

Legal regulation of transboundary movement of plastic waste in China under the Basel Convention

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Abstract. The transboundary movement of plastic waste has increasingly become a focal point of widespread concern in the international community. Against this backdrop, the Basel Convention, as the core international legal instrument governing the control of transboundary movement of hazardous waste, provides an important framework for the international regulation of plastic waste through its prior informed consent procedure, environmentally sound management system, hazardous waste list system and illegal shipment control system. However, China faces numerous challenges in applying the Basel Convention, including poor alignment between domestic policies, laws and the Convention, an incomplete regulatory system and a lack of liability and compensation regimes. To this end, this paper proposes suggestions such as improving the legal system, strengthening access regulation and perfecting the liability and compensation system, with a view to enhancing China's capacity for legal regulation of the transboundary movement of plastic waste and better addressing the global plastic pollution crisis.

Keywords: Basel Convention, plastic waste, transboundary movement

1. Introduction

With the extensive use of plastic products, the accumulation of plastic waste has been rising year by year. Most of it has not been properly disposed of but has crossed national borders through illegal or improper channels. This phenomenon not only causes severe damage to the ecological environment but also threatens human health and sustainable development. In this context, the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal* (hereinafter referred to as the Basel Convention), as the core legal framework for the international community to address the transboundary movement of plastic waste, plays a vital role. As one of the world's largest producers and consumers of plastics, researching how China can improve the legal regulation of the transboundary movement of plastic waste within the framework of the Basel Convention is of great practical significance for enhancing China's plastic waste management capacity and promoting global environmental governance cooperation.

2. Overview of the transboundary movement of plastic waste

2.1. Definition of the transboundary movement of plastic waste

According to Article 2 of the Basel Convention, "waste" means substances or articles that are disposed of, intended to be disposed of, or required to be disposed of in accordance with national laws. In May 2019, the Fourteenth Meeting of the Conference of the Parties to the Basel Convention adopted the Plastic Waste Amendments to the Basel Convention. The amendments to Annexes II, VIII and IX define plastic waste by way of enumeration [1]. Annex VIII adds entry A3210, clarifying the scope of plastic waste, which is classified as hazardous waste. Annex IX limits plastic waste under entry B3011 to single-variety plastic waste that is almost uncontaminated and unmixed, and mixtures of sorted and recycled Polypropylene, Polyethylene and Polyethylene Terephthalate (PP, PE, PET), specifying which plastic waste is considered non-hazardous and exempt from the prior informed consent procedure. Entry Y48 is added to Annex II "Wastes Requiring Special Consideration", covering plastic waste and mixtures, specifically referring to "waste plastics and mixed plastics, and mixed waste containing plastics, including plastic beads", excluding hazardous waste under A3210 and non-hazardous waste under B3011. This classification reflects that plastic waste has dual attributes of "waste" and "resource", and its function and value cannot be simply generalized [2].

Article 2 of the Basel Convention clearly defines "transboundary movement" as any movement of hazardous waste or other waste from an area under the national jurisdiction of one country to or through an area under the national jurisdiction of another country; or any movement to or through an area not under the national jurisdiction of any country, provided that the movement involves at least two countries. Within the scope of this paper, "transboundary movement" mainly focuses on movements between countries, excluding the high seas. In short, the transboundary movement of plastic waste refers to the process in which plastic waste crosses national borders from its country of origin and enters other countries or regions through international trade or illegal channels.

2.2. Relevant laws and regulations

At the international level, the Basel Convention constitutes the core legal framework governing the transboundary movement of plastic waste. Adopted in 1989, the core purpose of the Convention is to effectively control the transboundary movement and disposal of hazardous waste and other wastes, so as to protect human health and the environment from adverse effects.

In May 2019, the Fourteenth Meeting of the Conference of the Parties to the Basel Convention adopted the landmark Plastic Waste Amendments to the Basel Convention. The amendments explicitly include non-recyclable and contaminated plastic waste within the scope of control and establish a full-life-cycle plastic waste management plan. Nevertheless, the Basel Convention and its amendments still have certain limitations in regulating pollution transboundary movement and global waste trade. In view of this, the international community needs to formulate comprehensive domestic supporting implementation measures for the amendments and fundamentally resolve the global crisis of transboundary movement of plastic waste by improving countries' capacity for plastic waste classification and disposal [3].

