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Implementing International Soft Law Commitments on Wastewater Management in Vietnam: Evaluation and Lessons Learned

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Abstract

The main global commitments on the prevention of land-based pollution in general and on the prevention of land-based wastewater pollution in particular are found in soft law instruments. This article examines international soft law commitments on the prevention, reduction and elimination of land-based wastewater pollution and how Vietnam has implemented them in its national law. From this analysis, a number of

lessons would be extracted for other countries in terms of implementing international soft law commitments.

KEYWORDS *Soft law, Land-based Wastewater Pollution, Vietnam*

Introduction

International soft law emerged in the post-war era as a response to the structural limitations of public international law, largely resulting from the expansion of its scope and the growing number of actors involved.[1] While scholars offer varying definitions of 'soft law,' there is broad consensus that it encompasses norms that occupy a middle ground, neither legally binding nor purely political or ethical declarations.[2] International soft law plays a vital role within the global legal framework, interacting dynamically with binding legal norms and exerting a significant and multifaceted influence on the evolution of international law.[3]

The emergence and development of international soft law instruments is an accepted part of the compromises required when undertaking daily tasks in the global legal system, where states are sometimes reluctant to sign, ratify, or accede to numerous treaties that might result in national antipathy toward over-committing to a global goal.[4] In most cases, hard-law provisions are so difficult for most states to commit to that many of them could not enter into force at all. Many have taken considerable time to secure the necessary ratifications and accessions

[1] Ilhami Alkan Olsson, "Four Competing Approaches to International Soft Law," *Scandinavian Studies in Law* 58 (2013): 177–196.
[2] Timothy Meyer, "Soft Law as Delegation," *Fordham International Law Journal* 32, no. 3 (2009): 888–90.
[3] Ulrich Fastenrath, "Relative Normativity in International Law," *European Journal of International Law* 4 (1993): 305–40.
[4] Alan Boyle, "Some Reflections on the Relationship of Treaties and Soft Law," *International and Comparative Law Quarterly* 48, no. 4 (1999): 901–13.

needed for them to enter into force effectively.[5] At the same time, numerous soft-law instruments—such as UN General Assembly "resolutions" and "declarations"—were adopted, carrying substantial international importance but comprising non-treaty commitments that are therefore not legally enforceable.[6] Soft law denotes international norms that are intentionally non-binding yet retain legal significance, existing in the ambiguous space between legal obligations and political intent.[7] A key characteristic of soft law is its potential to initiate the formation of customary international law or act as supporting evidence of its development.[8]

Soft law offers many advantages over the traditional form of hard law, i.e., treaties, and has been touted as a more effective alternative.[9] The fact that treaties tend to be narrowly drawn, take longer to negotiate, are limited in their application until ratification, and lack enforcement mechanisms to promote compliance suggests the need for effective alternatives that can respond to the immediate environmental threats of the global village.[10] Soft law helps overcome deadlocks in inter-state relations; its application can gradually contribute to the development of hard law; and in certain circumstances, soft law may be, as some argue,

[5] Louis B. Sohn, "Unratified Treaties as a Source of Customary International Law," in *Realism in Lawmaking: Essays in Honor of Willem Riphagen*, ed. Adriaan Bos and Hugo Sibiss (1986): 231–46.

[6] Ilhami Alkan Olsson, "Four Competing Approaches to International Soft Law," *Scandinavian Studies in Law* (1999–2015).

[7] Daniel Thürer, "Soft Law," in *Encyclopedia of Public International Law*, vol. 4, ed. Rüdiger Bernhardt (Amsterdam: Elsevier, 2000), 452–60.

[8] Alexander S. Timoshenko, "International Environmental Law: Fundamental Aspects," *Revista Jurídica de la Universidad de Puerto Rico* 59 (1990): 653.

[9] L. Marc, "Remarks at the Conference on Environmental Law: When Does It Make Sense to Negotiate International Agreements," in *Proceedings of the 87th Annual Meeting of the American Society of International Law* (1993).

[10] Catherine Tinker, "Environmental Planet Management by the United Nations: An Idea Whose Time Has Not Yet Come," *New York University Journal of International Law and Politics* 22 (1990).

"the only alternative to anarchy".[11] In practice, both conventional international legal frameworks and soft law tools are essential to shaping international law. They each contribute significantly to governing state behavior and establishing shared expectations.[12] Soft law has become an increasingly preferred approach for addressing difficult global decisions, largely due to its advantages over binding legal instruments. It allows progress even when governments are unwilling to commit to hard law and provides avenues for civil society to participate in shaping global governance.[13] The process of establishing legally binding international commitments is costly and time-consuming from when the document is drafted until it comes into effect for countries. The formation of soft law will be much more flexible, usually easier to achieve when combined in conferences, meetings of international organizations or countries.[14] The procedures for passing soft law documents are often quick and simple, and countries typically accept them easily. Consensus is more readily achieved on bold and substantive provisions when they are framed as soft law rather than binding hard law.[15] Soft law can also play a significant role in bringing a particular issue into the international arena. Once a matter has become the subject of a soft law, it would hardly be possible for a state party to claim that the matter in question still falls within the domestic

[11] Joseph Gold, "Strengthening the Soft International Law of Exchange Arrangements," *American Journal of International Law* 77 (1983): 443.

[12] Christine M. Chinkin, "The Challenge of Soft Law: Development and Change in International Law," *International and Comparative Law Quarterly* 38, no. 4 (1989): 850–66.

[13] John J. Kirton and Michael J. Trebilcock, eds., *Hard Choices, Soft Law: Voluntary Standards in Global Trade, Environment and Social Governance* (Aldershot: Dartmouth, 2004): 5.

[14] Oscar Schachter, "The Twilight Existence of Nonbinding International Agreements," *American Journal of International Law* 71 (1977): 296; Gunther F. Handl et al., "A Hard Look at Soft Law," *ASIL Proceedings* 82 (1988): 371.

[15] Jon Birger Skjærseth, Olav Schram Stokke, and Jørgen Wettesta, "Soft Law, Hard Law, and Effective Implementation of International Environmental Norms," *Global Environmental Politics* 6, no. 3 (August 2006).

jurisdiction of the state. This point is especially relevant in the area of environmental governance.[16]

Soft law also has a number of weaknesses. Firstly, the impact and reliability of soft law instruments within international law remain uncertain. Soft law is not mentioned in Article 38 of the Statute of the International Court of Justice as a source of international rules that the Court can apply in resolving international disputes.[17] Secondly, soft law instruments lack a legally binding force, as they do not bring about any official legal consequence for States that do not comply with them.[18] The non-compliance with soft law could, at most, entail some reputational damage. Finally, unlike international "hard law" texts such as treaties and conventions, soft law instruments often do not have an enforcement mechanism to ensure their compliance. This could further diminish the binding value of soft law instruments. However, there are instances where states create an international organization specifically to carry out a political declaration—such as the establishment of the Partnerships in Environmental Management for the Seas of East Asia to implement the Sustainable Development Strategy for the Seas of East Asia.[19]

This article examines how Vietnam has incorporated its international soft law commitments relatied to land-based wastewater management into domestic legal instruments with the aim of extracting relevant lessons for other countries. To achieve this objective, the article first explains the background of wastewater pollution and discusses international soft law commitments related to land-based wastewater management. It then, analyzes Vietnam's regulations on land-based

[16] Ilhami Alkan Olsson, "Four Competing Approaches to International Soft Law," *Scandinavian Studies in Law* (1999–2015).
[17] ICJ, Statue of the International Court of Justice, art. 38, online: https://www.icj-cij.org/statute.
[18] Tim Hillier, *Sourcebook on Public International Law* (London: Cavendish Publishing Limited, 1998) 99.
[19] PEMSEA, Who We Are, online: https://www.pemsea.org/who-we-are.

wastewater management, including both political and legal texts. Finally, it evaluates Vietnam's implementation on its relevant international soft law commitments and extracts lessons for other countries.

A. Wastewater Pollution and International Soft Law Commitments on Land-Based Wastewater Management

This Section provides background information on the status of land-based wastewater pollution and discusses the relevant international soft law commitments aimed at preventing, reducing and eliminating such pollution.

