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WATER POLLUTION CONTROL POLICY IN NEPAL AND INDONESIA

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ABSTRACT

Water is a fundamental aspect of Indonesia's natural resources that must be utilized to the greatest extent possible for the benefit of the people. This indicates that the use of water for various purposes and interests must be done with caution, with regard to the interests of present and future generations in mind. Most water sources in Nepal have become polluted due to fast population growth. Water quality problems caused by physical and chemical factors have a big effect on public health when the concentrations are high. In this study, normative legal research methods are used, where library materials are basic information that is delegated and additional information is available. The conclusion of this research is that Nepal's constitution is founded on and approved by law, and it governs political, economic, and social connections as well as other rights such as land ownership. Changes in political systems and power relations result in changes in laws, decision-making authorities, and institutions, which impact water rights interactions. As an archipelagic country with a sea that encompasses two-thirds of its national territory, the world's second longest coastline, and is also known as a maritime country, Indonesia bears a significant obligation to safeguard its seas from water pollution.
Keyword: Water Pollution, Policy

INTRODUCTION

Natural resources are fundamental to life and provide humans and animals with a means of subsistence. Water resources also play a significant role in the survival and future of the biosphere. For the sustainability of the environment, all forms of water sources are essential for supporting human life. Water resources occur in numerous forms and have numerous applications. Surface reserves (lakes, ponds), and streams (rivers), as well as aquifers and soil moisture, contain water. Diverse resources and multiple uses require competition among different stakeholders with different interests. This is especially true when it comes to water users, who often cause externalities with costs or benefits that may not come back to them.

The most significant environmental issue in Nepal is water contamination. The majority of the population continues to lack access to basic drinking water services, relying instead on undeveloped and unreliable water sources such as ponds, unprotected wells, and waterways. This is the result of major contaminants like sewage, industrial waste, agricultural leftovers, and chemicals. The influx of migrants from various regions of Nepal into the Kathmandu valley has resulted in urbanization, which places a tremendous strain on the region's natural resources. The urban water quality in the valleys is inadequate for sustaining a healthy aquatic ecosystem and a healthy existence. There are numerous cases of water-borne diseases such as cholera, dysentery, typhus, and skin ailments. Several analyses of groundwater and deep water samples revealed the presence of arsenic. 52% of the sampled groundwater in the Kathmandu valley contained arsenic levels

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that were above WHO guidelines. In Nepal's Terai region, residents rely on groundwater to satisfy their water requirements. The importance of groundwater use for livelihoods and food security in this region has grown in recent decades. The water quality at the river site of the Saptakosi river, with an altitude ranging from 1300 to 3440 meters above sea level, reveals the presence of organic pollution, as determined by eight distinct biotic indicators and scoring methodologies. Pokhara was once a lake city, but it has since lost its lake. Due to sedimentation, Lake Phewa and other nearby major lakes have shrunk.

Water is a vital component of Indonesia's natural resources that must be utilized for the best benefit of the people. This implies that the use of water for various purposes and interests must be conducted judiciously, with consideration for the interests of current and future generations. In order to enable sustainable development, water must be managed such that it is available at safe levels, both in terms of quantity and quality, and is useful for the lives and livelihoods of humans and other organisms. Human companies and/or activities require efficient water, but it has the potential to generate negative effects, such as pollution, that might endanger water availability, usability, carrying capacity, and productivity. In order for water to be useful in a sustainable manner and for development to be sustainable, it is required to regulate water quality and minimize water pollution during the implementation of development. In addition to the environmental and social benefits, the bad things that happen when water is polluted also have a cost.

Efforts to restore the condition of polluted water may incur expenses that exceed the value of the financial advantages generated by activities that create pollution. Similarly, if the condition of polluted water is left unchecked (without any recovery efforts), it incurs expenses, given that polluted water will incur expenses to counteract its bad effects and/or affects. According to the definition, water pollution is characterized by a deterioration in water quality to a degree that prevents the water from functioning as intended. A specific level above refers to a water quality standard that is defined and serves as a baseline for determining whether water pollution has occurred as well as a directive for the degree of water quality that must be achieved or maintained by each water pollution control work program.