At the domestic level, as a Party to the Basel Convention, China has always fulfilled its international obligations with a proactive attitude and strengthened the regulation of the transboundary movement of plastic waste by formulating a series of laws, regulations and policy documents. China's domestic legislation mainly includes documents such as the *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste (Revised in 2020)*, which clearly stipulate environmental standards and regulatory requirements for the import, transit and disposal of plastic waste. In particular, the Plastic

Restriction Policy officially implemented in 2017 marks a major shift in China's attitude towards the transboundary movement of plastic waste, explicitly prohibiting the import of various solid wastes, including some plastic waste. However, despite remarkable progress in China's legislation, there are still shortcomings in the alignment mechanism between domestic laws and the Basel Convention, such as insufficiently detailed provisions and inconsistent implementation standards, which have to some extent undermined the actual effectiveness of the regulation of the transboundary movement of plastic waste.

3. Key Regimes of the Basel Convention governing the transboundary movement of plastic waste

3.1. Prior informed consent procedure

As the core mechanism of the Basel Convention for controlling the transboundary movement of plastic waste, the prior informed consent procedure plays a crucial role. Its core purpose is to ensure the transparency and legality of cross-border waste flows through international cooperation and preventive measures.

Pursuant to Article 6 of the Basel Convention, "the State of export shall, through the designated channel of its competent authority, notify in writing, or require the generator or exporter to notify in writing the competent authority of the relevant State of any proposed transboundary movement of hazardous waste or other waste". This provision not only provides the importing country with sufficient and comprehensive information to scientifically assess its waste disposal capacity but also grants the importing country the right to decide whether to accept the waste movement.

Nevertheless, although the prior informed consent procedure is highly binding in theory, it still faces a series of problems in practice, such as insufficient information disclosure and low review efficiency, which have weakened its regulatory effectiveness and actual performance in controlling the transboundary movement of plastic waste [4].

3.2. Environmentally sound management system

The concept of "environmentally sound management" is defined in relatively general terms in Article 2 of the Convention. Specifically, it refers to all feasible measures taken to manage waste in a manner that prevents adverse effects on human health and the environment from toxic waste or other waste.

As another important regime proposed by the Basel Convention for plastic waste disposal, the environmentally sound management system has a clear and critical core objective: to promote Parties to manage plastic waste in an environmentally sound manner, thereby reducing potential threats to ecosystems and human health, and ultimately achieving the dual effects of "source control" and "harmless disposal".

In terms of implementation outcomes, the implementation of this regime has to some extent promoted the improvement of global plastic waste management standards. However, as the relevant provisions of the Convention are only principled and lack unified technical standards, and there are significant differences in economic development levels and governance capabilities among countries, developing countries face numerous difficulties in implementing harmless management. In the specific implementation of the environmentally sound management system and the effective control of hazardous waste, it is also necessary to fully consider the differences in technical standards between exporting and importing countries. Such differences may have an important impact on the cross-border movement and management of waste and must be properly addressed and coordinated in the implementation of the regime [5].

3.3. Hazardous waste list system

As a key tool of the Basel Convention for classified management of plastic waste, the hazardous waste list system plays an indispensable role. Its core mechanism is to clearly define and classify different types of plastic waste, thereby determining the management requirements and legal status of each type of waste in cross-border movement.

Pursuant to Annexes I and VIII of the Basel Convention, plastic waste is scientifically categorized into two main types: "hazardous waste" and "other waste". "Hazardous waste" mainly includes plastic waste containing toxic substances or posing potential risks of serious environmental harm; "other waste" mainly includes household waste and incinerator ash.

In practice, this system also faces some pressing problems, such as inconsistent classification standards leading to divergent interpretations among different countries and regions, and difficult implementation due to technical and economic constraints in some countries that hinder the effective implementation of the requirements of the list system.

3.4. Illegal shipment control system

As the core instrument of the Basel Convention for combating illegal transboundary movement of plastic waste, the illegal shipment control system is of vital significance. By establishing a sound legal framework and vigorously promoting international cooperation, it effectively curbs the cross-border flow of illegal plastic waste. Illegal shipments take various common forms, including false declaration of the contents of shipments, i.e., intentionally providing information inconsistent with the facts, false labeling of goods to mislead relevant regulatory authorities, and mixing different materials to conceal the true nature of plastic waste [6].

