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HARMONISING TRANSNATIONAL ENVIRONMENTAL FRAMEWORKS FOR CROSS-BORDER POLLUTION AND RESOURCE DEPLETION IN ALIGNMENT WITH THE SUSTAINABLE DEVELOPMENT GOALS

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ABSTRACT

Environmental degradation is becoming more and more national and comes in as cross border pollution and unsustainable exploitation of common natural resources. The conventional State-based approaches to the environmental regulation have not been sufficient in covering these transnational problems and there is a need to harmonize the legal and institutional responses. The study focuses on the adoption and success of transnational environmental models through which the cross-border pollution and depletion of resources are governed with special consideration to how they are being aligned to the Sustainable Development Goals (SDGs).

The paper carries out a doctrinal and analytical review of fundamental tenets of international environmental law such as the principle of no-harm, the principle of due diligence, the principle of precautionary, sustainable development, principle of common, yet differentiated responsibility, and the principle of intergenerational equity. It examines how these principles have been put into actual practice by international treaties, judicial rulings and soft-law instruments to govern the transboundary environmental damage. The study also analyzes the main international laws as the convention of the law of the sea, the convention of biological diversity, the Basel Convention and the global climate change regime, their contribution and the limitations they have in terms of their structures as well as their enforcement constraints.

One of the main arguments developed in the present paper is that currently, international environmental regimes are still scattered, sector-based, and loosely implemented which prevents their ability to properly fight interrelated environmental issues. The research determines that there have been unresolved loopholes to do with the State sovereignty, lack of effective compliance mechanisms and fairness in burden sharing between developed and developing States and the peripheral involvement of non-State actors in transnational environmental governance.

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It is with respect to this that the research sets the Sustainable Development Goals as a normative and institutional harmonising framework that has the potential to integrate fragmented environmental regimes and advance coherent, equitable and science-based governance. The analysis suggests that the alignment of international environmental commitments and SDG targets can help the States to increase policy coherence, establish accountability and promote international cooperation. The paper makes a conclusion that transnational environmental frameworks harmonisation as stipulated by SDGs is crucial in providing a sustainable and equitable solution to cross-border pollution and resource depletion.

Keywords- sustainable development goals,transnational environmental law,crossborder pollution,resourcedepletion,harmonisation,environmentalgovernance,international environmental principles

INTRODUCTION

With a growing interdependence, cross-border pollution and resource abuse traverse country borders and increasingly threaten the existence of the ecosystem, human life and economic well being. Environmental degradation has increasingly cut across national borders and appears to be complex forms of cross-border pollution and even faster depletion of common natural resources. The expansion of international environmental agreements and regional controls does not ensure that the transnational environmental harm is appropriately addressed in the global legal landscape; as the legal process of controlling cross-border environmental pollution is incomplete, unevenly applied, and is usually reactive rather than proactive. The existence of divergent national standards, uneven compliance measures and conflict of priorities in development has led to gaps in regulation that allow pollution havens, overexploitation of resources and environmental injustice and especially to the developing and vulnerable states. These inadequacies are contrasted to the integrated and universal vision that is represented by the 2030 Agenda of Sustainable Development of the United Nations that focuses on shared responsibility, coherence of policies, and sustainable use of resources.

Sustainable Development Goals (SDGs), especially Goals 6, 12, 13, 14, 15 and 16, offer a normative and policy-oriented approach to transboundary environmental issues, debating them in an integrative way. Nonetheless, the consistency of the current transnational environmental models with the SDGs is inconsistent and insufficient. Although the SDGs encourage interconnections between environmental conservation, economic growth and social justice, the

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present regulatory frameworks tend to go in silos, without harmonizing between jurisdictions and sectors.

It is against this background that this study explores the necessity of harmonisation of transnational environmental structures in order to better control cross-border pollution and resource depletion in line with the SDGs. It aims at examining the legal, institutional, and governance loopholes in the current international and regional mechanisms, and discover ways through which there can be greater cooperation and policy agreement and normative convergence. Through placing transboundary environmental governance in the context of SDGs, the paper seeks to add to the dynamic literature on sustainable global environmental governance, and the establishment of fairer, more coordinated, and futuristic legal solutions to common ecological issues.