1. Land-based Wastewater Pollution: A Background

Wastewater consists of various sources, including domestic sewage such as blackwater and greywater; discharges from businesses; industrial waste; stormwater and urban runoff; as well as effluent from agriculture, horticulture, and aquaculture, which may exist in either dissolved or suspended forms.[20] The characteristics of wastewater flows differ widely, reflecting the diversity of their origins and the substances they carry.[21] The primary origins of wastewater are urban areas, farming activities, and industrial discharges.[22] Household and city wastewater typically carries a

[20] AfDB, UNEP, and GRID-Arendal, *Sanitation and Wastewater Atlas of Africa* (Abidjan, Nairobi and Arendal: AfDB, UNEP and GRID-Arendal, 2020), 38.
[21] *UNESCO, Waste Water: The Untapped Resources, The United Nations World Water Development Report 2017 (Paris: UNESCO, 2017), 19.*
[22] Soli J. Arceivala and Shyam R. Asolekar, *Wastewater Treatment for Pollution Control and Reuse*, 3rd ed. (New Delhi: Tata McGraw-Hill, 2006), 10; Ayesha Kiran et al., "A Critical Analysis of Legal Responses to Water Pollution in Pakistan," *Cogent Social Sciences* 9 (2023); UNESCO, *Waste Water: The Untapped Resources, The United Nations World Water Development Report 2017*, Fig. 1.2; Amador Duran-Sanchez et al., "Wastewater Management: Bibliometric Analysis of Scientific Literature," *Water* 12 (2020): 3.

high concentration of bacteria. Wastewater from industrial and mining activities may contain organic compounds such as hydrocarbons, polychlorinated biphenyls (PCBs), persistent organic pollutants (POPs), volatile organic compounds (VOCs) and chlorinated solvents. Industrial wastewater also contains emerging contaminants such as pharmaceuticals, hormones and steroids, personal care items, pesticides and herbicides, surfactants and their byproducts, flame retardants, chemical additives used in manufacturing, plasticizers, and fuel-related compounds.[23]

The increasing global population, urbanization, and economic activities are leading to a significant rise in wastewater production worldwide.[24] It is estimated in 2023 that globally, nearly 95 trillion gallons of wastewater are produced every year and as much as 80% of it has been discharged into nature without treatment.[25] Global populations are growing rapidly, particularly in urban areas. Projections indicate that by 2030, 4.9 billion people—equivalent to 60% of the global population—will be living in urban areas. This rate of urbanization far outstrips planning and wastewater infrastructure development.[26] Industrial activities dump millions of tons of heavy metals, solvents, sludge and other wastes into water bodies each year, with the biggest contributors being textile, manufacturing, mining, petrochemicals and pharmaceuticals.[27]

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[23] UNESCO, *Waste Water: The Untapped Resources, The United Nations World Water Development Report 2017*, 38 and 48 - 69; Arceivala and Asolekar, *Wastewater Treatment for Pollution Control and Reuse*, 10.

[24] AfDB, UNEP, and GRID-Arendal, *Sanitation and Wastewater Atlas of Africa*, 38.

[25] Rebecca Cairns, "One-Fifth of Water Pollution Comes from Textile Dyes. But a Shellfish-Inspired Solution Could Clean It Up," CNN, 23 June 2023, online: https://edition.cnn.com/2023/04/21/middleeast/textile-wastewater-pollutant-cleaner-hnk-scn-spc-intl/index.html; see also Global Commission on the Economics of Water, *Turning the Tide: A Call to Collective Action* (Paris: OECD, 2023), 25.

[26] Emily Corcoran et al., eds., *Sick Water? The Central Role of Wastewater Management in Sustainable Development: A Rapid Response Assessment* (United Nations Environment Programme; UN-HABITAT; GRID-Arendal, 2020), 24.

[27] Rebecca Cairns, "One-Fifth of Water Pollution Comes from Textile Dyes. But a Shellfish-Inspired Solution Could Clean It Up," CNN, 23 June 2023, online:

Agriculture, accounting for 70 percent of water abstractions worldwide, discharge large quantities of agrochemicals, organic matter, drug residues, sediments and saline drainage into water bodies.[28] According to the UN, billions of people worldwide still live without safely managed drinking water, safely managed sanitation and basic hygiene services, especially in rural areas and least developed countries.[29] Untreated wastewater is also a serious issue in developed countries. It was estimated by Canada's CBC that in 2015, more than 205 billion liters of raw sewage and untreated wastewater were discharged into Canada's rivers and oceans in 2015.[30] In the United Kingdom, The Guardian says that 384,000 discharges of raw sewage into the country's waterways were reported in 2022.[31]

Untreated wastewater can have many adverse effects. Major contaminants in wastewater such as nutrients, hydrocarbons, heavy metals and microbes pose major threats to both aquatic life and human health.[32] Nutrients such as nitrogen and phosphorus can cause eutrophication or the blooming of harmful algae, which in turn leads to the depletion of

https://edition.cnn.com/2023/04/21/middleeast/textile-wastewater-pollutant-cleaner-hnk-scn-spc-intl/index.html.

[28] Javier Mateo-Sagasta, Sara Marjani Zadeh, and Hugh Turral, *Water Pollution from Agriculture: A Global Review* (Rome: Food and Agriculture Organization, 2017), 2.

[29] UN Water, *Summary Progress Update 2021: SDG 6 — Water and Sanitation for All* (July 2021), 8, 12.

[30] "Billions of Litres of Raw Sewage, Untreated Waste Water Pouring into Canadian Waterways," CBC News, 12 December 2016, online: https://www.cbc.ca/news/politics/sewage-pollution-wastewater-cities-1.3889072.

[31] Niels de Hoog, "'Unacceptable': How Raw Sewage Has Affected Rivers in England and Wales – In Maps," *The Guardian*, 12 September 2023, online: https://www.theguardian.com/environment/ng-interactive/2023/sep/12/unacceptable-how-raw-sewage-has-affected-rivers-in-england-and-wales-in-maps; see also "Sewage Pollution: Facts & Figures," Surfer Against Sewage, online: https://www.sas.org.uk/water-quality/water-quality-facts-and-figures/.

[32] Oghenerobor Akpor, "Pollutants in Wastewater Effluents: Impacts and Remediation Process," *International Journal of Environmental Research and Earth Science* 3, no. 3 (March 2014): 50–59, at 51.

oxygen in water bodies, causing the death of aquatic life. Excessive nutrients can lead to the development of harmful microbes such as Pfisteria which can cause eye and respiratory irritation, headache and gastrointestinal disorders. The presence of hydrocarbon pollutants in wastewater effluents can cause significant damage to body organs and systems of living creatures. Heavy metals such as zinc, copper, nickel and arsenic are toxic even at very low concentrations. For instance, zinc poisoning can cause various diseases such as stomach cramps, skin irritations, arteriosclerosis and metal fever. Large concentrations of zinc also pose great danger to infants and unborn children when absorbed by their mothers during pregnancy. Bacteria, viruses and protozoa in wastewater cause many diseases such as typhoid fever, cholera, shigellosis, salmonellosis, campylobacteriosis, giardiasis, cryptosporosis and Hepatitis A. The World Health Organisation estimates that 80% of the world's diseases and 50% of the world's child deaths are related to poor drinking water quality. [33] Additionally, organic materials entering into water through human wastes, paper products, detergents, cosmetics, foods, and from other sources can lead to the depletion of dissolved oxygen in the water for their degradation.[34] A concrete example of health risks from exposure to raw wastewater was shown in a series of epidemiological and microbiological studies initiated in 1989 in Mexico which showed that farm workers and their children in contact with raw wastewater through irrigation or play have a significantly higher prevalence of Ascaris infection than those practicing rain-fed agriculture. Furthermore, consumers of increased amounts of vegetables irrigated with raw wastewater had a

[33] Oghenerobor Akpor, "Pollutants in Wastewater Effluents: Impacts and Remediation Process," at 51–52.

[34] Li Lin, Haorang Yang, and Xiaocang Xu, "Effects of Water Pollution on Human Health and Disease Heterogeneity: A Review," *Section Water and Wastewater Management* 10 (2022): 11.

greater incidence of diarrhea compared to those who ate very little. The effect was seen particularly in adults and children under five years of age.[35]

Furthermore, polluted wastewater also harms economic activities. The most affected sector is aquaculture as the growth of aquatic life depends greatly on the quality of water. Fish and shrimp living in poor-quality water can easily die, develop diseases and grow poorly. Wastewater can also affect farming as rivers and sources are used for irrigation. Studies in Vietnam show that the rice fields irrigated by polluted water can decrease the production output up to 80%. Finally, wastewater can also adversely impact the sector of tourism as it depends on the cleanliness of the surface water in lakes, rivers and coastal areas.[36]

There are two basic approaches to deal with wastewater pollution. The first involves preventing excessive use and contamination of water from the point of initial use, thus reducing the overall volume of wastewater produced and pollution loads in it. The second involves collecting and treating wastewater for other uses or discharge into the environment.[37] A wide range of options is available for wastewater treatment such as mechanical treatment to remove larger particles, biological treatment to remove organic matter and part of the nutrient load, and chemical treatment to remove harmful substances. Research is constantly advancing to develop better treatment technologies.[38]

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[35] Anne Peasey et al., *A Review of Policy and Standards for Wastewater Reuse in Agriculture: A Latin American Perspective*, Well Study (2000): 15.

