WATER POLLUTION IN THE CAPITAL OF BANGLADESH: AN EVALUATION OF THE EFFICACY OF EXISTING LEGAL FRAMEWORK AND CALL FOR REFORMS

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ABSTRACT

Water pollution has become one of the most serious environmental concerns in Dhaka that affecting public health, river ecosystems, and the sustainable management of urban water resources. The rivers, canals, and lakes surrounding Dhaka city are extremely polluted due to over population, unplanned urbanization, and inappropriate waste management practices.

This paper critically evaluates the efficacy of existing legal framework particularly focusing on legal drawbacks and administrative challenges related to sustainable water resource management. Through adopting a doctrinal research methodology, this paper critically reviews existing materials and analyze current legal frameworks pertaining to water pollution.

Bangladesh has enacted several laws, regulations and policies to prevent water pollution, but this paper finds serious gaps in implementation, institutional coordination, and climate responsiveness. Because of inconsistent legal provisions, lack of accountability mechanism, limited manpower and resources the enforcement of these laws is greatly hampered.

The findings identified several potential areas for improvement. It is crucial to resolve the gaps and inconsistencies in current legislation in order to strengthen the regulatory framework. Furthermore, improving monitoring and effective coordination, allocating adequate financial budget, encouraging public engagement, and raising awareness about the negative effects of water pollution are all vital steps toward achieving sustainable water pollution control in Dhaka City.

This study contributes to the current literature by conducting a thorough examination of the effectiveness of applicable regulations and directions in combating water pollution in Dhaka City. The findings highlight the critical necessity of coordination among government authorities, non-governmental

organizations, and citizens to effectively combat water pollution.

Keywords: Water Pollution, Waste management, Waterbodies, Environment, Legal framework.

Introduction:

In the twenty-first century, environmental pollution has become an alarming fact, but water pollution poses the greatest threat to humanity in many ways. Bangladesh is among the most polluted countries in the world. It is an overpopulated country with a population of 169.4 million. It results in a density of 1265 people per square kilometer.[1] Overpopulation has two significant effects on the environment: consumption of natural resources such as land, air, water, and minerals, and waste products such as air and water pollutants, hazardous substances, and greenhouse gases as a result of such consumption.[2] Air, water, and soil pollution are interconnected and are polluted like a cycle. Bangladesh is a land of river where water covers about 10,000 square kilometers of its entire area.[3] It has around 700 rivers which play an important role in the country's economy but these are disappearing with time to time.[4] Our drinking water, agriculture and transportation depend on rivers. Occupying rivers and dumping trash are two major reasons for river pollution. Because of occupation, rivers are becoming narrower, and the river bottom is clogged with trash as a result of excessive rubbish discharge. As a result, rivers are losing their navigability and eventually dried up. Due to the indiscriminate dumping of untreated sewage, solid waste, and industrial effluent, the water quality in the rivers surrounding Dhaka city has significantly deteriorated. Now, it has become a great threat to public health which needs to be addressed. On 28th July, 2010, the United Nations General Assembly adopted a historic resolution that recognized "the right to safe and clean drinking water and sanitation as a human right which is vital for the full enjoyment of life and other human rights." For ensuring this human right Bangladesh has develop laws to combat water pollution but their implementation and enforcement is inadequate.

[1] Worldometer, Bangladesh Population (Live), https://www.worldometers.info/world-population/bangladesh-population/ (last visited Apr. 20, 2025)
[2] Md. Khalid Hasan et al., Water Pollution in Bangladesh and Its Impact on Public Health, *Heliyon* (Aug. 2, 2019), https://www.sciencedirect.com/science/article/pii/S2405844019358050.
[3] Bangladesh Water Dev. Bd., *Rivers of Bangladesh*, https://www.bwdb.gov.bd (last visited Apr. 20, 2025).
[4] Kaamil Ahmed, 'The River Is Our Home': Bangladeshi Boatmen Mourn Their Receding Waters, *Guardian* (Jan. 20, 2020).

Problem Statement:

One of the major environmental concerns of Dhaka city is water pollution. Rivers, canals, lakes, and other water bodies surrounded by this city are seriously affected by pollution. Water pollution is mostly caused by industrial chemicals, households' sewage, and medical waste. River water in Dhaka has altered from its original form in terms of physical, chemical, and microbiological composition, and it is no longer appropriate for any beneficial or safe use. Dhaka is surrounded by four rivers: the Shitalakhya, the Buriganga, the Turag, and the Balu. All of these rivers are highly polluted by different industrial and household wastes and for unplanned urbanization.[5] The Dhaka's drainage and sewerage system is made up with forty-three major canals. List of 43 canals was prepared in 2004.[6] Almost half of the canals have already disappeared. As a result of ongoing encroachments, careless solid waste disposal, and blatant carelessness on the part of their legal guardians, the last 26 are also fighting for their very existence. These canals are commonly used to carry wastewater into those surrounding rivers. Dhaka city is also surrounded by eight prominent lakes which are mostly polluted and add nothing to a beautiful city life. Even though a huge amount of money has been spent on lake development over the years, the Dhanmondi, Gulshan, Banani, and Nikunj lakes continue to be in poor shape.[7] Hatirjheel has turned into a sewage and waste dump, and this has discolored the water there.[8] Depending on the areas, Dhaka North and South City Corporation, Dhaka WASA and RAJUK maintain all the waterbodies. But due to incoordination among different entities, water pollution is still a big problem in Dhaka city. Polluted water in the waterbodies surrounding Dhaka poses major concerns to public health because it is unfit for human consumption. Dhaka has been industrialized without a sustainable plan and there is no systematic waste management. In the Dhaka metropolitan area, there are about 7,000 industries, most of them are located near rivers.[9] Among all of these industries, dyeing plants and tanneries pollute the waterways most. Waste from such firms is typically connected to the sewerage system, which goes straight into the city's rivers. As a result, rivers are becoming dumping grounds for a variety of solid, liquid, and chemical waste.