THEORY ON CROSS-BORDER POLLUTION AND RESOURCE DEPLETION IN THE INTERNATIONAL ENVIRONMENTAL LAW

There is a transboundary environmental harm in international environmental law as explained in Cross-border or transboundary environmental harm in international environmental law is any environmental harm arising in the territory or under the control of one State resulting in a substantial adverse impact in the territory or environment of another State or in another territory outside the jurisdiction of the State. This notion is a direct criticism of the long held notion of absolute territorial sovereignty and it indicates the developing idea that States enjoy sovereignty with an environmental imperative[1].

The theoretical basis of transboundary environmental damage is deeply rooted in international law. In the trial Smelor Arbitration (United States v. The arbitral tribunal of Canada) was of the opinion that no State is allowed to utilize its territory in a way that leads to injury of the territory of another State[2]. This doctrine has since been codified into traditional international law and has been restated by the International Court of Justice (ICJ) in other cases, e.g., in the case of Corfu Channel and Pulp Mills on the River Uruguay. All of these decisions prove that a State has a duty of due diligence to avoid causing serious transboundary environmental damage[3].

[1] Philippe Sands & Jacqueline Peel, *Principles of International Environmental Law* (4th edn., CUP 2018).
[2] *Trail Smelter Arbitration* (United States v Canada) (1938–1941) 3 RIAA 1905.
[3] *Corfu Channel Case* (UK v Albania) [1949] ICJ Rep 4; *Pulp Mills on the River Uruguay* (Argentina v Uruguay)

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T.A.P. and the State Responsibility.

Transboundary air pollution is a type of complicated cross-border environmental damage as the atmospheric pollutants are mobile and the cause and effect is difficult to determine. The sulphur dioxide, nitrogen oxide, particulate matter, and greenhouse emissions are often cross-border through atmospheric circulation to bring about acid rain, climate change, and a health crisis to the population in the impacted States. The due diligence standard regulates State responsibility in transboundary air pollution under the international environmental law. States must take it upon themselves to ensure proper legislative, administrative and technical action that serves to avert major harm as opposed to ensuring complete prevention[4]. The Convention on Long-range Transboundary Air Pollution (1979) is an expression of this requirement in the form of a treaty, focusing on cooperation, exchange of information and commitments of reduction of emissions. The concept of transboundary air pollution is extended further to climate change, which is a global issue and has resulted in the emergence of differentiated responsibilities as per the Paris Agreement[5].

Watercourses and Transboundary Water Pollution.

Transboundary water pollution is caused when activities of an upstream State impact negatively on the water quality or quantity of downstream States. International environmental law seeks to address such a case by the doctrine of equitable and reasonable use and the requirement not to cause gross harm which is contained in the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses[6]. The case of Pulp Mills on the River Uruguay, which was decided by the ICJ, made it very clear that the substantive and procedural obligations of States with a shared watercourse comprise the obligation to perform environmental impact assessments (EIAs) when there is a risk of transboundary harm. This case highlights the concept of unilateralism to cooperative management of collective water resources[7].

Doctrine of Marine Pollution and Global Commons.

Marine pollution poses a unique transboundary problem because oceans are considered to be shared spaces and in certain nations, global commons. Oil, plastic and chemical wastes are the

[2010] ICJ Rep 14.
[4] Convention on Long-Range Transboundary Air Pollution, 1979.
[5] Paris Agreement, 2015, Art. 2 & 4.
[6] UN Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997.
[7] *Pulp Mills on the River Uruguay* (n 3).

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worst pollutants that spread very fast within the maritime area and sometimes impact on the States that are miles away. The United Nations Convention on the Law of the Sea (UNCLOS) provides an elaborate legal regime in which States are required to prevent, reduce, and manage pollution of the marine environment. Article 194 of UNCLOS puts on the States the obligation to make sure that activities within its territorial jurisdiction will not damage other states and their environment through pollution[8]. This is a manifestation of the philosophy according to which States serve as custodians of the marine environment to the current and future generations.

The Transboundary Movement of Hazardous Waste and Environmental Justice bridges the gap between transnational environmental activism and political agendas by addressing the injustices arising from the capitalist approach to environmental issues.Transboundary Movement of Hazardous Waste and Environmental Justice bridges the gap between transnational environmental activism and political agenda by generating the injustices of the capitalist approach to the environmental issue.Transboundary trade of hazardous waste reveals the disparities in international environmental laws. The developing States tend to be the destination of hazardous waste produced in the developed nations leading to the destruction of the environment and violation of human rights. Basel Convention reflects the important IEL principles including prior informed consent, polluter bears, and equity in the environment. The Convention secures the principle of non-externalization of environmental harm across borders, especially to the vulnerable States, by limiting waste exports and promoting the reduction of waste at the source[9].