The amendments to the Basel Convention further strengthen the illegal shipment control system, explicitly classifying illegal shipment of plastic waste as a criminal offense, highlighting the seriousness and harmfulness of such acts. In practice, the illegal shipment control system relies on international cooperation mechanisms to build information sharing platforms and joint law enforcement networks. The establishment of information sharing platforms enables Parties to exchange timely and accurate information on illegal shipments of plastic waste; the formation of joint law enforcement networks strengthens cooperation and coordination among countries in combating illegal shipments. Through these measures, the capacity for monitoring and combating illegal shipments has been effectively enhanced. For example, Parties can exchange intelligence to obtain key information on the source and destination of illegal plastic waste; at the same time, they can conduct cross-border cooperation to jointly track the transportation routes of illegal plastic waste and hold relevant responsible persons legally accountable, forming a strong law enforcement synergy.

4. Problems in China's application of the basel convention

4.1. Poor alignment between China's domestic policies, laws and the convention

At the policy level, China's Plastic Restriction Policy aims to reduce environmental threats from the transboundary movement of plastic waste by banning the import of solid waste [7]. From the introduction of the Plastic Restriction Policy in 2007, to the proposal of the Ban on the Import of Foreign Garbage in 2017, and the issuance of the *Opinions on Further Strengthening Plastic Pollution Control* (hereinafter referred to as the *Opinions*) in January 2020, China has continuously focused on plastic pollution. The introduction of the *Opinions* represents an upgraded Plastic Restriction Policy, which abandons the previous reliance on "price leverage" and features wider coverage and stronger operability [8]. Some wastes under China's Plastic

Restriction Policy are beyond the scope of protection of the Basel Convention, while most are protected by the Convention. A portion of the plastic waste under the Plastic Restriction Policy is listed in Annex IX and explicitly excluded from the protection of the Basel Convention, requiring an analysis of the hazardous characteristics of plastics in conjunction with China's WTO obligations [9].

In addition, although China has acceded to the Basel Convention and formulated a series of domestic laws and regulations within its framework, there are still many shortcomings in the alignment between domestic legislation and the Convention. First, existing legal provisions are insufficiently detailed and fail to fully cover the specific requirements of the Basel Convention. For example, the Basel Convention emphasizes the importance of the prior informed consent procedure and the environmentally sound management system, but China's domestic regulations lack clear and specific implementation rules for these two regimes, leading to ambiguous areas in practice. Second, domestic implementation standards are inconsistent with the requirements of the international Convention. Specifically, when addressing issues related to the transboundary movement of plastic waste, China tends to adopt more stringent and prudent control measures, but some formulated standards conflict with the flexibility principle advocated by the Basel Convention, which may to some extent affect the efficiency of international cooperation. Third, inter-departmental coordination mechanisms have not been fully established and effectively operated. In the enforcement of laws, the lack of a sound coordination mechanism results in unclear division of responsibilities among departments, leading to low work efficiency, failure to form effective law enforcement synergy, and delayed and inadequate investigation and punishment of some illegal acts.

4.2. Incomplete regulatory system for the transboundary movement of plastic waste

The construction and operation of China's regulatory system for the transboundary movement of plastic waste have exposed problems such as hindered inter-departmental coordination and backward technical means, which severely restrict the improvement of regulatory efficiency and prevent regulatory work from achieving desired results.

On the one hand, cross-departmental cooperation mechanisms have not yet matured, resulting in scattered regulatory responsibilities and low work efficiency. The transboundary movement of plastic waste is a complex matter involving multiple functional departments including customs, environmental protection and commerce. However, due to unclear and inaccurate division of functions among departments and an unsound information sharing mechanism, regulatory work often suffers from duplicate regulation or regulatory gaps. Duplicate regulation not only wastes a great deal of human, material and time resources and increases unnecessary administrative costs, but regulatory gaps allow some transboundary movements of plastic waste to evade regulation, posing potential threats to the environment and public safety.

On the other hand, backward technical means further exacerbate the difficulties of regulatory work. At present, China's identification, classification and tracking of plastic waste mainly rely on manual operations, which are not only inefficient but also inaccurate. Meanwhile, the lack of advanced testing equipment and a sound information management system makes it difficult to accurately identify and classify diverse plastic waste and track the entire process of its transboundary movement in real time. This not only significantly increases law enforcement costs and imposes a heavy economic burden on regulatory work but also easily leads to misjudgments and regulatory loopholes, providing opportunities for lawbreakers.