[36] Community for Actions and Coalition for Clean Water, *Study Report on Water Pollution and the Need to Develop a Water Control Law in Vietnam* (in Vietnamese: *Báo cáo Nghiên cứu ô nhiễm nước và sự cần thiết phải xây dựng luật kiểm soát ô nhiễm nước tại Việt Nam*) (Hanoi: Community for Actions and Coalition for Clean Water, 2018): 30–39.

[37] UNESCO, *Waste Water: The Untapped Resources, The United Nations World Water Development Report 2017*, 144.

[38] UNEP, *A Snapshot of the World's Water Quality: Towards a Global Assessment* (2016), 85.

Recovering water and useful by-products from wastewater is currently gaining momentum in the context of sustainable water resources management, green economies and urban planning. Treated wastewater can be reused for agriculture, industrial processes, environmental restoration, recreational purposes, and even as a source of drinking water. In addition to water, other resources can also be recovered from wastewater such as nutrients, organic matter and energy.[39] For instance, biogas can be recovered from sewage sludge. [40] The recovery of resources from wastewater is critical to balancing economic development with environmental and resource protection in a circular economy. Thus, the wastewater management cycle has four important stages: i) reducing and preventing pollution at the source; ii) treatment of wastewater; iii) using treated wastewater; and iv) recovering useful by-products. However, effective wastewater treatment requires advanced wastewater treatment technologies and facilities. For this reason, according to estimates, while developed countries can treat approximately 70% of the wastewater they produce, developing countries can only treat up to 28% of their wastewater.[41]

2. International Soft Law Instruments on Land-Based Wastewater Management

The main global commitments on the prevention of land-based pollution in general and on the prevention of land-based wastewater pollution in particular are found in soft law instruments. Article 207 of the 1982 United Nations Convention on the Law of the Sea stands as the sole binding legal provision that directly addresses pollution originating

[39] UNEP, *Wastewater – Turning Problem to Solution: A UNEP Rapid Response Assessment* (Nairobi: UNEP, 2023), 26.
[40] UNESCO, *Waste Water: The Untapped Resources, The United Nations World Water Development Report 2017*, 158.
[41] UNESCO, *Waste Water: The Untapped Resources, The United Nations World Water Development Report 2017*, 158.

from land-based sources. It obliges countries to enact legislation, implement appropriate actions, and develop international and regional guidelines, standards, and recommended practices to prevent, mitigate, and manage marine pollution caused by land-based activities.[42] This part examines the most important international soft law instruments relevant to wastewater pollution.

Mar del Plata Action Plan, 1977

The Mar del Plata Action Plan, established during the United Nations Water Conference held in Mar del Plata, Argentina from March 14 to 24, 1977, outlines recommendations for the rapid and structured management of water resources across national, regional, and global levels. The recommendations concern topics such as assessment of water resources, water use and efficiency, environment, health and pollution control, policy, planning and management, and natural hazards. [43] Relating to wastewater, countries should promote and develop, by means of suitable incentives and appropriate policies, the efficiency of wastewater purification systems and the adoption of less polluting technologies.[44] For industrial wastewater, they should include waste treatment, pollution elimination and reduction as an integral part of municipal and industrial water-supply systems; ensure the use and disposal of effluents consistent with health and environmental requirements; and promote technologies that produce little or no waste and those allowing for the recovery of usable substances in wastewaters.[45]

Montreal Guidelines, 1985

The Montreal Guidelines, developed by UNEP, were the first non-binding international framework aimed at protecting the marine

[42] United Nations Convention on the Law of the Sea, 1982, art. 207.
[43] Mar del Plata Action Plan in *Report of the United Nations Water Conference, Mar del Plata, 14–25 March 1977* (New York: United Nations, 1977), 4.
[44] Mar del Plata Action Plan, 10.
[45] Mar del Plata Action Plan, 20–21.

environment from pollution originating on land.[46] The UNEP Governing Council by decision 13/18 (II) of 24 May 1985 encouraged States and international organizations to take these Guidelines into account when developing environmental agreements.[47] While not explicitly referring to wastewater, the Guidelines characterize land-based sources as municipal, industrial, and agricultural origins—whether stationary or mobile—whose discharges ultimately enter the marine environment.[48]

The Montreal Guidelines provide various recommendations on the duty of States related to land-based pollution which could be applicable to wastewater pollution. States are encouraged to adopt a holistic environmental management strategy to address pollution from land-based sources. This includes creating systems for monitoring, storing, and sharing data on pollutants and energy inputs that contribute to such pollution. They should also design and enforce programs and measures aimed at preventing, reducing, and controlling these impacts. Crucially, each country must establish and implement national laws and regulations to safeguard the marine environment from land-based pollution, aligning with internationally recognized standards, guidelines, and best practices, and ensuring compliance with these legal frameworks.[49]

Chapter 17 of the Agenda 21, 1992

[46] Pham Thi Gam, "Marine Pollution from Land-based Wastewater: International and Vietnamese Law" [in Vietnamese: *Ô nhiễm biển do nước thải có nguồn gốc từ đất liền: Luật pháp quốc tế và pháp luật tại Việt Nam*], *Industry and Commerce Review*, 30 April 2021, online: https://tapchicongthuong.vn/bai-viet/o-nhiem-bien-do-nuoc-thai-co-nguon-goc-tu-dat-lien-luat-phap-quoc-te-va-phap-luat-tai-viet-nam-80391.htm.

[47] *Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources*, Decision 13/18/11 of the Governing Council of UNEP, 24 May 1985.

[48] *Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources*, 2.

[49] *Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources*, 2–7.

Agenda 21, adopted during the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil from June 3 to 16, 1992, is a UN action plan aimed at promoting sustainable development. It addresses a wide range of sustainability-related challenges, including consumption patterns, poverty reduction, deforestation, and the advancement of sustainable agriculture and rural development.[50] Chapter 17 of Agenda 21 emphasizes strategies for safeguarding the marine environment, with land-based pollution, especially sewage, highlighted under environmental protection. In line with Agenda 21, key actions for States regarding sewage may involve integrating sewage management into coastal development planning, constructing and operating treatment facilities based on national capabilities and policies, and regulating the discharge of domestic and industrial waste that could disrupt treatment systems. They should also promote primary treatment of municipal sewage discharged into rivers, estuaries and the sea, and establish and improve local, national, subregional, and regional regulatory and monitoring programs to control effluent discharge.[51]

GPA, 1995

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (the GPA) was adopted on 3 November 1995 by an Intergovernmental Conference with the participation of 110 governments in Washington, D.C., United States from 23 October to 3 November.[52] The GPA was then endorsed by the

[50] Agenda 21, *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3–14 June 1992*, UNOR, annex II, UN Doc. A/Conf.151/26/Rev.1 (Vol. I).

[51] Agenda 21.

[52] "110 Governments Adopt Ambitious Global Programme to Tackle Marine Degradation," United Nations press release, 8 November 1995, online: https://www.un.org/press/en/1995/19951108.he915.html.

UNGA at its 51st session.[53] The GPA provides for actions to be taken at global, regional and national levels in order to tackle nine sources of land-based pollution: sewage, persistent organic pollutants, radioactive substances, heavy metals, oils, nutrients, sediment mobilisation, litter, and physical alterations and destruction of habitat.[54] For instance, national activities to be undertaken to prevent pollution from sewage include identification of major sewage sources and areas where sewage poses major environmental and health issues; development of national programmes of action for the installation of appropriate and environmentally sound sewage facilities.[55] These national programmes must ensure, *inter alia*, incorporation of sewage concerns when formulating or reviewing coastal-development and land-use plans, promotion of the reuse of treated effluents for the conservation of water resources, and establishment and improvement of local and national regulatory and monitoring programmes to control and assess effluent discharge.[56]

Within the framework of the Global Programme of Action (GPA), UNEP, WHO, UN-Habitat, and the Water Supply and Sanitation Collaborative Council have jointly developed Guidelines on Municipal Wastewater Management. These guidelines outline ten essential actions for both local and national efforts, including: securing political support and domestic funding; fostering supportive conditions at all levels of

[53] "Institutional Arrangements for the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities," UN General Assembly Resolution 51/189, UN GAOR, Doc. A/RES/51/189 (1997).
[54] Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, *Intergovernmental Conference to Adopt a Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, Washington, D.C., 23 October–3 November 1995*, UNEP OR Doc. no. UNEP(OCA)/LBA/IG.2/7 (5 December 1995).
[55] Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, 97.
[56] Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, 97.

governance; broadening the scope of water and sanitation beyond just taps and toilets; implementing integrated urban water and sanitation systems that also consider environmental effects; planning with a long-term vision; setting clear timelines, measurable goals, and indicators; choosing suitable technologies that optimize water use and explore ecological sanitation options; adopting approaches driven by community needs; engaging all stakeholders from the outset with transparent decision-making; and ensuring financial viability and long-term sustainability.[57] The Guidelines were welcomed by the First Intergovernmental Review of the GPA in 2001.[58]

Johannesburg Plan, 2002

The Johannesburg Plan of Implementation, adopted at the World Summit on Sustainable Development held in Johannesburg, South Africa from August 26 to September 4, 2002, was designed to assess the progress of Agenda 21 and renew international dedication to achieving sustainable development.[59] Through the Johannesburg Plan, governments pledged to take tangible steps toward fulfilling the core goals and fundamental needs of sustainable development. A key objective among these is the safeguarding and responsible management of natural resources that underpin economic and social progress.[60]

A number of actions relating to wastewater were to be undertaken by governments. For instance, they should prevent water pollution by introducing technologies for affordable sanitation and wastewater

[57] UNEP/WHO/HABITAT/WSSCC, *Guidelines on Municipal Wastewater Management* (The Hague: UNEP/GPACoordination Office, 2004), 1.