METHODS

In this study, normative legal research methods are used, where library materials are basic information that is delegated and additional information is available. The form and content have been compiled by previous researchers and can be obtained without being bound by time and place, which includes primary legal materials, secondary legal materials, and tertiary legal materials. A normative legal study is an investigation whose standardization is a legal examination that focuses on guidelines or standards where the relevance of law is regarded as standards or decisions generated from laws and rules, court decisions, and legal experts' principles.

DISCUSSION

Water resource status in Nepal and Indonesia

Nepal

Most water sources in Nepal have become polluted due to fast population growth, improper waste management, and other human activities. In the majority of rural regions, open defecation, inappropriate human waste management, and agricultural activities have increased the microbial contamination of water from rivers, springs, and soil sources. As concentrations are high, Physical and chemical variables that affect water quality have a substantial impact on public health.

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In the Terai region, the annual subsidence of groundwater is a significant issue that has rendered several shallow pipe wells inoperable. Many of the fundamental issues with the Terai Tubewell system and gravity flow systems may be traced back to a lack of feasibility studies and a design that disregarded water quality. Insufficient consumer knowledge and the absence of a proper monitoring system, which includes repair and maintenance. Since of the installations' tiny size and distributed location, as well as the regular landslides and intense erosion processes in the hills that cause damage to the transmission and distribution systems, the provision of water treatment is unsustainable in terms of manpower and expenses. Responsibilities, obligations, rules, and actions are not clearly specified in either national or local policy, legislation, or institutional structure.

Explaining the importance of water to all living things by demonstrating its shortage in the preset conditions where water is scarce in several regions of Nepal. The problem of water quantity and water quality is becoming a greater source of worry. Population growth and the intensification of current farming methods are putting more pressure on water and making it more important to find ways to manage water in a sustainable way. This shows how important water is.

Drinking water in Nepal is considered unsafe, particularly during the rainy season. The level of defilement come to the most extreme restrain. Higher levels of bacterial and chemical defilement were found in water from wells, tube wells, nearly all chemical parameters tried from this source surpass national guidelines. Water resources suffer extensive harm as a result of untreated discharge from the Bhrikuti paper mill into the Narayani river and the Everest paper mill into the Orahi river. Physiochemical studies of the Tinau Butwal river in Rupandehi, Nepal show that water pollution exceeds drinking water standards due to riverbed extraction. The water is more alkaline than other freshwater rivers, according to its pH. The pH, electrical conductivity, total dissolved solids, nitrate, phosphate, bicarbonate, and chemical oxygen demand measurements of the Jagadishpur wetland reservoir in Kapilvastu, Nepal's water quality analysis revealed that they were all within permitted limits. Studies on Ranipokhari's water quality at different stations were found to be highly contaminated by bacteria and algae. These microorganisms are species of E. coli, Citrobacter, Klebsiella, Proteus, and Salmonella. Bacteria and heavy metal levels in the Sundarijal reservoir and its main tributaries were found to be within acceptable limits, but the water was too contaminated to drink without treatment.

Nepal receives a lot of rain every year, but it's very unevenly distributed because of the monsoon climate (which causes a lot of temporal variation) and extreme topography (which causes a lot of spatial variation). Surface water and groundwater are the two types of water that are readily available and both have significant spatial and temporal variability. While Nepal has little potential to develop large-scale renewable energy sources like solar and wind, such as fossil fuel reserves, it does have a great potential for hydroelectric resources. Ensuring water security for hydroelectric development is primarily concerned with ensuring infrastructure investment to make water available, as well as considerations related to competing uses, particularly the environment. The main obstacles are related to finance, politics, and government. Nepal is a small country, so it is hard for it to make enough money to fund large hydroelectric projects on its own. However, Nepal has been able to fund a number of small and medium-sized projects on its own by coming up with new ways to increase equity stakes in the country. market. Nepal relies on bilateral or multilateral funders for larger projects, although the terms and circumstances may

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not always be favorable to the hydropower producer or the nation. Along with the greater political economics issue and the electrical surplus market, other factors include issues of international commerce and collaboration.