4.3. Incomplete liability and compensation system for the transboundary movement of plastic waste

At the international level, to address liability and compensation issues in hazardous waste international trade, Parties to the Basel Convention adopted the *Basel Protocol on Liability and Compensation* (hereinafter referred to as the *Protocol*) in Basel, Switzerland, in December 1999. The *Protocol* stipulates the scope of application, scope of damage, strict liability and liability limits for pollution damage caused by hazardous waste movement. Due to the small number of signatories, most of which are developing countries, and the compromise nature of the *Protocol* itself, it has not yet entered into force [10].

At the domestic level, China's current legal system has obvious deficiencies in liability and compensation for the transboundary movement of plastic waste, mainly manifested as ambiguous definition of liability, unclear scope of compensation and poor operability in implementation. First, although the Basel Convention establishes the prior informed consent procedure and emphasizes that the exporting country shall be liable for illegal movements, it does not specify detailed compensation standards and scopes. This leads to disputes over the identification of liable parties when environmental pollution or health damage is caused by the transboundary movement of plastic waste, especially complex division of liability in cases involving multiple parties. Second, China's domestic laws lack clear provisions on liability and compensation for the transboundary movement of plastic waste, with a broadly defined compensation scope that fails to fully cover ecological damage, economic losses and social impacts. In addition, the realization of compensation claims faces great difficulties due to the lack of effective guarantee mechanisms and financial support in compensation implementation. For example, the establishment and operation of a compensation fund have not formed a sound institutional system, making it difficult for victims to obtain timely and adequate compensation. These problems not only weaken the actual effectiveness of the liability and compensation system but also hinder China's effective regulation of the transboundary movement of plastic waste to a certain extent.

5. Suggestions for improving China's legal regulation of the transboundary movement of plastic waste

5.1. Improving the legal system for controlling the transboundary movement of plastic waste

To effectively address the complex and severe problem of transboundary movement of plastic waste, China needs to further improve its domestic plastic waste management legislation to achieve closer and more precise alignment between domestic legislation and the core provisions of the Basel Convention.

First, clarify the classification standards for plastic waste, ensuring that the domestic standards are highly consistent with the relevant definitions in the international Convention. Specifically, Annexes I and VIII of the Basel Convention set clear standards for hazardous waste classification. Drawing on this international standard, China can formulate a more detailed and specific catalog of plastic waste classification in light of the actual situation of plastic waste generation, disposal and management in China, and incorporate this catalog into the existing legal framework to provide a more scientific and rational basis for plastic waste management.

Second, optimize and improve control measures in more detail, especially implementing strict whole-process and comprehensive supervision in key links such as source management, transportation monitoring and final disposal of plastic waste. At the source management stage, strictly control the generation of plastic waste to reduce its quantity at the source; at the transportation monitoring stage, establish a sound transportation supervision mechanism to track and supervise the entire transportation process of plastic waste

in real time and prevent illegal movements during transportation; at the final disposal stage, ensure safe and environmentally sound disposal of plastic waste to avoid secondary pollution to the environment.

In addition, promote close and efficient coordination and cooperation among environmental protection departments at all levels. Environmental protection departments at all levels perform different functions and roles in plastic waste management. Strengthening coordination and cooperation can form work synergy, avoid management loopholes and duplicate management, and thus build a unified and efficient plastic waste management system.

5.2. Strengthening access regulation for the transboundary movement of plastic waste

To effectively prevent non-compliant plastic waste from entering China and safeguard domestic ecological security and public health, it is necessary to strictly standardize the approval process for the transboundary movement of plastic waste and significantly raise the access threshold.

First, further intensify the qualification review of plastic waste importing enterprises, ensuring that enterprises engaged in plastic waste import have comprehensive and reliable environmentally sound disposal capabilities covering the entire process from waste reception and storage to final disposal. Enterprises are required to possess corresponding technical equipment, professional personnel and standardized management systems to ensure that imported plastic waste can be safely and environmentally disposed of in China and avoid secondary pollution. Meanwhile, establish a comprehensive risk assessment mechanism to conduct strict inspections on each batch of imported plastic waste, including physical and chemical properties, presence of hazardous components and compliance with domestic environmental standards. Such strict inspections can minimize the entry of plastic waste containing hazardous components or failing to meet environmental standards, thereby reducing potential environmental and health risks.