[58] UNEP, "Report," *1st Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, Montreal, Canada, 26–30 November 2001*, UNEP/GPA/IGR.1/9 (22 December 2001), para. 40.

[59] "Plan of Implementation of the World Summit on Sustainable Development," in *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August–4 September 2002*, A/CONF.199/20 (New York: United Nations, 2002).

[60] "Plan of Implementation of the World Summit on Sustainable Development," 8.

treatment, mitigating the effects of groundwater contamination, and establishing monitoring systems and effective legal frameworks.[61] They should utilize market-based incentives for agricultural enterprises and farmers to implement wastewater recycling and reuse.[62]

The Outcome of the United Nations Conference on Sustainable Development, 2012

Held in Rio de Janeiro, Brazil from June 20 to 22, 2012, the United Nations Conference on Sustainable Development aimed to reaffirm global political commitment to sustainability, evaluate progress made in implementing outcomes from previous major summits, and tackle emerging and evolving challenges.[63] The Conference concluded with the adoption of a political declaration titled "The Future We Want," which was formally endorsed later that year through United Nations General Assembly Resolution 66/288.[64] The document renews the commitments of governments to implement adopted declarations, plans and programs of action[65] and establishes a foundation for action across multiple thematic

[61] "Plan of Implementation of the World Summit on Sustainable Development," 25(d).

[62] "Plan of Implementation of the World Summit on Sustainable Development," 40(k).

[63] United Nations General Assembly, *Implementation of Agenda 21, the Programme for the Further Implementation of Agenda 21 and the Outcomes of the World Summit on Sustainable Development*, UNGA OR, agenda item 53, UN Doc. A/RES/64/236 (2010), para. 20(a).

[64] United Nations General Assembly, *The Future We Want*, UNGA OR, agenda item 19, UN Doc. A/RES/66/288 (2012).

[65] Nations, *Rio Declaration on Environment and Development*, UN Doc. A/CONF.151/5/Rev.1 (1992); United Nations, *Agenda 21: Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3–14 June 1992*, UN Doc. A/CONF.151/26/Rev.1 (Vol. I) (1992); United Nations, *Programme for the Further Implementation of Agenda 21*, UN Doc. A/CONF.151/26/Rev.2 (1997); United Nations, *Johannesburg Declaration on Sustainable Development*, A/CONF.199/20 (2002); United Nations, *Johannesburg Plan of Implementation*, A/CONF.199/20 (2002).

areas to strengthen renewed commitments and tackle emerging issues.[66] In terms of wastewater, the document highlights the urgency of implementing strategies to greatly decrease water pollution, enhance water quality, upgrade wastewater treatment processes, boost water-use efficiency, and minimize water wastage.[67]

The 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development was adopted during the United Nations Summit held from September 25 to 27, 2015, marking the launch of the post-2015 development framework.[68] The Agenda serves as a global action plan, engaging all nations and stakeholders in a cooperative effort to advance sustainable development. It contains 17 Sustainable Development Goals and 169 targets to be achieved by 2030 in areas of critical importance for humanity and the planet such as poverty alleviation, promotion of well-being, equitable quality education, women empowerment, and conservation and sustainable use of the oceans.[69] Relating to wastewater, the target is to achieve, by 2030, a substantial decrease in the proportion of untreated wastewater and substantially increase recycling and safe reuse globally.[70]

The Declaration of High-level UN Conference to Support the Implementation of SDG 14, 2017

The United Nations High-Level Conference aimed at advancing Sustainable Development Goal 14 was held in New York, USA, from June

[66] United Nations General Assembly, *The Future We Want*, UN Doc. A/RES/66/288 (2012), paras. 104–251.
[67] United Nations General Assembly, *The Future We Want*, para. 124.
[68] United Nations General Assembly, "Organization of the United Nations Summit for the Adoption of the Post-2015 Development Agenda," UNGA Res. 69th session, agenda items 13(a) and 115, UN Doc. A/69/L.43 (16 December 2014), para. 1.
[69] United Nations General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, UNGA Res. 70/1, agenda items 15 and 116, UN Doc. A/RES/70/1 (2015).
[70] United Nations General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, para. 6.3.

5 to 9, 2017, to promote its effective implementation.[71] At the end of the Conference, a Declaration, titled "Our ocean, our future: call for action", was adopted to affirm commitment to conserve and sustainably use our oceans, seas and marine resources for sustainable development.[72] Under the Declaration, all stakeholders committed to accelerate actions to prevent and significantly reduce marine pollution from land-based sources, in particular untreated wastewater.[73]

The Outcome of the 2022 United Nations Conference to Support the Implementation of Sustainable Development Goal 14, 2022

The second United Nations Conference focused on advancing Sustainable Development Goal 14—conservation and sustainable use of oceans, seas, and marine resources—was held in Lisbon, Portugal, from June 27 to July 1, 2022. Its goal was to promote science-driven, innovative solutions and launch a new phase of global ocean stewardship. The Conference concluded with the adoption of a Declaration titled "Our ocean, our future, our responsibility," which reaffirmed global commitment to ocean conservation and called for stronger actions to address the critical condition of marine ecosystems. Regarding wastewater, the Declaration emphasizes that science-based innovation, international collaboration, and partnerships rooted in technology and ecosystem-based principles—aligned with the precautionary approach—can play a vital role

[71] United Nations, "United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development," UNGA Res. 70th session, agenda items 20 and 79(a), UN Doc. A/RES/70/226 (12 February 2016).

[72] United Nations, *Our Ocean, Our Future: Call for Action, Oceans and the Law of the Sea*, UNGA Res. 71st session, agenda items 19 and 73(a), UN Doc. A/71/L.74 (30 June 2017).

[73] United Nations, *Our Ocean, Our Future: Call for Action, Oceans and the Law of the Sea*, para. 13(g).

in preventing, reducing, and managing marine pollution from land-based sources, especially untreated wastewater.[74]

United Nations General Assembly "Ocean and Law of the Sea" Resolutions

The United Nations General Assembly convenes at least annually to address matters concerning the ocean and the law of the sea. Each session concludes with the adoption of a resolution titled "Oceans and the Law of the Sea," which includes recommendations on implementing UNCLOS, the status of the Area, protection of the marine environment, maritime safety, and marine scientific research. A recurring theme in these resolutions is the prevention, reduction, and control of land-based pollution. For example, the resolution adopted during the Assembly's 78th session urges States to support efforts aimed at curbing pollution from all sources, including land-based activities, and specifically calls for reductions in nutrient pollution originating from land.[75]

The next Section will explain how Vietnam has implemented these instruments by transposing commitments relating to wastewater pollution into its national law.

B. Vietnamese Law regulating Wastewater

This Section analyses measures stipulated by Vietnamese law relating to wastewater prevention, reduction and elimination both in "hard law" and soft law instruments.

1. Vietnam's "Hard law" on wastewater management

[74] United Nations, *Our Ocean, Our Future, Our Responsibility: Draft Declaration*, note by the Secretariat, 2022 United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development, Lisbon, 27 June–1 July 2022, item 10 of the provisional agenda, outcome of the Conference, UN Doc. A/CONF.230/2022/12 (17 June 2022), para. 13(d).

[75] *Oceans and the Law of the Sea*, UNGA Res. 78th session, agenda item 75(a), UN Doc. A/RES/78/69 (11 December 2023), paras. 223 and 248.