Resource Indemnity and the Sustainable Development Doctrine.

The resource depletion takes a transnational aspect when resources that are either shared or bear a global significance are exploited. The depletion of resources is dealt with by the international environmental law mainly through the doctrine of sustainable development whose aim is to bring equilibrium between economic or financial development and the environment. This doctrinal framework includes shared water resources, fisheries, forests and biodiversity. The overfishing of migratory species, deforestation of world climatic systems, and irresponsible mining activities prove the inefficiency of domestic-only regulation. Such tools as UNCLOS, Convention on Biological diversity (CBD), soft-law declarations are used to

[8] United Nations Convention on the Law of the Sea, 1982, Art. 194.
[9] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989.

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strengthen the duty of States to manage the resources in a sustainable and cooperative way[10].

Typical and differentiated Responsibilities and Intergenerational Equity.

Common but Differentiated Responsibilities (CBDR) and intergenerational equity are two important doctrines that form the foundation of transboundary environmental governance. CBDR acknowledges the fact that though there is shared accountability of all States regarding the protection of the environment, the developed States have more responsibilities because of historical causes of environmental degradation and technological ability[11]. As it has been expressed in the Brundtland Report and reflected in other international instruments, intergenerational equity requires States to maintain the environmental resources to the future generations. The combination of these doctrines supports the idea of the differentiated obligations and the improved cooperation in solving the problem of cross-border pollution and depletion of resources[12].

Scientific Basis and Obligation of Due Diligence.

The evidentiary support concerning transboundary environmental obligations is scientific knowledge on ecological interdependence. The use of scientific tests, environmental impact analysis and expert evidence by the international courts to determine the State adherence to due diligence obligations has increased. The necessity to take Environmental Impact Assessments (EIAs) as acknowledged by the ICJ as a general duty towards the international law, portrays the convergence of science and law in the regulation of transboundary environmental degradation[13].

EVOLUTION OF TRANSNATIONAL ENVIRONMENTAL LAW IN LINE WITH SDG FRAMEWORK.

With the adoption of the Sustainable Development Goals (SDGs) in 2015, a major normative step has been made in the development of transnational environmental law. As compared to the old environmental instruments which dealt with sector specific issues, the SDGs offer a holistic and universal tool which summarizes decades of principles of the international environmental law into a development-minded agenda[14].

[10] Convention on Biological Diversity, 1992.
[11] Rio Declaration on Environment and Development, 1992, Principle 7.
[12] World Commission on Environment and Development, *Our Common Future* (1987).
[13] *Pulp Mills on the River Uruguay* (n 3), para 204.
[14] United Nations General Assembly, *Transforming our World: the 2030 Agenda for Sustainable Development,*

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The SDGs capture the historical development of the environmental law in the historical context of a disunited, State-centric legal system into a harmonised and cooperative system of governance. This has changed as can be seen in the way the SDGs operationalise foundational principles created by means of international treaties, judicial decisions and the use of soft law.[15]

SDGs and the Limitation of absolute sovereignty.

SDG 16 (Peace, Justice and Strong Institutions) strengthens the loss of the absolute sovereignty of the territory by highlighting the governance by the rule, responsibility, and collaboration between the countries[16]. This is consistent with the development of the transnational environmental law, especially the principle of Trail Smelier and found in Principle 21 of the Stockholm Declaration, which restricts the sovereignty of the States over the transboundary harm[17]. The SDG framework therefore reinforces the legal norm that States should be responsible in the exercise of their sovereignty and in line with transboundary environmental requirements[18].

Sustainable Development as the Intermediate Normative Bridging.

The SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14(Life Below Water) and SDG 15 (Life on Land) all demonstrate the convergence of sustainable development as the normative principle of transnational environmental law[19]. The goals extend on the integration of the environmental protection and economic development that the Rio Declaration has examined[20] The transformation of environmental protection as an independent target to sustainability as an overlapping requirement shows how the international environmental law has grown to a more development-focused form of governance[21].

Ordinary and Distinctive Responsibilities and SDG Equity.

The idea of common but differentiated responsibilities (CBDR) as expressed by Rio Declaration is reiterated in the SDGs that focuses on equity, capacity-building, and

UN Doc A/RES/70/1 (25 September 2015).

[15] United Nations Environment Programme (UNEP), *Environmental Rule of Law: First Global Report* (2019).

[16] United Nations General Assembly, *2030 Agenda for Sustainable Development* (n 1).