[5] Kaamil Ahmed, 'The River Is Our Home': Bangladeshi Boatmen Mourn Their Receding Waters, *Guardian* (Jan. 20, 2020).
[6] Alam H., Dhaka City Canals in Death Throes, *Daily Star* (July 20, 2016).
[7] Kamran Siddiqui & Md. Jahidul Islam, Dhaka Lakes Now Sources of Miseries, *Bus. Standard* (Aug. 8, 2021).
[8] Bishakha Devnath, Why Hatirjheel Is Now a Sewage Pond, *Bus. Standard* (Feb. 9, 2020).
[9] Hasan M.T., Pollution of Rivers Around Dhaka, *Daily Star* (Sept. 9, 2011).

Literature Review:

F.A. Samiul Islam discuss about the main sources of water pollution in Dhaka are untreated domestic and industrial wastewater, runoff from agricultural fields, and leakage from septic tanks.[10] He showed that when pollutants pollute water sources, the water becomes unsafe for drinking, cooking, cleaning, swimming, and other uses. He identified pollutants including chemicals, garbage, microbial organisms, and parasites that all eventually end up in water. However, Islam's analysis is technical and descriptive mostly focused on sources with less focus on legal and regulatory framework. Based on Islam's empirical findings, this study explores the legal drawbacks and enforcement challenges behind those sources of water pollution. Akash Mamon Sarkar marked Dhaka as encircled with rivers on the north by Buriganga River, on the west by the Turag River, to the north by the Tongi Khal, and to the east by the Balu River.[11] These water bodies are beneficial and important since they provide a drainage system, drinking water, a variety of fish, and channels for transportation. The Buriganga River is a crucial source of drinking water for the residents of Dhaka and its surrounding areas, as well as a source of fish for local consumption. But his study explores that the water quality of the Buriganga River, which runs through Dhaka, is severely degraded due to high levels of pollutants such as heavy metals, organic matter, and pathogens. He demonstrates that the deteriorating water quality in the Buriganga River has led to widespread health problems among the local population, including the spread of waterborne diseases such as cholera and diarrhea. Sarkar in his study provided a detailed assessment of effects of pollution on public health but failed to examine how our legal framework and concerned institutions failed to prevent this pollution. This study will address those legal drawbacks. Prosun Roy & other focused on the loss of aquatic life in the river that has led to significant economic losses for the fishing communities that depend on the river for their livelihoods.[12] Roy et al. focused the socio-economic impact but they failed to address the adequacy of legal protection while this study addresses this gap by examining the existing laws to find why they failed to safeguard river ecosystem and livelihood associated with rivers. Hossain Ahmed

[10] F.A. Samiul Islam, Solid Waste Management System in Dhaka City of Bangladesh, https://zantworldpress.com/wp-content/uploads/2019/12/17.-Samiul.pdf (last visited Apr. 26, 2025).
[11] Akash Mamon Sarkar, Surface and Ground Water Pollution in Bangladesh: A Review (2019), https://www.researchgate.net/publication/338825728_Surface_and_Ground_Water_Pollution_in_Bangladesh_A_Review.
[12] Prosun Roy et al., Livelihood Dimensions of the Fishermen in Shibsa River of Bangladesh, https://www.researchgate.net/publication/342747668_Livelihood_Dimensions_of_the_Fishermen_in_Shibsa_River_of_Bangladesh (last visited May 1, 2025).

Taufiq has portrayed River encroachment as one of the main reasons.[13] He argued that majority of Dhaka City's natural drainages have vanished or are on their way out due to illegal encroachment. In his view encroachment on the rivers caused by unauthorized construction made it difficult to drain the runoff and the pollutants that stuck continually polluting the environment. Taufiq's analysis identified the reason but did not examine the legal accountability mechanism which failure allows encroachments to continue. Hossain MS and others argues that though the government and various non- governmental organizations are trying to address water pollution in Dhaka, the problem persists due to a lack of effective implementation of existing laws and regulations.[14] He added that the rapid growth of the city and its industries have placed additional pressure on the already overburdened water treatment and disposal systems. He marked the significant industrialization that has occurred in Dhaka during the past two decades, particularly in the textile, washing, and dyeing industries. He identified the majority of them are situated in three areas: Tejgaon, Hazaribagh, and the Dhaka-Narayanganj-Demra dam area. This unplanned industrialization and rapid move of population towards Dhaka put biggest challenges to implement environmental principles. Hossain highlighted weak enforcement of laws as reason but there was no suggestion of practical solutions where this study suggests both legal reforms and practical mechanism for water management and pollution control.