The Law on Environmental Protection (LEP) serves as the primary legal framework for safeguarding the environment against wastewater pollution. This Law was first issued in 1993 and replaced in 2005, 2014 and 2020. Regulations to manage wastewater were developed in the first LEP in 1993 and step by step improved by the LEP in 2005, 2014 and now LEP in 2020. In the LEP 2020, discharging wastewater into the environment that has not been treated to meet environmental technical regulations is strictly prohibited.[76] To mitigate environmental harm caused by wastewater, the LEP 2020 regulates a number of tools which are (1) Preliminary Environment Impact Assessments (PEIA), Environmental Impact Assessment (EIA) of projects including potential environmental damage from wastewater ; (2) environmental license for activities discharging wastewater or; (3) requirements for evironmental protection for special areas including wastewater ; (4) technical requirement standards for wastewater management.

1.1. PEIA and EIA of projects including potential environmental damage from wastewater

Based on LEP 2020, PEIA is required for the pre-feasibility study phase[77] while EIA is performed concurrently with the process of developing a feasibility study report or document equivalent to the project's feasibility study report.[78] The development of PEIA or EIA depends on the level of risk of damage to the environment. Based on the criteria on environment in the Article 28 (1) of the LEP 2020, investment projects are divided into Group I, II, III and Group IV.[79] The Group I includes projects that pose a high risk of damaging the environment[80]. Group II comprises projects

[76] Law on Environmental Protection No. 72/2020/QH14, dated November 17, 2020, art. 6(2).
[77] Law on Environmental Protection, art. 29(2).
[78] Law on Environmental Protection, art. 31(1).
[79] Law on Environmental Protection, art. 28(1) – (2).
[80] Law on Environmental Protection, art. 28(3).

that carry potential environmental risks, excluding those categorized under Group I. [81] Group III includes projects with low potential for environmental harm, excluding those already classified in Groups I and II. [82] Group IV consists of projects deemed free from environmental risks, including those not covered by Groups I, II, or III. [83]

PEIA

The Group I investment projects are subject to the PEIA if they require investment policy decisions or approval under the Law on Investment, and Law on Public Investment.[84] Based on the LEP 2020 and Decree No.08/2022/ND-CP, the investment projects that generate wastewater of 3,000 m^3/day and night or more (30,000 m^3/day and night or more for aquaculture activities) fall under Group I.[85] The investor of these projects shall develop a PEIA during the pre-feasibility study phase. [86] The PEIA would include elements such as assessing the suitability of the investment project location with the National Environmental Protection Strategy, National Environmental Protection Planning and other relevant plannings and identifying main environmental impacts of investment projects on the environment based on scale, production technology and project implementation location. [87] The PEIA shall be appraised and approved with the application dossier for investment policy decision or approval.[88]

[81] Law on Environmental Protection, art. 28(4).
[82] Law on Environmental Protection, art. 28(5).
[83] Law on Environmental Protection, art. 28(6).
[84] Law on Environmental Protection, art. 29(2)
[85] Law on Environmental Protection, art. 29(1); Decree No. 08/2022/ND-CP of the Government Detailing a Number of Articles of the Law on Environmental Protection, annex III, sec. IV(10).
[86] Law on Environmental Protection, art. 29(2) – (4).
[87] Law on Environmental Protection, art. 29(3).
[88] Law on Environmental Protection, art. 29(4).

EIA

According to the LEP of 2020, investment projects that fall under Group I (projects with a high risk of adverse impact on the environment) and Group II (projects that have a risk of negative impact on the environment, except for those in Group I) require an EIA report.[89] Based on Decree No.08/2022/ND-CP, any investment projects that generate wastewater of 3,000 m^3/day and night or more (30,000 m^3/day and night or more for aquaculture activities) belong to Group I [90] and the MONRE has power for approving EIA reports for these projects.

Projects classified under Group II include those discharging between 500 and less than 3,000 m^3 of wastewater per day and night, or between 10,000 and less than 30,000 m^3 per day and night for aquaculture operations. For these projects, the Ministry of Natural Resources and Environment (MONRE) holds the authority to approve Environmental Impact Assessment (EIA) reports under a number of circumstances; such as when the project falls within the jurisdiction of the National Assembly or the Prime Minister for investment policy approval or when the project spans two or more provincial administrative boundaries. The PC are responsible for approving EIA reports for the rest. [91] Based on these regulations, projects that generate wastewater less than 500 m3/day and night (less than 10,000 m3/day and night for aquaculture activities are not required to prepare an EIA report.

In the process of developing an EIA report for investment projects, investors shall consult with affected communities, individuals, and organizations related to the project. [92] Affected communities and individuals may include residents and business operators located on land, water surfaces, or coastal areas designated for project development;

[89] Law on Environmental Protection, art. 30(1).

[90] Law on Environmental Protection, art. 29(1); Decree No. 08/2022/ND-CP, annex III, sec. IV(10).

[91] Law on Environmental Protection, art. 35(3).

[92] Law on Environmental Protection, art. 33(1).

communities and individuals directly impacted by wastewater discharge from the project and those affected by environmental disturbances such as land subsidence, erosion, or sedimentation along rivers and coastlines caused by project activities.[93]

Additionally, investment projects including wastewater have more requirements in consulting process for developing EIA report. Notably, for investment projects with a total wastewater discharge of 10,000 m^3 per day or more that release wastewater directly into interprovincial rivers, boundary rivers between provinces, or coastal marine areas, the project owner is required to consult with the People's Committee of the neighboring province. This consultation ensures coordinated efforts in addressing environmental issues affecting shared water bodies and coastal zones.[94] For projects listed in Appendix II of Decree No. 08/2022/ND-CP—covering production, business, and service activities with potential environmental pollution risks—and discharging 10,000 m^3 or more of wastewater per day directly into the environment, the project owner is required to consult with a minimum of five experts. These experts must include specialists in the project's operational field as well as environmental professionals to ensure informed assessment and mitigation planning.[95] For other projects listed in Appendix II of Decree No. 08/2022/ND-CP, categorized under Investment Project Group I, the project owner is required to consult with a minimum of three experts. These consultations must include professionals and scientists with expertise relevant to the project's operational field, as well as environmental specialists.[96]

In the process of approving an EIA, LEP 2020 also provides detailed regulations for the appraisal of EIA reports, including dossiers and

[93] Decree No. 08/2022/ND-CP, art. 26(1)(a).
[94] Decree No. 08/2022/ND-CP, art. 26(4)(b).
[95] Decree No. 08/2022/ND-CP, art. 26(4)(c).
[96] Decree No. 08/2022/ND-CP, art. 26(4)(c).

methods. The lifecycle of an EIA report is limited. The validity of the decision approving the EIA report appraisal results terminates upon the effective date of the corresponding environmental license.[97]

1.2. Environmental License for Investment Projects Dischargingg Wastewater

Group I, Group II and Group III investment projects which generate wastewater discharged into the environment are subject to an environmental license.[98] For the process of environmental permit, LEP 2020 also regulates the authority to issue environmental licenses; basis and time of issuance of environmental license; documents, order and procedures for granting environmental licenses; issuance, adjustment, re-issuance, deprivation of use rights, and revocation of environmental permits; fees for assessment and issuance of environmental licenses.[99] To further manage the environmental permits for wastewater , LEP 2020 provides for the trial operation of wastewater treatment facilities of investment projects after being granted an environmental permit.[100] Accordingly, owners of investment projects with wastewater treatment facilities after being granted an environmental license, must carry out trial operation of the wastewater treatment facilities concurrently with the project's operation.[101]

1.3. Environmental Registration

Investment projects that generate wastewater but are not under environmental license must register.[102] Accordingly, the Group IV investment projects which generate waste shall register. The Commune People's Committee is responsible for receiving environmental registration

[97] Law on Environmental Protection, art. 42(6).
[98] Law on Environmental Protection, art. 39(1).
[99] Law on Environmental Protection, art. 41, 42,43,44 and 45.
[100] Law on Environmental Protection, art. 46(1).
[101] Law on Environmental Protection, art. 46(2).
[102] Law on Environmental Protection, art. 49(1a).

requests submitted directly, by mail, or electronically via the online public service portal.[103] For investment projects and facilities located across two or more commune-level administrative areas, the project or facility owner may select which Commune People's Committee to submit the environmental registration to.[104]

1.4 Requirements for evironmental protection for activities discharging wastewater in special areas

To protect the environment from all sources of wastewater, LEP 2020 stipulates environmental protection regulations for activities that generate wastewater in special areas. They are economic zones; concentrated production, business and service zones; industrial clusters; production, business and service facilities; craft villages; urban and residential areas; rural areas; public areas; hospitals and other medical facilities.[105] General requirements for wastewater management in these areas are, for example, wastewater must be gathered and processed to comply with environmental standards before being released into the receiving body of water and the discharge of treated wastewater into the environment must be managed according to the provisions of law on environmental protection, in accordance with the load-bearing capacity of the receiving environment.[106] Furthermore, LEP 2020 regulates collection and treatment of wastewater generated in these areas. Therefore, newly developed urban zones, residential complexes, industrial clusters, and areas designated for production, business, and services are required to install wastewater collection and treatment systems that are separate from the rainwater drainage network.[107]

[103] Law on Environmental Protection, art. 49(3).
[104] Law on Environmental Protection, art. 49(3)
[105] Law on Environmental Protection, arts 50, 51, 52, 53, 56, 57, 58, 59 and 60.
[106] Law on Environmental Protection, art. 72(2).
[107] Law on Environmental Protection, art. 86(1).