Second, strengthen multi-departmental cooperation in the transit of plastic waste. The transit of plastic waste involves multiple departments including customs, environmental protection and transportation, which need to establish close communication and coordination mechanisms to form work synergy. Specifically, modern information technologies such as blockchain and the Internet of Things can be fully utilized. The blockchain technology, with its characteristics of decentralization, immutability and traceability, can ensure the authenticity and integrity of information on plastic waste transit; the Internet of Things technology can realize real-time monitoring of the entire process of plastic waste through sensors, radio frequency identification and other devices. The combined application of these two technologies enables timely grasp of the location and status of plastic waste, allowing prompt response to abnormalities and effectively preventing illegal movements and violations [11].

In addition, further improve the cross-border movement notification system, requiring exporting countries to provide detailed waste information prior to plastic waste movement, including type, quantity, composition, origin and disposal history, so that relevant Chinese departments can fully understand the waste and make scientific and rational decisions. Meanwhile, exporting countries may only conduct plastic waste movement after obtaining a written approval document issued by relevant Chinese departments. This system ensures China's full right to speak and decision-making power in the cross-border movement of plastic waste and effectively curbs the inflow of illegal plastic waste.

5.3. Perfecting the liability and compensation system for the transboundary movement of plastic waste

To effectively enhance the operability, accuracy and effectiveness of the liability and compensation system for the transboundary movement of plastic waste, China needs to improve this system from multiple dimensions.

First, clarify the rules for identifying liable parties. In cases of illegal movement or improper disposal of plastic waste, clear and accurate determination of liability attribution is crucial for timely resolution of problems and protection of the legitimate rights and interests of all parties. Pursuant to the relevant provisions of the Basel Convention, exporting countries, importing countries and transporters may all bear varying degrees of liability. In view of the complexity of multi-party liability, China needs to subdivide and clarify the specific scope of liability for these parties in domestic law. This can effectively avoid compensation disputes arising from ambiguous rights and obligations, ensure that liability determination is based on law and evidence, and improve the fairness and accuracy of liability identification.

Second, standardize compensation procedures, including establishing dedicated compensation application channels and strict review mechanisms. Dedicated compensation application channels provide victims with a convenient and efficient way to submit compensation claims, ensuring timely communication of their demands. Strict review mechanisms conduct comprehensive and detailed examinations of compensation applications to assess their rationality and legality, thereby guaranteeing fair and just compensation. Such procedural arrangements ensure that victims can obtain timely relief and safeguard their legitimate rights and interests after suffering damage from the transboundary movement of plastic waste. For example, China can draw on relevant provisions on environmental damage compensation in German criminal law, which requires liable parties to take the initiative to bear compensation liability for environmental pollution, with more severe penalties for failure to do so. This provision can encourage liable parties to actively assume liability and reduce evasion of compensation. China can improve domestic compensation procedures by drawing on this valuable experience in light of its national conditions [12].

In addition, it is recommended to establish a compensation guarantee fund, which is of great significance for remedying ecological damage caused by the transboundary movement of plastic waste. Ecological damage, once caused, often incurs huge restoration costs and may take a long time. A compensation guarantee fund can provide necessary financial support for ecological restoration, ensuring timely and effective implementation of restoration work. The fund can be financed through multiple channels, including levying special taxes and fees on relevant enterprises, which may impact the environment in the production, transportation and disposal of plastic waste, encouraging them to attach greater importance to environmental protection while providing a stable source of funds for the compensation guarantee fund. Meanwhile, support can be obtained from international aid projects. Against the backdrop of global environmental governance, the international community is highly concerned about plastic waste pollution, and international aid can inject additional funds into the compensation guarantee fund to enhance its financial strength [13].

Through the above measures, China can not only better fulfill its international obligations under the Convention but also build a more comprehensive domestic liability and compensation system for the transboundary movement of plastic waste.

6. Conclusion

The transboundary movement of plastic waste is an important issue in global environmental governance, and its effective control relies not only on the improvement of national domestic legal systems but also on the soundness of international information exchange and cooperation mechanisms. Looking ahead, China's prospects for regulating plastic waste within the framework of the Basel Convention are promising. With the deepening of domestic ecological civilization construction, China has gradually established a comprehensive management system including laws, regulations, policies and technical standards. However, to further enhance plastic waste control capabilities, China still needs to play a more active role in international cooperation, such

as participating in the formulation of international rules to promote the unification of global plastic waste management standards, and strengthening cooperation with countries along the Belt and Road Initiative to jointly address the challenges of transboundary movement of plastic waste. In this process, China can not only contribute "Chinese wisdom" to global environmental governance but also further enhance its international influence and sense of responsibility.

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