[17] *Trail Smelter Arbitration* (United States v Canada) (1938–1941) 3 RIAA 1905; Stockholm Declaration on the Human Environment, 1972, Principle 21.

[18] International Law Commission, *Draft Articles on Prevention of Transboundary Harm from Hazardous Activities* (2001).

[19] United Nations, *Sustainable Development Goals* (2015).

[20] Rio Declaration on Environment and Development, 1992; World Commission on Environment and Development, *Our Common Future* (1987).

[21] Edith Brown Weiss, *In Fairness to Future Generations* (Transnational Publishers 1989).

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international support[22]. SDG 10 (Reduced Inequalities) and SDG 17 (Partnerships for the Goals) are evidence of how the developmental States need financial, technological, and institutional assistance in meeting the environmental requirements[23]. This convergence indicates how the transnational environmental law has been adapted to absorb the imbalance between the developmental requirements and still hold the environmental responsibility collectively[24].

Science, SDG Governance and Procedural Obligations.

Procedural obligations like the environmental impact assessment (EIA), community participation, and open access information are also considered to be closely connected with SDG 16 and SDG 17[25]. Such a shift to scientific evidence, monitoring, and data-sharing in the SDG implementation can be considered a reflection of the development of due diligence under the international environmental law as the ICJ stated in the case of Pulp Mills on the River Uruguay[26].

In this way, the SDGs support the use of science-based decision-making as a legal and policy norm of transnational environmental governance[27].

SDG as a Harmonising Mechanism in Transnational Environmental Law.

The SDGs also act as a harmonising tool since it enhances coherence in policies among the disjointed environmental regimes. Although the multilateral environmental agreements remain autonomous, SDGs offer a point of reference when it comes to harmonizing national policies, international collaboration, and transnational regulatory benchmarks[28]. In that regard, SDGs become the logical extension of the evolutionary curve of transnational environmental law that shifts environmental protection as a reactive law of environmental protection to an active and integrated model of governance to achieve sustainable and equitable development[29].

[22] Rio Declaration on Environment and Development, 1992, Principle 7.
[23] United Nations Development Programme (UNDP), *The SDGs as a Framework for International Cooperation* (2017).
[24] Lavanya Rajamani, *Differential Treatment in International Environmental Law* (Oxford University Press 2006).
[25] Aarhus Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters, 1998.
[26] *Pulp Mills on the River Uruguay* (Argentina v Uruguay) [2010] ICJ Rep 14, paras 197–205.
[27] UNEP, *Global Environment Outlook* (2022).
[28] United Nations, *The SDGs and Policy Coherence* (2018).
[29] Alan Boyle, 'Soft Law in International Environmental Law' (2019) 12 *Journal of Environmental Law*.

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PRINCIPLES GOVERNING CROSS-BORDER ENVIRONMENTAL PROTECTION

The normative foundation of the international environmental law is based on environmental principles which are instrumental in controlling inter-border pollution and exploitation of resources. These are the principles that will govern the conduct of the States, as well as contribute to interpreting treaties, and judicial decision-making in transnational environmental conflicts. The legal and ethical reasoning behind the need to have co-operative and harmonised environmental governance is through the principles of the no-harm rule, precautionary principle, the principle of polluter pays, sustainable development, and the principle of common but differentiated responsibilities (CBDR) in the context of cross-border environmental harm[30]. In this chapter, the author studies the major principles of environmental protection that are used in transboundary environmental protection and how these principles can be relevant in ensuring that national and transnational frameworks are aligned as per the Sustainable Development Goals (SDGs).

The No-Harm Principle

The principle of no-harm is one of the most basic principles of the international environmental laws. It commits the States to make sure that the activities they have in their jurisdiction or control would not cause severe damages to the environment of other States or areas that do not fall under national jurisdiction[31]. The principle was originally proclaimed in the Trail Smelder Arbitration when the tribunal stated that no State could exercise its territory in a way that would cause harm to the other State[32]. It became later enshrined in Principle 21 of the Stockholm Declaration and reiterated in Principle 2 of the Rio Declaration[33].The International Court of Justice (ICJ) has always appreciated the no harm rule as a customary international law. The Court in Pulp Mills on the River Uruguay stated that States bear the due diligence duty not to inflict serious transboundary environmental degradation[34]. The no-harm principle is therefore the main legal foundation of controlling transboundary pollution.