Indonesia

Represents almost 6% of the world's water resources. Statistically, Indonesia is not one of the countries with water scarcity. However, now most areas, such as the islands of Java, Bali, Sulawesi, and East Nusa Tenggara, are experiencing a clean water deficit due to inadequate management of water resources and exacerbated by an increasing population. Only 29% of the community can access water through pipes. This figure is still far from the government's target for 2019, which is 60%. Since 1970–2013, there has been a decline in ground water levels that has reached 80%. This is one of the factors that makes it difficult for people to obtain clean water. Java Island is the island with the largest deficit of water, which is -134.102 million m3 annually. This is because the population's need for clean water exceeds the availability of clean water. The condition of rivers in several regions in Indonesia is well above the acceptable threshold required as a source of raw water. In 2010, it was said that the turbidity of the water was higher than 1,000 NTU (Nephelometric Turbidity Units).

From 1985 to 2001, the rate of forest loss went from 1.6 million ha per year to 2.1 million ha per year. The rate of deforestation is caused by the conversion of forest areas into homes, factories, and mines, as well as by the growing number of people who cut down trees illegally. The World Resources Institute predicted in 2002 that Indonesia's forest area would shrink by 15–32.5 million hectares in less than 20 years. When forest land is cut down, its biodiversity and other environmental services can go down. Also, the way the forest is getting worse affects both the groundwater and surface water that people need to live. There are also more cases of pollution in the environment. Transportation and industrialization improvements that don't go hand in hand with the use of clean technology impact the environment, especially in cities. Waste from factories and households pollutes rivers in cities. More and more chemicals are getting into the soil from both trash and fertilizers. This pollution problem is also caused by people not being aware of how important it is to live in a clean, healthy environment. Because of all of the things listed above, there are worries about an imbalance in the way the environment works as a whole to support human life and the long-term viability of development.

Water rights in Nepal and Indonesia
Nepal

In line with the Water Resources Act of 1992 (WRA 1992), which says that the Kingdom of Nepal owns all water resources on the surface, underground, or in any other form that are in the Kingdom of Nepal. Nepal has more than 6,000 rivers, which together are thought to be about 45,000 km long (CBS, 1989). The Koshi, the Gandaki, and the Karnali are the most important rivers from a business point of view. There are also the Kankai, Kamala, Bagmati, Tinau, West Rapti, and Sabal, which are all big rivers. Nepal has only a few small lakes. The Phewa lake in Pokhara, which was made by people, is the best known and most used. Nepal's rivers and streams have fast-moving, rough water that can clean itself a lot through mechanical processes and oxidation. But water quality can change quickly in uptake and reservoirs because they are more static and water moves through them more slowly.

Article 17 of Nepal's constitution says that all citizens have the right to buy and use property, as well as the right to sell it and make a profit from it. For good agricultural production, the government needs to focus on building up the economy of the people. This can be done through land reform programs

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that improve agriculture and help small businesses grow. Women should be helped by making sure they take part in programs for education, health, and jobs, with a focus on the well-being of rural communities. With the implementation of a general code of ethics for the community's right to use water to meet different domestic and industrial needs, the right to use water in a way that puts irrigation first has been recognized.

The Water Resources Act of 1992 is the main law in Nepal about drinking water (2049 BS). This Act is a comprehensive law that regulates not only drinking water but also how water is used for other things and how Nepal's water resources are managed as a whole. The law gives the right to use water for drinking more importance than the right to use water for other household or business purposes. The Water Resources Regulations 1993 (2050 BS) and the 1998 Drinking Water Regulation are two drinking water rules that come from this law (2055 BS). The 1993 Water Resources Regulation (2050 BS) is the overarching regulation for all water uses. It gives the 1992 Water Resources Act a way to be put into action (2049 BS). The regulations set up Water User Associations and District Water Resources Committees, licenses, and a way for people to settle disagreements about the cost of water use services. They also tell the state how to get land and pay for it, and the Regulatory Schedule has several forms for administrative procedures. certain. The 1998 Drinking Water Regulation (2055 BS) has rules about drinking water and sanitation because they affect drinking water.