Domestic wastewater from households and organizations in urban and concentrated residential areas must be connected to centralized collection and treatment systems. Wastewater from production, business, and service activities must be preliminarily treated before entering these systems and must meet environmental standards set by local authorities. In areas without centralized treatment facilities, such wastewater treated independently to comply with environmental protection requirements before discharge. Facilities in industrial zones and clusters must also pre-treat wastewater before connecting to centralized systems, ensuring final treatment meets environmental standards. For facilities located outside these zones and for domestic wastewater in non-concentrated residential areas, on-site treatment is required to meet environmental protection standards prior to release into receiving sources.[108]

1.5. Technical requirements for wastewater management

To ensure effective management of wastewater, LEP 2020 stipulates requirements for wastewater treatment system; development of technical regulations and environmental standards for wastewater as well as monitoring wastewater.

Requirements of wastewater treatment system

The wastewater treatment system must be designed with technology suited to the type and characteristics of the wastewater, and its capacity must align with the maximum volume generated. It must treat wastewater in compliance with environmental protection standards and operate according to established technical procedures. Additionally, the system should include a plan for preventing and responding to environmental incidents, and discharge points must be clearly marked with coordinates, signs, and symbols to ensure ease of inspection and

[108] Law on Environmental Protection, art. 86(2).

monitoring.[109] Sludge produced by the wastewater treatment systems must be handled in accordance with solid waste management regulations. If the sludge contains hazardous substances that exceed legal limits, it must be managed following the rules governing hazardous waste.[110]

Wastewater monitoring

For wastewater monitoring, LEP 2020 regulates the entities required to monitor wastewater, frequency of monitoring and responsibilities of competent authorities in management of monitoring data. Entities required to conduct automatic and continuous wastewater monitoring include centralized zones for production, business, and services, as well as industrial clusters that release wastewater into the environment. This also applies to investment projects and facilities that pose a risk of environmental pollution and discharge moderate or high volumes of wastewater, as well as those that do not pose such risks but still release large quantities of wastewater into the environment.[111] Entities required to conduct periodic wastewater monitoring include centralized production, business, and service zones, industrial clusters that discharge wastewater into the environment, and investment projects or facilities that release significant volumes of wastewater.[112] Provincial environmental agencies are responsible for overseeing automatic wastewater monitoring, evaluating data against regulatory limits, addressing interruptions, identifying violations, recommending actions, and reporting data to MONRE.[113]

Environmental Technical Regulations on Wastewater

[109] Law on Environmental Protection, art. 87(1).
[110] Law on Environmental Protection, art. 87(2).
[111] Law on Environmental Protection, art. 111(1).
[112] Law on Environmental Protection, art. 111(2).
[113] Law on Environmental Protection, art. 111(5).

In addition, to provide a basis for managing different types of wastewater, LEP 2020 requires compliance with technical regulations on wastewater [114] and technical regulations on surrounding environmental quality. There are a number of National Technical Reguluations on wastewater and National Technical Regulations on water quality, which are approved by the competent authorities.[115] For instance, MONRE issued Circular No. 01/2023/TT-BTNMT dated March 13, 2023, which includes National technical regulations on surface water quality (QCVN 08:2023/BTNMT); National technical regulation on groundwater quality (QCVN 09:2023/BTNMT) and National technical regulation on seawater quality (QCVN 10:2023/BTNMT).

Environment Standards on Wastewater

Environmental standards are voluntary regulations that set limits on environmental quality parameters, the content of pollutants in waste, and technical and management requirements approved by competent authorities or by organizations which are publicized according to the provisions of law on standards and technical regulations.[116] Environmental standards on wastewater include environmental standards for industrial wastewater and services; wastewater from livestock and aquaculture; domestic wastewater and other activities.[117] Although environmental standards are voluntary regulations, all or part of an environmental standard may become mandatory when they are cited in legal documents or environmental technical regulations.[118] Specifically, environmental standards developed by organizations other than competent authorities

[114] Law on Environmental Protection, art. 97(2a).
[115] Law on Environmental Protection, art. 3(10).
[116] Law on Environmental Protection, art. 3(11).
[117] Circular No. 02/2022/TT-BTNMT of the Ministry of Natural Resources and Environment detailing a number of articles of the Law on Environmental Protection, art. 10(3).
[118] Law on Environmental Protection, art. 103(2).

may be issued in accordance with the Law on Standards and Technical Regulations, [119] and shall apply within their respective scope of management.[120] The Ministry of Natural Resources and Environment is in charge of developing national environmental standards following the procedures stipulated in the Law on Standards and Technical Regulations[121] and requests their approval from the Ministry of Science and Technology.[122]

2. Vietnam's "Soft law" on wastewater management

Environmental protection is given attention by both the agencies of Communist Party of Vietnam and competent state agencies through their directions. Such directions play an important role in environmental protection. They require competent authorities to take specific actions or pursue goals to protect the environment or provide orientations in the progress of improving legal system for protecting environment within a specific period time.

Environmental pollution caused by wastewater is considered in almost all important documents of the Communist Party of Vietnam:

For the detailing direction on wastewater management, the Resolution No. 24-NQ/TW dated June 3, 2013 of the 7th Conference of the 11th Party Central Committee on Active Response to Climate Change, Improvement of Natural Resource Management and Environmental Protection with a target set for 2020 that 70% of water discharged into the river basin environment will be treated. However, by 2020 this target was not achieved. On 21 January 2021, the Government promulgated the Action Program to continue implementing Resolution 24-NQ/TW. Action Program sets a specific goal for 100% of industrial

[119] Law on Environmental Protection, art. 104(4).
[120] Law on Environmental Protection, art. 103(3).
[121] Law on Environmental Protection, art. 104(1) - (2).
[122] Law on Environmental Protection, art. 104(3).

areas and export processing zones in operation have centralized wastewater treatment systems by 2025. In addition, 30% of the total amount of wastewater in urban areas of type II and above; and 10% of urban areas of type V and above are collected and treated to meet environmental standards and technical regulations before being discharged into the environment.[123] To reach this target, the Action Program provides for a number of measures such as: planning, monitoring and supervision of water resources and monitor activities related to the exploitation and use of water resources and discharging wastewater into water sources;[124] protection of the surface water environment; and investment in building wastewater collection and treatment systems in urban areas, industrial zones and clusters.[125]

For the protection of the marine environment from wastewater, the Resolution No. 36-NQ/TW issued at the 8th Conference of the 12th Central Steering Committee of the Communist Party on Strategy for Sustainable Development of Maritime Economy, 2017 mandates that coastal provinces and cities establish centralized wastewater treatment systems that comply with environmental standards and technical regulations.[126] To reach this target, the Vietnam Government plans to implement measures such as investing and consolidating infrastructure and equipment for wastewater treatment systems that meet environmental technical regulations in coastal provinces; building a recycled model of

[123] *Resolution No. 06/NQ-CP of the Government dated January 21, 2021, Promulgating the Action Program to Continue Implementing Resolution No. 24-NQ/TW on Active Response to Climate Change, Enhancement of Natural Resource Management and Environmental Protection*, Sections I(4)(c) & II (3b).

[125] *Resolution No. 06/NQ-CP Dated January 21, 2021*, Section II (4a).

[126] *Resolution No. 36-NQ/TW of the 8th Conference of the 12th Central Committee of the Communist Party of Vietnam on the Strategy for Sustainable Development of Vietnam's Marine Economy by 2030, with a Vision towards 2045*, October 22, 2018, Section II(3)(b).

wastewater on islands;[127] planning economic zones, industrial areas, industrial clusters and coastal urban areas including the construction of centralized wastewater treatment systems.[128]

In the Strategy on National Environmental Protection until 2030,[129] targets for the protection of the environment from wastewater are clearer. Its general target is to prevent the trend of increasing pollution and environmental degradation, solve urgent environmental problems and gradually improve and restore environmental quality. A number of strategic monitoring and evaluation indicators on wastewater are provided as follows:

(i) By 2025, 100% of industrial areas, production, business and service establishments have automatic and continuous wastewater monitoring systems, transmitting data directly to the Department of Natural Resources and Environment in its local area;[130]

(ii) By 2030, more than 50% of wastewater in urban areas of Grade II and above; and 20% of the remaining urban areas shall have wastewater treated to meet environmental standards and technical regulations according to regulations:[131]

(iii) By 2030, 100% of industrial clusters with centralized wastewater treatment systems meet environmental technical regulations;[132] and

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[127] Resolution No. 26/NQ-CP of the Government dated March 5, 2020, "Promulgating the Master Plan and 5-year plan of the Government to implement Resolution No. 36-NQ/TW," Section A.II(5).