[30] Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th edn., CUP 2018).
[31] International Law Commission, *Draft Articles on Prevention of Transboundary Harm from Hazardous Activities* (2001).
[32] *Trail Smelter Arbitration* (United States v Canada) (1938–1941) 3 RIAA 1905.
[33] Stockholm Declaration on the Human Environment, 1972, Principle 21; Rio Declaration on Environment and Development, 1992, Principle 2.
[34] *Pulp Mills on the River Uruguay* (Argentina v Uruguay) [2010] ICJ Rep 14.

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The Due Diligence Obligation.

Closely associated with the no-harm principle is the duty of due diligence. Due diligence has the mandate that States implement all manner and reason to avert, mitigate and manage the risk of transboundary environmental damage[35]. According to international jurisprudence, due diligence is an elastic standard, which depends on the degree of risk and the scientific knowledge and on the ability of a State. In Pulp Mills, the ICJ stressed that procedural obligations involved in due diligence are prior notification, consultation, and cooperation[36]. Due diligence requirement corresponds to SDG 16 that fosters accountable and effective institutions and SDG 17 that facilitates international collaboration in solving common problems.

Precautionary principle

The Precautionary Principle is an ethical principle.The Precautionary Principle The Precautionary Principle is a moral principle.The precautionary principle deals with scientific uncertainty in environmental decision making. It obliges the States to adopt preventive measures in circumstances where there is a threat of any severe or irreversible environmental damage, regardless of whether scientific certainty is complete[37]. The principle has been prominent with Principle 15 of Rio Declaration that lack of scientific certainty should not serve as an excuse for delaying cost effective practices that will prevent environmental degradation. The international tribunals have embraced the use of precaution in environmental cases especially in cases where the damage is irreparable. The precautionary principle particularly applies to transboundary pollution and losses in resources, because it is in most cases too late before one realizes environmental degradation has taken place across the borders. The principle underlines SDG 13 (Climate Action) and SDGs 14 and 15 associated with the protection of ecosystems.

The Polluter Pays Principle

The principle of polluter pays states that the expenses of pollution prevention, control, and remediation must be internalised and the costs imposed on the party that has polluted the environment to deter the engagement in the harmful activities to the environment[38].

The polluter pays principle, which is recognised in Principle 16 of the Rio Declaration, has

[35] Alan Boyle and Catherine Redgwell, *International Law and the Environment* (4th edn., OUP 2021).
[36] *Pulp Mills on the River Uruguay* (n 5), paras 197–205.
[37] Nicolas de Sadeleer, *Environmental Principles* (OUP 2002).
[38] OECD, *Guiding Principles Concerning International Economic Aspects of Environmental Policies* (1972).

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been integrated into many international and regional documents[39]. It is topical especially in cross-border-pollution situations, when it is difficult to determine who is responsible and who should pay. This principle can facilitate accountability by making polluters pay the monetary cost of the negative impact on the environment, which can also support SDG 12 on responsible consumption and production.

Sustainable Development

The overriding principle that brings together the environment protection, as well as the economic and social development, is sustainable development. It aims at satisfying the current generation without interfering with the capacity of the future generation to satisfy the needs of the future[40].

The idea received official recognition under international law with the Brundtland Report and eventually entrenched in the Rio Declaration. In cases like Gabcíkovo Nagymaros Project, the ICJ recognized sustainable development as consideration in cases involving the environment.[41] The SDGs has its normative basis on sustainable development, which is at the centre of ensuring cross-border environmental policies in dealings with the depletion of resources and cross-border pollution. Similar but differentiated responsibilities (CBDR) The common but differentiated responsibility principle acknowledges that although every State has the responsibility of ensuring that the environment is safe, the responsibility of each State varies according to the historical emissions to the environment and capacity differences CBDR, codified in Principle 7 of the Rio Declaration, is an important aspect of law on climate change, and environmental governance in general[42]. It tries to strike a balance between the environmental protection and the equity and developmental requirements.CBDR is consistent with SDG 10 (Reduced Inequalities) and SDG 17 (Partnerships for the Goals), which supports the significance of international support, transfer of technology, and capacity-building.

Intergenerational Equity

Intergenerational equity requires that current generations should put the environment under trust to the future generations. This principle entails States to preserve the natural resources and ecological systems in the long-term.Despite being largely constructed on the academic discourse, intergenerational equity has shaped international environmental norms and legal

[39] Rio Declaration on Environment and Development, 1992, Principle 16.
[40] World Commission on Environment and Development, *Our Common Future* (1987).
[41] *Gabcíkovo–Nagymaros Project* (Hungary v Slovakia) [1997] ICJ Rep 7.
[42] Edith Brown Weiss, *In Fairness to Future Generations* (Transnational Publishers 1989).