The fundamental goal of the first comprehensive Nepal Water Resources Strategy in 2002 was to identify effective scientific, sustainable, and consensus-based procedures to assist the execution of action-oriented initiatives and programs. The plan entails resolving many difficulties and limits for the long-term development of water resources, such as those connected to government policies, financial and human resources, institutions, and actions. The strategy notes non-specific water rights and ownership, a lack of regulations that allow for subordination, a lack of coherence between essential laws, and a lack of suitable legal mechanisms to stimulate private sector engagement in multipurpose projects. To meet the Water Resources Strategy's objectives, the strategy created ten outputs with actions and indicators. The ninth output proposes a suitable legal framework. Water use rights, user conflicts, compensation for reductions in water quality and/or quantity, and the need for changes in law enforcement and legislation should all be addressed under Nepal's legal framework for water use.

Indonesia

Everyone has the right to live and defend his or her life, according to Article 28A of the 1945 Constitution. Then, in Article 28H paragraph (1), it is stated that everyone has the right to prosper physically and mentally, as well as to live in a safe and healthy environment. The right to water is not addressed separately in Human Rights Law Number 39 of 1999. The right to water, on the other hand, is part of the fulfillment and preservation of the right to life since water is the most significant component in fulfilling and protecting the right to life, which is an absolute and non-derogable right. The United Nations General Assembly issued Resolution No. 64/292 on July 28, 2010, expressly recognizing the right to water and sanitation as a human right. According to UN General Comment No. 15, everyone has the right to adequate, safe, acceptable, physically accessible, and conveniently accessible water for personal and home use. Adequate amounts of clean water are required to prevent dehydration, to limit the risk of water-related diseases, and to be consumed, cooked, and used for personal and domestic cleanliness.

Appropriate amounts of clean water are required to prevent depletion, to limit the risk

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of water-related diseases, and to be consumed, cooked, and used for personal and domestic cleanliness. This affirmation reflects three important aspects as basic elements of human rights over water, namely availability, quality, and accessibility, which include (1) physical accessibility; (2) easy to reach economically (or economic accessibility); (3) non-discrimination; and (4) the ease of information (information accessibility). Human rights to water must be protected and fulfilled in order to ensure the quality of availability, distribution, and equity, as well as the sustainability of clean water sources. Awareness of water and the ability to manage water resources well through different cooperation policies so that human rights over water can be met are concrete examples of state responsibilities and duties, especially for the government and local governments.

Water pollution control policies in Nepal and Indonesia

Nepal

One of the foremost fundamental human needs is secure drinking water. Access to water and sanitation is critical to a society's overall social and economic growth. As a result, with the appropriate use of technology, this segment ought to be given tall need for advancement in a feasible and socially satisfactory way.

The Ninth Five-Year Plan (1997-2002) estimates national urban water supply coverage at 62.5% and sets a target of 100% coverage by the end of the plan, with sanitation for 40% of the population. This proved to be an ambitious goal, as the Ministry of Water and Sanitation/HMG anticipated from the start that by 2002, only 71% of the population would be covered by drinking water and 30% by sanitation. These measurements are too tricky since they don't account for the facilities' current low operational status or water supply quality. 92% of piped water supplies and 25% of tube wells were reported to be out of service or in need of repair.

Water and sanitation development are high priorities for the government, and the proposed Tenth Plan (2003–2007) aims to deliver water to 85 percent of the rural population and 100 percent of the urban population. The public authority has likewise perceived that providing clean for drinking water and sterile for everyone, especially in provincial areas, can't be achieved alone by government efforts. The World Bank, Asian Development Council (ADB), bilateral aid initiatives, and International/National Non-Governmental Organizations (I/NGOs) working in this area have all benefited from HMGN's policies and pledges. Different methodologies are employed by various organizations working on various projects throughout Nepal, but the goal is the same, which is clean water and sanitation.

Infectious disorders such as cholera, typhus, hepatitis, dysentery, and helminthiasis can be transmitted through environmental contamination of drinking water at the source, during transport, and even at the user level. In addition, dangerous substances such as heavy metals, pesticides, etc. can enter drinking water through many pathways, and water quality can degrade (WHO, 1995). Due to fast population growth, unsanitary sewage disposal, and other human activities, the majority of water sources in Nepal have been contaminated. In the majority of rural regions, open defecation, inappropriate human waste management, and agricultural activities have increased the microbial contamination of water from rivers, springs, and soil sources. Water quality problems caused by physical and chemical factors have a big effect on public health when the concentrations are high.

