" discharge plan, during which the Japanese government also set up a committee, experts in related fields included, to conduct hearings on nuclear wastewater discharge action, but to no avail. Finally in 2022, Japan's Atomic Energy Regulatory Commission endorsed the Fukushima Daiichi Nuclear Power Plant nuclear contaminated water discharge plan. Although TEPCO is a private enterprise qualified as a legal person, its act of discharging wastewater into the sea, authorized by the Japanese government, stands for exercise of power on behalf of the state. As a consequence, its act can be attributed to the state without doubt.

There has always been controversy in the international community over whether the state could become the subject of international crimes. Most scholars are opposed to this idea. According to the Roman law maxim that "society cannot commit a crime", the State cannot be the subject of an international crime and the egalitarian international community is lack of powerful mechanism for judging and punishing criminal States. However, in order to fight severe international crimes that jeopardize the common interests of the international community and compromise international security, the existence of the state responsibility for international crimes cannot be denied for lack of the mechanism for identifying and punishing such crimes.

4.1.2. Doctrine of Liability Fixation

Although the traditional theory of international liability holds that the tenable liability must have subjective factors like intent or negligence on the part of the actor. Nowadays, with the rapid development of countries, exploration in high seas, deepwater drilling and other marine activities have become increasingly frequent. The raising of pollution sources and influencing factors causes problem of adducing evidence more difficultly. If the absence of subjective fault of actor or the difficulty of collecting proof result in shirking any legal responsibility, obviously it is unfair for the injured States and not conducive to the environmental protection for lacking ultimate form of liability [7]. In addition, taking the equality between sovereigns in international social interactions into account, it is very difficult to judge the subjective state of the country and thus the fault liability is not very operational. Therefore, applying no-fault liability to the international responsibility, by the reversal of burden of proof in the international law, the injured country is to prove that the infringing country has committed an unlawful act and consequences of the damage, while the infringer is to prove that there is no causality between the results of the damage and their implementation of the wrongful act or the third party's fault for exemption from liability. This is of great significance for the infringing State to publish the information and documents it already has on marine environmental pollution, thus promoting international cooperation.

4.1.3. Forms of Liability

Judging from relevant international treaties, international custom and previous cases, the forms of liability for international wrongful acts mainly include compensation, cessation of the infringement, restitution and apology. With regard to the damages caused by discharging nuclear effluent into the sea, it is possible to compensate for damages which could be all economically estimable in order to reduce influences on the neighboring countries.

It can also be done by taking remedial measures to minimize the impact on the marine environment. If the nature of sea discharge is such serious that it rises to the level of an international crime, the injured party or the whole international community has the right to impose restrictions on exercising sovereignty. Limitations will be put on part of Japanese sovereignty, such as the use of marine resources, but not on others in an attempt to achieve the aim of restricting discharges.

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4.2. International Liability for Injurious Consequences Arising out of Acts Not Prohibited by International Law

International liability for injurious consequences arising out of acts not prohibited by international law is also referred to as international liability for compensation. The international tort giving rise to such liability often results in injurious consequences, although the act is not prohibited by international law. The International Atomic Energy Agency currently has endorsed Japanese nuclear effluent discharge program and has assessed that the effluent meets safety standards for discharge, while the conclusion on the safety of this program is one-sided and lack of persuasiveness and credibility. It is temporarily not unlawful in terms of procedural conditions and it cannot yet be convicted of international tort because it has not resulted in injurious consequences. There might be a conversion process of nature of the conduct, it is necessary here to discuss this type of act.

4.2.1. Subjects Be to Blame for Acts Not Prohibited by International Law

Any entity that is capable of assuming rights and obligations under international environmental law and performing legal acts should be defined as possessing subject qualification of international environmental law within a specific scope. In the past, the subject of international responsibility has been a controversial issue among the academic circle, concerning whether individuals could be included. Because the sea discharge proved to be harmless provisionally is not prohibited by relevant international law, the Japanese government who made the decision does not be held accountable, whereas if the sea discharge lasting for up to 30 years cause damage to the environment, the act can only be attributed to the private subject who still implements continuously. The subject of responsibility is thus expanded in comparison with that of international wrongful act.