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cognitions. It enhances the legal and moral foundation to control long-term transboundary environmental degradation like climate change and loss of biodiversity. The principle directly endorses the sustainability goals of the SDGs in the long-term. Environmental Impact Assessment as a Principle of Procedures. Environmental Impact Assessment (EIA) is a procedural principle that presupposes the previous evaluation of possible environmental effects of planned activities which can have severe transboundary impacts.

In the ICJ in Pulp Mills on the River Uruguay, EIA was identified as a necessity of a general international law where the threat is of serious transboundary environmental damage[43].

The principle helps in SDG 16 through empowering participatory and accountable governance systems.

EXISTING INTERNATIONAL FRAMEWORKS ADDRESSING CROSS-BORDER POLLUTION AND RESOURCE DEPLETION

The international treaties, conventions, and soft-law tools constitute a complicated framework that regulates the cross-border pollution and resource depletion. Although these international environmental regimes have multiplied, their success is still unequal with limited governance systems, poor enforcement procedures, and coordination among States. The paper is an analysis of major international law frameworks that deal with transboundary environmental harm and assesses their applicability in the environment of the Sustainable Development Goals[44] (SDGs).

International regimes of cross border pollution.

The issue of transboundary air pollution is tackled by the Convention on Long-range Transboundary Air Pollution (CLRTAP) which facilitates cooperation, scientific studies and emission reduction obligations of the States[45].The Convention is one of the first acknowledgements that air pollution is a transboundary issue that needs to be addressed collectively and not individually. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal regulates the transboundary movement of hazardous waste and seeks to prevent risks to the environment and health as a result of hazardous wastes trafficking, which is akin to the principles of environmental justice and polluter liability[46].The United Nations Convention on the Law of the Sea (UNCLOS) fully

[43] *Pulp Mills on the River Uruguay* (n 5).
[44] Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th edn., Cambridge University Press 2018).
[45] Convention on Long-Range Transboundary Air Pollution, 1979.
[46] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989.

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governs marine pollution and the States have a duty to prevent, minimize, and manage pollution of the marine environment through supplementary measures like MARPOL[47]. These frameworks acknowledge that marine ecosystems are transboundary and that the States have shared responsibility of managing the oceans.

Legal Systems to deal with resource depletion.

The issue of resource depletion is tackled with the help of treaties that are aimed at conserving and sustainable use of shared natural resources. The Convention on Biological Diversity (CBD) aims at the conservation of biological diversity, sustainable use of biological resources, and equitable distribution of benefits[48].The Convention represents the paradigm shift, where the focus on the exploitation of resources is substituted by the conservation-oriented management. The UN Convention on the Law of the Non-Navigational Uses of International Watercourses controls the joint exploitative utilisation of shared freshwater by introducing both the principles of equitable and reasonable utilisation and the duty not to cause any substantial harm[49]. These principles are meant to curb excessive exploitation and ecological destruction of the transboundary water resources. Likewise, UNCLOS[50] governs conservation of marine living resources such as migratory fish stocks by obligating the countries to cooperatively manage these resources, but failure in enforcing conservation and conflicting national interest still undermines effective conservation.

Climate Change Frameworks and Transboundary Environmental Harm.

Climate change is a unique type of transboundary environmental degradation since it is global and has long-term effects. The UNFCCC and the Paris Agreement create a regime of cooperation that entails the national commitments, the transparency mechanisms, and the concept of the common but differentiated responsibilities[51]. Although such instruments are designed to reduce the number of emissions and the amount of resources depleted by climate, they are not enforceable because they are based on nationally determined contributions.

Fragmentation and the Role of the SDGs.

A significant drawback of the current international regimes is that they are fragmented and

[47] United Nations Convention on the Law of the Sea, 1982, Arts 192–194.
[48] Convention on Biological Diversity, 1992, Art 1.
[49] UN Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997.
[50] UNCLOS, 1982, Arts 61–63.
[51] United Nations Framework Convention on Climate Change, 1992; Paris Agreement, 2015.