Another severe issue in the Terai region is annual groundwater subsidence, which has caused some shallow pipe wells to fail. Large numbers of the significant issues with the Terai Tubewell and gravity stream system

can be connected to a less of possibility studies and insufficient plan that doesn't think about water quality. There is a lack of consumer awareness as well as a proper monitoring system, which includes repair and maintenance. Water treatment is unaffordable in terms of manpower and expenses because of the small size and dispersed nature of the facilities, as well as the regular landslides and extensive erosion processes in the hills, which cause damage to the transmission and distribution systems. In national policies, laws, or institutional frameworks, responsibilities, promises, directions, and actions are not clearly spelled out.

Laws or Regulations concerning Water Resources Management In Nepal

1. The Essential Commodities Act of 1955 (2012 BS). It appears that drinking water is a valuable commodity that must be rigorously protected. Prohibit unlawful use or misuse of drinking water, as well as theft, vandalism, and other forms of vandalism.
2. Muluki Ain, 1963 (BS 2020) Establishing the priority order of irrigation water use. Regulate traditional farmers' irrigation systems.
3. The Solid Waste (Management and Resource Mobilization) Center Act of 1987 (2044 BS) As the authority in charge of solid waste management, establish a Solid Waste and Management and Resource Mobilization Center. Handle solid waste-related water contamination.
4. Solid Waste (Management and Mobilization of Resources) Regulation 1989 (2046 BS) This regulation governs the collection, transportation, and disposal of solid waste. Agreements for the supply of public restrooms and baths.
5. The Nepal Water Supply Company Act of 1989 (2046 BS) Nepal Water Supply Corporation was established as a government-controlled organization that is continually and autonomously responsible for the supply of drinking water.
6. Prohibit specific behaviors and impose penalties for noncompliance.
7. Kingdom of Nepal Constitution of 1990 (2047 BS) The right to life and property is guaranteed. Provide for the acquisition of property and compensation under specified conditions.
8. Water Resources Act 1992 (2049 BS) The overarching law controlling water resource management. It sets a licensing system and controls the formation of water user organisations. Water contamination must be prohibited.
9. Electricity Act of 1992 (2049 BS) Water use for hydropower production is regulated. Create a licensing system. Define the licensee's powers, functions, and duties. Establish government authority.
10. Industrial Companies Act of 1992 (2049 BS) requires permits for the expansion and diversification of environmentally sensitive companies. This provides financial incentives to industrial enterprises that reduce their environmental impact.
11. Water Resources Regulation 1993 (2050 BS) The overarching regulation that governs water resource management. Establish processes for the Water User Association's registration and licensing. Form a Water Resources Committee for the District. Determine the rights and responsibilities of Water User Associations and licensees.
12. 1996 Environmental Protection Act (2053 BS) Take care of pollution prevention and control.
13. 2000 Irrigation Regulation (2056 BS) Agreement with the Irrigation Water Users Association and transfer of the project to the Irrigation Water Users Association Available groundwater

resources should be developed and used as surface water reservoirs, and plans for conservation, promotion, and quality control should be devised.

14. The Water Supply Management Board Act, 2063 (2006), prohibits drinking water abuse and contamination by conducting, studying, researching, and surveying its sources, distribution of drinking water, and cleanliness.

The industrial sector promotes socioeconomic growth and poverty reduction by incorporating the goal of the Kingdom of Nepal's 2047 Constitution, which focuses on the sustainable use of the country's natural resources. Despite significant attempts to develop overall water resource development and management plans to satisfy national policy objectives, the country's water resources are underutilized. The Water Resources Act of 1992's overall national-level objectives focus on the management and utilization of available water resources for safe drinking water in required quantities, increasing agricultural production, and generating hydroelectric power to replace imports of petroleum products through environmentally friendly means. Conservation and protection, as well as encouraging consumer and private sector participation in the development, management, and usage of water resources in order to achieve multipurpose goals in the most complementary way feasible.

The government stressed the establishment of an overall water resources strategy in the ninth five-year plan (1998), as well as the need to avoid past sectoral or sub-sectoral strategies from shifting toward controlling water consumption competition amongst developing sectors. Currently, efforts are being made to develop an overall water resources development and management strategy with the vision that efficient and prudent use of water resources can achieve the goal of maximizing the sustainable benefits of water use for Nepal and thus contribute to a significant improvement in the Nepalese people's living conditions. So far, water resource development has been much below potential, particularly in areas like irrigation, hydroelectric generation, drinking water supply, and sanitation.