4.2.2. Doctrine of Liability Fixation

The doctrine of liability fixation is mostly binary, including no-fault liability and fault liability. No-fault liability is to take into account the difficulty of victims to collect the necessary evidence to prove the fault of the actor in trans-boundary environmental pollution because of the existence of national boundaries. The purpose of establishing liability is to timely and fully compensate for trans-boundary damages so no-fault liability system is conducive to the victims to claim for compensation more efficiently [8].

However, some treaties also stipulate fault as a constitutive requirement of liability. In essence, to judge fault is to determine whether a duty of care or due diligence have been exercised, which should be proportional to the level of risk of trans-boundary harm in any situation by reference to appropriate criteria [9]. Meanwhile, consideration should be given to the financial capacity of the private subject who committed the act, otherwise the system would be meaningless. Where the subject of liability is a State, the economic level of a State is also one of the factors in determining whether it has complied with its duty of care. This is an endeavor to pursue a balance between need of State development and its obligation to maintain environmental safety and security. Since the activities are carried out by the subjects concerned within their own territories or under their control, it is clearly incompatible with the principles of international law to restrict their freedom to develop so that the prevention obligation imposed on them needs to be viewed in the overall context of the right to development. A distinction could therefore be made between the standards applicable to developing countries and those accepted by developed countries in order to accommodate the capacity of different economic levels to deal with emergencies, scientific research, technology transfer, which is in accordance with the principle of common but differentiated responsibilities under international law.

DOI: 10.54254/2753-7048/28/20231239

4.2.3. Cooperative System

Except for negotiation, consultation and other traditional dispute settlement methods to determine forms of responsibility for damages, international law nowadays does not explicitly stipulate the principle and scope of compensation for damages. Moreover, there is no overriding organization above the sovereign state to carry out punishment and therefore the identification of responsibility in these disputes is not, in practical terms, of much benefit to environmental protection. That is why a cooperative system should be set up to make it clear that the ultimate goal of dispute settlement is to better protect the environment and that the mechanism should not stop there just finding out the subject of liability for the pollution but should assist the responsible party to fulfill its obligations via cooperation when it is unable to do so.

Through the establishment of an international fund, when the obligations involved are of general interest to the whole international community, the responsible party will be provided with appropriate assistance including transfer of technology, technical assistance, training of relevant scientific researchers, financial assistance, the provision of programs and advice on the control of trans-boundary marine pollution and so on. According to this cooperative system, each Contracting Party might not only take coercive measures such as suspension of rights and privileges stipulated in the Protocol to warn and negatively constrain the defaulting State, but also assistance could be offered to obligations compliance playing the part of positive guidance, which embodies the principle of international cooperation and reflects the flexibility and consultative instead of punitiveness of dispute settlement.

4.3. Liability for Tort of Private Operators

Although the legal “hard” elements of the international liability regime are constantly being strengthened, in an international society where sovereignties stand in great numbers, the degree of “hardness” of the international liability regime can never be the same as that of the legal liability in the domestic legal system. As the frequency of international trans-boundary marine environmental pollution increases, it might be more convenient and effective for Chinese citizens to defend their rights through the path of domestic law. Undoubtedly in the future, our courts will certainly face some problems in accepting tort disputes arising from cross-border pollution. From the perspective of private international law, this kind of trans-boundary pollution infringement issue belongs to the special foreign related cases. According to Article 229 of UNCLOS, nothing in this Convention affects civil proceedings arising out of claims for loss or damage caused by pollution of the marine environment, which lays an institutional foundation for private parties applying domestic law to file the civil lawsuits to safeguard their rights and interests. However, the jurisdiction and legal application of tort liability disputes over trans-boundary environmental pollution have not been regulated clearly in The Civil Procedural Law of the Peoples Republic of China (Civil Procedural Law) and the Law of the People’s Republic of China on Choice of Law for Foreign-related Civil Relationships (Law for Foreign-related Civil Relationships).

4.3.1. Qualified Litigation Subjects

In trans-boundary marine environmental pollution tort disputes, there is essentially no difference with domestic environmental pollution cases. As victims, Chinese citizens are undoubtedly the qualified subject of litigation, enjoying the corresponding right of suit. In view of characteristics of environmental pollution cases, the large number of uncertain victims as well as the same cause of action, it is more conducive to protect Chinese citizens’ rights by applying the procedures of public interest litigation where environmental commonweal organizations or prosecutors file lawsuits to the court in the form of foreign affairs.