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sector-focused, leading to overlaps in regulations and lack of coordination across sectors coupled with common sustainability goals.[52] Although many international legal frameworks have been created to deal with cross-border pollution and resource depletion, there are still a great number of limitations to their effectiveness. Although the international environmental law has been modified to be more comprehensive and sophisticated, it is still being applied in an uneven and sporadic manner that still largely relies on the will and consent of States. The chapter is a critical analysis of major legal, institutional, and structural loopholes in the current transnational environmental systems that impede proper control over transnational environmental damage and sustainable management of resources.[53]

LIMITATIONS AND GAPS IN EXISTING TRANSNATIONAL FRAMEWORKS

International Environmental Regimes Fragmentation.

The problem of fragmentation of international legal regimes is one of the most intractable in the context of transnational environmental governance. Environmental problems like air pollution, marine degradation, biodiversity loss, and climate change are governed by sector-specific treaties that do not interact with each other.[54]Fragmentation also hinders coordination among environmental regimes and other areas that are associated with environmental regulations like international trade, investment and development law. This fact is further enhanced by the fact that there is no single enforcement or supervisory body that would make States stick to their obligations selectively, depending on national interests.

Ambiguous Enforcement and Compliance Systems.

The absence of the effective mechanisms of enforcement is another significant shortcoming of current frameworks. The majority of the global environmental treaties are based on voluntary adherence, reporting, and international relations as opposed to mandatory sanctions. In contrast to the international trade law, the international environmental law does not have powerful dispute settlement systems that could guarantee compliance.[55]

Arbitral tribunals and the International Court of Justice have a minor role because of the limited

[52] Alan Boyle and Catherine Redgwell, *International Law and the Environment* (4th edn., Oxford University Press 2021).
[53] United Nations General Assembly, *Transforming our World: the 2030 Agenda for Sustainable Development*, UN Doc A/RES/70/1 (2015).
[54] Alan Boyle and Catherine Redgwell, *International Law and the Environment* (4th edn., OUP 2021).
[55] Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th edn., CUP 2018).

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jurisdiction and unwillingness of the States to resolve environmental disputes in the court. As a result, the breach of transboundary environmental duties is usually not corrected, and the disincentive impact of international standards is diminished.

Issues of Sovereignty and Political Will.

It remains clear that state sovereignty is still a major obstacle to the harmonised environmental governance. A lot of States are still insecure to receive outside attention, or make any binding obligations that can limit domestic economic processes.[56] This is especially clear when it comes to parts like climate change mitigation, transboundary water management, and resource extraction. The reason is that economic growth is prioritised and environmental protection is also delayed due to this prioritisation. Cooperative frameworks are further constrained by political considerations, asymmetry of power, and geopolitical considerations to enhance effectiveness of cooperative frameworks.

Northsouth Inequality and Equity Trial.

Another gap of transnational environmental governance is the inequalities between developed and developing States. Although, in many cases, cross-border pollution and depleted resources disproportionately hit the developing countries, they seldom have the financial, technical, and institutional capability to adhere to the rules of environmental protection on an international level.[57]In spite of the fact that the principle of common but differentiated responsibilities is aimed at the correction of this imbalance, this principle remains to be implemented inconsistently. Poor funding, lack of transfer of technologies and inability to build capacity hamper fair environmental management.

Minor Role of Non-State Actors.

Although there is an increasing awareness of the importance of non-State actors in the process of environmental governance, current frameworks are still largely State-centric. Most international environmental treaties do not bind transnational corporations that are the major causes of environmental degradation.[58] On the same note, the communities and indigenous people who are affected rarely have significant input on transboundary decision making processes.

[56] Stockholm Declaration on the Human Environment, 1972, Principle 21.
[57] Lavanya Rajamani, *Differential Treatment in International Environmental Law* (OUP 2006).
[58] United Nations Environment Programme, *Environmental Rule of Law: First Global Report* (2019).

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RECOMMENDATIONS AND WAY FORWARD

The chapters above have shown that current transnational environmental systems dealing with the cross-border pollution and resource wastage are flawed by their inconsistency, ineffectiveness, sovereignty issue, and lack of equity. In this regard, coherent, non-discriminating and future oriented governance mechanisms are urgently required. This chapter provides legal and institutional suggestions to enhance transnational environmental governance, specifically, by embracing the Sustainable Development Goals (SDGs), which provide an integrative and cooperative framework to the resolution of common environmental issues.

International Environmental Standards harmonisation.