[128] Resolution No. 48/NQ-CP of the Government dated April 3, 2023, "Approving Strategy for sustainable exploitation of resources of marine, island environment through 2030," Section II(2b).

[129] Decision No. 450/QD-TTg of the Prime Minister dated April 13, 2022, "Approving Strategy on National Environmental Protection until 2030 and a Vision until 2050."

[130] P Decision No. 450/QD-TTg, Annex I(4).

[131] Decision No. 450/QD-TTg, Annex II(12).

[132] Decision No. 450/QD-TTg, Annex II(14).

(iv) By 2030, 100% of industrial areas and export processing zones with centralized wastewater treatment systems meet environmental technical regulations.[133]

3. Current Status of Wastewater Land-based Pollution in Vietnam

In the past years, based on the legal system mentioned above, wastewater step by step has been managed. However, until now, most of the sources generating wastewater have not been fully prevented from causing pollution, which is polluting some water sources.

The highest wastewater treatment rate is wastewater generated from medical activities, the lowest is domestic wastewater based on the Report on Environmental Protection in 2022 of the Government.[134] The total amount of medical wastewater generated averages 130,000 m3 per day, and with a treatment rate of 93%.[135]

By the end of 2022, the whole country had 265 out of 291 concentrated production, business and service zones having centralized wastewater treatment facilities, reaching a rate of 91%.[136] For the remaining concentrated production, business and service zones, businesses and production facilities within them have invested in wastewater treatment systems that meet environmental technical regulations before being released into the environment.[137]

[133] Decision No. 450/QD-TTg, Annex II(15).
[134] Government of Vietnam, *Report on Environmental Protection in 2022* (Hanoi: Government of Vietnam, 2023), Section III.
[135] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1dd).
[136] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1a).
[137] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1a).

In 2022, the nationwide urbanization rate reached 41.7% (a 1.2% increase compared to 2021).[138] However, there were only 82 centralized domestic wastewater treatment plants/stations with a total design capacity of 1,466,000 m^3 per day.[139] The rate of domestic wastewater collected and treated remained at about 15%,[140] with no improvement compared to 2021. There were also about 80 provincial-level drainage and wastewater treatment projects in the design or construction phase.[141] The reason for this problem is the low drainage fees, which have failed to attract private investors.[142]

By the end of 2022, the amount of wastewater from livestock activities was estimated at 249.23 million m^3, of which wastewater generated from pig farming accounted for 82.04%. However, the number of breeding facilities meeting hygienic conditions only accounts for about 10%.[143] Wastewater generated from aquaculture activities was more than 1.68 million m^3, but the treatment rate was about 41%.[144]

The discharge of untreated wastewater into the environment has led to the contamination of certain water sources. The water quality in large river basins has not shown signs of contamination from heavy metals and crop protection chemicals, however, pollution persists in sections of river flowing through densely populated areas, craft villages, and industrial

[138] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1b).
[139] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1b).
[140] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1b).
[141] Ministry of Planning and Investment (MPI), *Report on Assessing the Implementation of Sustainable Development Goals in 2022* (Hanoi: MPI, 2022), 58–59.
[142] Ministry of Planning and Investment, *Report on Assessing the Implementation of Sustainable Development Goals in 2022*, Section 3.6.3, 59.
[143] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1d).
[144] Government of Vietnam, *Report on Environmental Protection in 2022*, Section III(1d).

production areas, caused by the discharge of untreated wastewater or untreated domestic wastewater that does not meet environmental requirements.[145]

Coastal water quality is generally good and largely complies with the environmental standards outlined in QCVN 10-MT:2015/BTNMT for seawater. However, localized pollution occurs in specific areas such as aquaculture zones, boat docking sites, and river mouths, where elevated levels of nitrogen, phosphate, and suspended solids are present.[146]

C. Evaluation and Lessons Learned

This Section evaluates the achievements and limits in the implementation of soft law commitments related to the prevention and reduction of wastewater pollution in Vietnam aiming to provide lessons for other countries.

1. Achievements and Limits of the Process to Implement of Soft Law Commitments relating to the Prevention of Wastewater Pollution in Vietnam

Although UNCLOS only indirectly mentions the obligation to implement "international soft environmental law" by requiring state members to "take into account [and not "*shall*"- the author] internationally agreed rules, standards, and recommended practices and procedures", Vietnam has taken proactive steps to implement its international commitments regarding wastewater management. In particular, Vietnam has enacted stringent national environmental laws that are complemented by strategies, action plans, programs of action to prevent, reduce, and eliminate wastewater pollution.

First, Vietnam has acknowledged the loopholes and weaknesses of international soft law commitments, resulting in the promulgation of

[145] Government of Vietnam, *Report on Environmental Protection in 2022*, Section I(2).
[146] (Government of Vietnam, *Report on Environmental Protection in 2022*, Section I(2).

numerous national hard laws to support these commitments. This demonstrates Vietnam's dedication and goodwill to fulfill its international obligations. [147] Furthermore, Vietnam also promulgates soft national instruments to implement hard goals at various stages. This approach allows Vietnam to clearly define its objectives while maintaining flexibility in wastewater management. This is reflected in the requirements for: (1) PEIA, EIA of projects including potential environmental damage from wastewater; (2) environmental license for activities discharging wastewater; (3) requirements for environmental protection for special areas including wastewater; (4) technical requirement standards for wastewater management. Following the Montreal Guidelines for the Protection of the Marine Environment from Land-Based Pollution, Vietnam has established a comprehensive strategy for environmental management aimed at preventing, minimizing, and controlling pollution originating from land-based sources. The country has implemented numerous programs and initiatives to address these issues effectively. Overall, the targets and measures set out in Vietnam's soft law document are fully compatible with the target set by the 2030 Agenda for Sustainable Development, which aims to halve the proportion of untreated wastewater and significantly increase the recycling and safe reuse of water by 2030[148].

Second, Vietnam's regulations on wastewater management often require non-state actors to refrain from polluting activities rather than prescribing active measures. This refraining approach is more effective than the norms requiring action because it focuses on prevention, which is the primary approach of environmental law. It allows non-state actors to choose either to use technology to reduce wastewater discharge into the environment or to implement control measures, by paying environmental

[147] Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331, art. 27.

[148] Resolution No. 10-NQ/TW of the Communist Party of Vietnam dated June 3, 2017 on Developing the Private Economy into an Important Driving Force of the Socialist-Oriented Market Economy.

fees. This strategy also aligns with UNCLOS, which emphasizes that "standards and recommended practices and procedures" should aim to minimize, as much as possible, the discharge of toxic, hazardous, or harmful substances, particularly those that are persistent, into the marine environment. [149] Thus, it can be said that Vietnam has utilized international soft law commitments as sources to develop national regulations on wastewater management.

Third, the institutions involved in wastewater management, as discussed in the previous section, have participated in the formulation of policy principles, regulations and amendments, penalties, and applicable standards. This involvement ensures that legislation remains relevant and effective. Monitoring and follow-up are essential for achieving the goals set by international soft law commitments. In addition to a solid legal system, a combination of well-educated officials, regular inspections of pollution control facilities and swift actions on complaints have ensured effective law enforcement.

Based on the practical results achieved in reducing wastewater pollution it could be said that Vietnam is a notable success story, having attracted significant investments despite strict environmental requirements. Statistics show that by 2023, 92% of active industrial parks (IPs) and export processing zones were equipped with wastewater treatment facilities that complied with environmental regulations. This represents a 29% increase compared to 2015, when the compliance rate was only 63%. Since 2020, the percentage has steadily risen from 89% to 91%, ultimately reaching 92% in 2023. This improvement can be attributed to several legal documents and environmental regulations issued by the Vietnamese government, which require industrial parks to install

[149] UNCLOS, art. 207(5).

centralized wastewater treatment systems that meet standards before commencing operations[150].