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4.3.2. Jurisdiction

As for the jurisdiction of trans-boundary environmental pollution infringement cases arising from the discharge of effluent into the sea, based on Article 266 of the Civil Procedural Law, if this is not provided in Part 4, other provisions of this Law may be applied. In other words, the provisions of this law on jurisdiction can be extended to foreign environmental pollution infringement cases, that is, according to the "locus delicti" or "the domicile of defendant" to determine which courts of China have jurisdiction over trans-boundary marine environmental pollution infringement cases. In terms of the specialty of both parties, the application of the principle of "plaintiff accommodated to defendant" to determine the competent court does not comply with common sense. For this reason, some scholars believe that it is best for the Supreme People's Court to designate a court to take jurisdiction over such cases in the future [10]. It is to say that the Supreme will designate a certain type of court to take centralized jurisdiction by way of judicial interpretation, which will not only improve the trial efficiency, but also establish judicial authority via the judgement of foreign-related cases.

4.3.3. Legal Issue of Application under Private International Law

At present, the international community has not reached a consensus on the issue of liability undertaking for trans-boundary environmental pollution tort disputes. For the legal issue of application for transnational environmental pollution infringement disputes, Chinese current laws have not stipulated as well. Therefore, the court in the trial of trans-boundary environmental pollution infringement cases can only reference three principles of legal application in article 44 of the Law for Foreign-related Civil Relationships concluded from the general foreign-related tort to determine the legal basis of trans-boundary environmental pollution infringement case: the principle of autonomy of will, the law of common habitual residence of parties and the lex loci delicti. There is an order of priority among these three principles of law application. In light of the particularity and complexity of trans-boundary environmental pollution tort dispute cases, scholars believe that the previous two principles of law application cannot be applied. The reason is that it is difficult in practice for transnational corporations to reach consensus with the vulnerable groups according to the principle of autonomy of will and there is no possibility of a common habitual residence between them. As a result, the domestic court can only judge by the lex loci delicti (where the torts occurred or where the results of torts occurred), using the Civil Code of the People's Republic of China and the Environmental Protection Law of the People's Republic of China as the applicable law for trial.

4.3.4. Recognition and Enforcement of Chinese Court Judgement in Foreign Country

The ultimate goal of tort disputes is to fill the damage. Taking Japan as an example, after the verdict on trans-boundary marine environmental pollution infringement case made by Chinese court, if TEPCO has no enforceable property in our country, then there is the question of winning victim applying to the Japanese court for recognition and enforcement of our court's judgment. According to judicial practice, foreign courts do not readily recognize foreign judicial decisions in order to safeguard their own judicial sovereignty. In this area, if China has not signed a bilateral judicial assistance treaty with the State where the infringing party is located and there is no reciprocity, the final result might be that the judgment cannot be enforced, and the lawsuit should be re-filed in the local court in Japan [11]. To a certain extent, this wastes our judicial resources and fails to fulfill the purpose of tort liability to compensate for damages.

DOI: 10.54254/2753-7048/28/20231239

5. Conclusion

At present, the discharge of nuclear wastewater from Japan is a cause of concern for neighboring countries and the world, although the Japanese government has cooperated with the International Atomic Energy Agency in dealing with the Fukushima nuclear accident. However, cooperation with the Agency reducing the impact of trans-boundary pollution is far from sufficient. According to the UNCLOS, the Japanese government is obliged to inform, consult and cooperate with stakeholders in making decisions regarding the discharge of nuclear wastes, and also to submit scientific reports on the non-hazardous nature of the nuclear wastes to be discharged. In this regard, there are procedural flaws of the Japanese act discharging effluent and it is therefore reasonable and legitimate to require it not to initiate the process of release without the authorization of the affected countries before full cooperation and consultation can be reached. What needs to be solved is the establishment of a solid liability system to pursue legal responsibility, from state responsibility and private tort liability in two aspects of parallel construction to maximize compensation for damages from trans-boundary environmental pollution. In addition, the ex-ante blocking mechanism for trans-boundary environmental pollution also needs to be strengthened to take into account its irreversible damage to the natural environment, it should, as far as possible, stop the emission behavior through international cooperation, coercive measures and other means. This study shows that in the face of the increasingly complex international environment, China should pay attention to the work of the judiciary, continuously improve the domestic legal system, strengthen the collection of evidence and the ability to discuss causality, which plays an important role in improving the influence of these institutions on the international stage as well as the authority to provide Chinese citizens with strong support in protecting their rights.

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