Indonesia

Law no. 23 of 1997 concerning Environmental Management (Law No. 23/1997)

The environment is a unified space that includes all objects, forces, situations, and living things, including humans and their behavior, that affect human and other living animals' lifestyles and welfare. Environmental management is an endeavor to conserve environmental functions, which includes strategies for structuring, utilizing, creating, maintaining, recovering, monitoring, and controlling the environment (Article 1 No. 2). It is illegal for any business or activity, including industry, to violate quality requirements that cause environmental damage.

Law No. 7 of 2004 concerning Water Resources (Law No. 7/2004)

According to article 21, the protection and preservation of water resources aims to safeguard and conserve water resources and their environment from harm or disruption caused by natural resources, including drought due to human action. Water source protection and preservation include maintaining the function of water catchments and water catchment areas, controlling the use of water sources, filling water in water sources, regulating sanitation facilities and infrastructure, protecting water sources in relation to development activities and land use at water sources, controlling processing land in upstream areas, regulating water source border areas, and rehabilitating forests and land.

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PP No. 82 of 2001 concerning Water Quality Management and Water Pollution Control (PP No. 82/2001)

Water quality management is an undertaking to keep water in its natural state by ensuring that the intended water quality is reached according to its classification (Chapter 1 Article 1 No. 3). Water pollution control is an attempt to prevent and regulate water pollution while also restoring water quality to guarantee that water quality meets water quality requirements (Chapter 1 Article 1 No. 4). In this instance, the government may delegate the administration and control of water pollution to the regional government, including both the Provincial and/or Regency/City Governments, in compliance with existing regulations.

Decree and or regulation of the State Minister of the Environment.

For example, Minister of Environment Regulation No. 5 of 2014 on Wastewater Quality Standards governs the quality standards of waste originating from various industrial and home sources. Water Pollution Control Strategies (Government Regulations No. 82/2001), which include:

1. Establishment of wastewater quality standards
2. Monitoring of water quality at water sources
3. calculating pollution load capacity
4. compiling a list of pollutant sources
5. Determination of the requirements for a waste water disposal permit
6. Oversight of the arrangement

Article 34 of government regulation no. 82/2001 mandates that the person in charge of the business or activity must comply with the permit requirements (waste water disposal and/or use of waste water on the ground) and report it to the Regent/Mayor with a copy to the State Minister for the Environment at least every three months.

CONCLUSION

The lack of public access to safe and secure water is not due to the quantity of water on the planet, but rather to the inability of the institutions created to manage these issues to meet these demands. Muluki Ains does not regulate water in Nepal in great detail since water is not regarded as a valuable resource or a primary source of income. The inclusion of the right to water within the right to land is a further factor. The right to water was not emphasized until the state became extensively involved in the building and control of irrigation systems and hydroelectric generation, and water began to be regarded as an essential resource. The fact that rules have been made about irrigation and water resources shows how important water is becoming.

Nepal's constitution is founded on and approved by law, and it governs political, economic, and social connections as well as other rights such as land ownership. Changes in political systems and power relations result in changes in laws, decision-making authorities, and institutions, which impact water rights interactions. Muluki Ain establishes priorities for acquiring water from water sources: the person who first constructs a diversion structure in the water source to divert suitable water for their canal has first priority in diverting water from public water sources. Muluki Ain declared that waste should be allocated and distributed in accordance with customary rules where such restrictions exist, or in accordance with distribution if a profit-sharing system is in place. If there are none, the water distribution begins in the field nearest to the water source and progresses sequentially to the canal's tail end. The laws enacted between 1961 and 1992 reflect the growing importance of water resources in Nepal's political economy, empowering the state not only to regulate water use but also to grant ownership rights to all water resources in the state.

As an archipelagic country with a sea that encompasses two-thirds of its national

territory, the world's second longest coastline, and is also known as a maritime country, Indonesia bears a significant obligation to safeguard its seas from water pollution. As a result, existing environmental laws must be comprehensive and interconnected. Furthermore, the legal principles of cross-border pollution must be used in the laws and regulations that are governed in an integrated manner.

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