However, despite these advancements, a significant portion of wastewater is still not adequately managed, leading to the pollution of some water sources. In 2022, the national urbanization rate reached 41.7% (an increase of 1.2% compared to 2021). However, Vietnam had only 82 centralized domestic wastewater treatment plants/stations with a total designed capacity of 1,466,000 m3 per day. The rate of domestic wastewater collected and treated remains around 15%, showing no improvement since 2021. In addition, around 80 provincial projects focused on drainage and wastewater treatment are currently either being designed or under construction.[151] This situation poses substantial risks of surface water pollution, domestic water contamination, and broader environmental pollution. Therefore, it is essential to acknowledge the limitations of the current measures implemented in Vietnam compared to the recommendations outlined in international soft law commitments. The following limits can be pointed out:

First, Vietnam currently does not have financial and operational incentives to encourage the private sector to participate in the field of wastewater collection and treatment, although many international soft law commitments emphasize the need to secure domestic financial resources and promote market-based incentives for enterprises that recycle and reuse wastewater, progress has been limited[152]. So far, Vietnam has implemented

[150] "Tình trạng xử lý nước thải, bảo vệ môi trường tại Việt Nam và bài học từ Đan Mạch," Tổng cục Thống kê, January 2025,.

[151] Hải Hà and Nguyễn Yên, "Đề xuất thu phí xử lý nước thải và thoát nước," VOV Giao Thông, accessed May 21, 2025, https://vovgiaothong.vn/newsaudio/de-xuat-thu-phi-xu-ly-nuoc-thai-va-thoat-nuoc-d42336.html.

[152] United Nations, *Agenda 21* (1992); UNEP, *Guidelines on Municipal Wastewater Management* (1995); United Nations, *Plan of Implementation of the World Summit on Sustainable Development* (2002).

very few drainage and wastewater treatment projects with private sector participation. One major reason for this is the significant funding required for the construction of drainage and wastewater collection systems, coupled with the low price of wastewater treatment, which fails to attract private or foreign investment. As a result, for many years, investment in wastewater collection and treatment systems has mainly come from the state budget and ODA capital. Vietnam has yet to introduce an effluent tax policy that would require enterprises and industrial zones to pay discharge fees based on their pollution levels (such as biochemical oxygen demand (BOD), phosphorus, and nitrogen). The Implementation Plan from the 2002 World Summit on Sustainable Development urges nations to secure domestic funding. If Vietnam implements an effluent tax policy, it will create incentives for enterprises to improve wastewater treatment efficiency and help reduce pressure on the state budget.

Second, regarding institutional arrangements and ownership: Most enterprises responsible for drainage and wastewater treatment do not own the infrastructure but only operate the system according to "local government orders" and are directly paid by the local budget. Providing these enterprises with a fixed annual budget for system operation makes it impossible for enterprises to invest in development or find ways to optimize the system. Enterprises must submit unplanned expenses to higher-level management agencies for approval. This process takes a lot of time and can affect wastewater treatment services.

Third, many international soft law documents encourage the use of technology in wastewater management, but current regulations in Vietnam do not encourage the selection of appropriate technology for wastewater management. Current post-treatment wastewater standards require advanced treatment to ensure compliance with ammonium and total nitrogen targets, thus precluding the application of low-cost technologies such as lagoons or trickling filters. As a result, the operation and maintenance costs are often very high. There are several cost-effective

wastewater collection and treatment solutions that can be applied in decentralized wastewater treatment systems such as simplified sewer systems, septic tanks with thin walls and anaerobic filters, planted wetlands, or public sanitation facilities with biogas recovery. However, these treatment systems may not meet the requirements of current discharge standards. A more appropriate approach would be to initially adopt discharge standards with low or no nutrient parameter requirements (if the receiving water source does not have strict requirements), and then gradually adopt higher standards over time, aligned with the development of the urban drainage system and the available capital for investment.

In short, the current legislative framework regarding wastewater management in Vietnam reflects a strategic alignment with international standards. Nevertheless, the pace of necessary structural reforms is insufficient when in light of the actual challenges facing the sector. Wastewater management practices largely remain entrenched in public service frameworks, accompanied by dependency on subsidy mechanisms. To foster improved effectiveness and sustainability, it is essential for implementation strategies to be more precisely articulated and to embrace market-oriented principles. For effective implementation, wastewater management needs to adopt a more specific approach, aligning with a market economy and moving towards the privatization of wastewater treatment companies.

2. Lessons from Vietnam for other States in implementing soft law commitments for the protection of the environment

The process of the implementation of soft law commitments in Vietnam could provide a number of lessons to other countries:

First, national laws should be updated regularly to be able to follow the fast evolution of international soft law relating to the protection of the environment. The LEPs in Vietnam have been regularly amended and supplemented to respond to new contexts and situations to protect the

environment from wastewater. The LEP was first promulgated by the National Assembly of Vietnam in 1993, and has been replaced with increasingly shorter periods of time in 12 years, 9 years and 6 years by the LEP in 2005, 2014 and 2020. At the same time, the provisions on environmental protection from wastewater also range from general provisions to detailed and comprehensive provisions on environmental protection from wastewater. The LEP in 1993 is Vietnam's first law on environmental protection, with only 01 article on general provisions on environmental protection from wastewater (Article 26) and 02 articles on the development and appraisal of environmental impact assessment reports (Article 17 and 18). The LEP in 2020 has comprehensive regulations for environmental protection due to wastewater, including 18 articles directly regulating the control of activities and sources of wastewater generation, and 3 articles specifically regulating wastewater management. Furthermore, it provides environmental impact assessment, environmental licenses and environmental technical regulations, which also contain regulations on prevention, containment and control of wastewater. These regulations are amended and supplemented more and more specifically to manage all sources of wastewater that pose a risk of causing environmental pollution, while at the same time approaching the basis of taking the environment receiving wastewater as the foundation.

Second, countries could use all national instruments to comply with their international soft law commitments. For Vietnam, alongside "hard laws", the country has also issued "soft laws" to support the implementation of "international soft law" commitments on environmental protection due to wastewater. For instance, Vietnam has issued "soft laws" with specific goals to achieve the goal of Agenda 2030 (target 6.3) of 100% of hazardous wastewater being treated; reducing the proportion of untreated urban wastewater by half. Specifically, the Roadmap for Implementing Vietnam's Sustainable Development Goals until 2030 has determined that the rate of urban wastewater collected and

treated to meet standards and regulations by 2025 must be: 30 - 35% for urban areas of type 2 or higher; 15 - 20% for urban areas of type 5 or higher; by 2030: 40 - 45% for urban areas of type 2 or higher; 25 - 30% for urban areas of type 5 or higher; the rate of industrial areas and export processing zones with centralized wastewater treatment systems operating to meet environmental technical standards by 2025 is 92%, by 2030 is 100%. The targets of the Strategy on National Environmental Protection until 2030 have a smaller proportion, but also aim towards this goal. Specifically, the target of the proportion of urban wastewater treated to meet environmental technical standards by 2025 is over 30% for urban areas of type II or higher, 10% for the remaining urban areas; by 2030 is over 50% for urban areas of type II or higher; 20% for the remaining urban areas; the proportion of industrial clusters with centralized wastewater treatment systems operating to meet environmental technical standards by 2025 is 60%, by 2030 is 100%; the proportion of industrial areas and export processing zones with centralized wastewater treatment systems meeting environmental technical standards (%) by 2025 is 92%, by 2030 is 100%. These documents contain tasks, projects and methods to mobilize resources for implementation to achieve these goals.

Finally, in order to meet targets set out in international soft law commitments, national laws should provide for financial mechanisms for their enforcement. In the case of Vietnam, in production, business and service zones having centralized wastewater treatment facilities from private investment projects, the rate of wastewater collection and treatment is quite high, reaching approximately 91% of the water discharged. However, in rural areas, the rate of domestic wastewater collection is only about 15% of the water discharged. For this reason, Vietnam has issued the Law on Investment which provides for public-private partnerships to attract the participation of the private sector in the development of wastewater facilities in these areas. In fact, without a plan to achieve large investment in domestic wastewater treatment in rural

areas, it will be difficult for Vietnam to achieve target 6.3 of Agenda 2030, which is to treat 50% of domestic wastewater by 2030.

Conclusion

Vietnam's approach to implementing international soft law commitments on wastewater management demonstrates a proactive and evolving legal framework that aligns with global sustainability goals. By translating soft law principles into a combination of binding regulations and strategic policies, Vietnam has made commendable progress—especially in industrial wastewater treatment. The integration of soft and hard law instruments has provided a foundation for environmental governance, capacity building, and stakeholder involvement. However, significant challenges remain, particularly in scaling domestic wastewater treatment, incentivizing private sector participation, and aligning technological standards with local capacities. Addressing these issues requires a shift toward more market-driven solutions, adaptive discharge standards, and increased financial mechanisms, such as effluent taxation. As Vietnam continues its legislative refinement and infrastructure development, its experiences offer valuable lessons for other developing nations seeking to balance environmental protection with economic growth under the guidance of international soft law. Ultimately, realizing the goals of Agenda 2030, particularly SDG 6.3, demands a sustained commitment to innovation, investment, and institutional reform. By continuing to align national policies with international environmental expectations, Vietnam can further its leadership role in sustainable wastewater management and marine environmental protection in the region.

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