One of the main suggestions is the alignment of the environmental standards at both the international and regional levels. Although sector-specific treaties offer particular environmental issues, they do not provide standardized benchmarks and therefore the regulation lacks uniformity and compliance gaps. States must strive to incorporate minimum global environmental standards by adopting a coordinated interpretation of treaties, mutual recognition procedures and model environmental standards.[59]

Such harmonisation could be evaluated using the SDGs as a normative benchmark, which is by offering common goals and indicators that could be used in different jurisdictions. The introduction of SDG targets into the guidelines of treaty implementation would increase the coherence and decrease the atomization.

Enhancing Enforcement and Compliance.

Good environmental governance must have good enforcement and accountability systems. The current international environmental treaties ought to be complemented with more robust compliance evaluation processes, independent reviews and clear reporting mechanisms.[60]The international tribunals and courts must also be enhanced with regard to increased jurisdiction and advisory systems in case of environmental issues. Moreover, it is possible to implement the non-compliance procedures, as it is done with international climate agreements, in each of the environmental regimes in order to foster accountability without compromising the sovereignty of States.

[59] Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th edn., Cambridge University Press 2018).
[60] Alan Boyle and Catherine Redgwell, *International Law and the Environment* (4th edn., Oxford University Press 2021).

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Improving International Cooperation and Institutional Coordination.

Transboundary environmental issues require greater collaboration between the States and international institutions. The regional co-operation processes like river basin organisations, regional seas programmes and transnational monitoring networks should also be enhanced to deal with location specific environmental problems.[61]At the international level, there needs to be better coordination of institutions like the United Nations Environment Programme (UNEP), UNDP, and treaty bodies. Institutional integration will enable duplication to be minimized, better sharing of data and collective response to cross border pollution and resource depletion.

Equity as a solution using Capacity Building and Technology Transfer.

In order to overcome the NorthSouth divide, more attention should be paid to capacity building, monetary support, and technology transfer to the developing States. The concept of common and differentiated responsibilities ought to be put into practice by use of foreseeable funding programs, availability of environmentally sound technologies and institutional assistance.[62] Giving the framework to rallying resources and promoting the cooperation between developed and developing States, SDG 17 has the emphasis on global partnerships. Fair play will help improve the validity and efficacy of transnational environmental governance.

Participation of Non-State Actors and Public.

Environmental governance in the future should not be State-centric. The trans national companies, civil society groups and the indigenous people should be extensively included in the decision making processes.[63] The policies of enhancing corporate environment responsibility by use of ESG standards and transnational liability mechanisms can resolve the pollution by individual actors.Inclusive governance should be aimed through public participation, access to information and environmental justice. Transparency is boosted by procedural rights, which help to achieve better environmental results.

Use of SDGs as a Harmonising Framework.

The SDGs ought to be officially accepted as a unifying model with the ability to harmonise scattered environmental regimes. Although not legally binding, their universal applicability, composite design and focus on sustainability can turn transnational environmental governance,

[61] United Nations Environment Programme (UNEP), *Environmental Rule of Law: First Global Report*
[62] Lavanya Rajamani, *Differential Treatment in International Environmental Law* (Oxford University Press 2006).
[63] United Nations Guiding Principles on Business and Human Rights (2011).

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an instrument of reactivity, into an instrument of prevention.[64] Co-ordinating national policies, treaty commitments and institutional practices with the SDGs can convert transnational environmental governance into a pro-active rather than a reactive system.

CONCLUSION

The paper has discussed the issue of cross-border pollution and resource depletion using the prism of transnational environmental law and Sustainable Development Goals (SDGs). As the analysis has indicated, whereas the international environmental law has undergone substantial development in the form of no-harm rule, sustainable development, and differentiated responsibility, the current laws are not effectively applied and implemented, because of the sovereignty issue, the loopholes in enforcement of the rules, and the unequal distribution of capacities among States[65].

The paper finds that the SDGs offer a useful harmonising model that can effectively consolidate fractured environmental regimes and foster co-operative, science-based, and equitable governance[66]. Cohering transnational environmental obligations with SDGs targets can reinforce policy coherence, increase accountability, and establish environmental sustainability in the long run. In the final analysis, to solve the transboundary environmental harm; it is necessary not only to have a legal change but also a long-term cooperation of the international community and the common duty to protect the global environment.

[64] United Nations General Assembly, *Transforming our World: the 2030 Agenda for Sustainable Development*, UN Doc A/RES/70/1 (25 September 2015).
[65] Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (4th edn., Cambridge University Press 2018).
[66] United Nations General Assembly, *Transforming our World: the 2030 Agenda for Sustainable Development*, UN Doc A/RES/70/1 (2015).