Overall Objective

The overall objective of this study to examine the efficacy of the current legal framework to control water pollution in Dhaka city.

Specific Objectives

The specific objectives of this study are:

1. To explore the factors which are highly responsible for the contamination of water in Dhaka city

2. To critically examine the waste management process for Dhaka city.

[13] Hossain Ahmed Taufiq, Dhaka Water-Logging: Causes, Effects and Remedial Policy Options, https://www.researchgate.net/publication/353510497_Dhaka_Water logging_Causes_Effects_and_Remedial_Policy_Options (last visited May 1, 2025).
[14] M.S. Hossain et al., Recent Changes in Ecosystem Services and Human Well-Being in the Bangladesh Coastal Zone, 20 *Reg. Env't Change* (2015), https://link.springer.com/article/10.1007/s10113-014-0748-z.

3. To find out drawbacks in environmental rules, regulation, and application procedure responsible for water pollution.

4. To investigate the challenges of government entities to execute environmental principles to eradicate water pollution.

5. To provide recommendations on how the existing laws can be applied effectively.

Research Question:

Research Questions aligned with the stated problem; the study seeks to address the following research question:

1. Which measures should be taken to prevent water pollution in Dhaka city?

2. How to ensure effective implementation of law and legal framework in Dhaka city for the betterment of water condition?

Research methodology:

This study is based on doctrinal research methodology to critically review national water management frameworks, including relevant laws, regulations, case precedent and policies. It also reviews reports from the Department of Environment and other Environment NGOs. The analysis has been carried out with the help of descriptive statistics, tables, and reports.

Findings and Discussions:

The East Pakistan Water Pollution Control Ordinance 1970, which was replaced by the Environmental Pollution Control Ordinance 1977, is considered the country's first regulating legislation of this type. The government passed the Bangladesh Environment Conservation Act 1995 as a reform to earlier legislation. Although several laws have been passed to address inland water pollution, their implementation is still in doubt because of insufficient institutional support and limited legal protections.

Limitations of Existing Legislation:

The following Legislations are directly or indirectly related to protection of inland water pollution:

1. The Constitution of Bangladesh:

The Constitution had no direct provision relating to protection of environment. In 2011 fifteen amendment inserted Article-18A which states that, "The state shall endeavor to protect and improve the environment and to preserve and safeguard the natural resources, bio-diversity, wetland, forests and wild life for the present and future citizens".[15] But this is not listed under fundamental rights rather it is under fundamental principles of state policy which cannot be judicially enforceable. Despite the fact that the right to healthy environment is not expressly stated in our Constitution, Articles 31 and 32 of the Constitution nonetheless outline the fundamental "right to life," and the Supreme Court, which has the power to interpret the Constitution, has liberally interpreted this "right to life" to include the right to a secure and healthy environment in the Dr. M. Farooque v. Bangladesh case.[16]

2. Water Resource Planning Act, 1992:

This Act was passed in order to improve water resources and ensure their equitable use. Under section-3 of this Act Water Resource Planning Organization (WARPO) has been established that has the authority to create plans for the development of water resources and national policies for their scientific use and protection.[17] Accordingly, The National Water policy (NWPo) was made in 1999, and the National Water Management Plan (NWMP) was prepared in 2001 which was approved in 2004. But due to institutional constraints, the National Water Management Plan (NWMP) has not been executed as effectively as it could have been. In particular, WARPO was not institutionally strengthened and positioned for efficient monitoring and coordination of the NWMP's implementation. Following the recommendations of NWMP and implementing National Water Policy 1999 has not been done with the proper level of cooperation. As a result, relatively few Plans have been effectively executed in the past, mostly due to institutional weaknesses, a lack of coordination, and frequently strong commitment from political leaders.

3. Environment Conservation Act, 1995 (Amended Act of 2010):

In order to safeguard the environment, raise environmental standards, and lower environmental pollution, the Environmental Conservation Act was passed in 1995. Under this Act, the

[15] CONST. OF THE PEOPLE'S REPUBLIC OF BANGLADESH (1972).
[16] Md. Arifuzzaman et al., Laws Regulating Water Pollution in Bangladesh (2019).
[17] Water Resources Planning Act, No. 12 of 1992, § 3 (Bangl.).

Department of the Environment (DoE) was created to address environmental issues holistically, and the Director General was given authority to direct the closure, inhibition, or regulation of any enterprise.[18] This Act and Rules also provide substantive and procedural provisions regarding issuing Environmental Clearance Certificate and declaration of ecologically critical area.

This Act focused mostly on industrial pollution rather than water quality, safety, and pollution caused by other non-industrial entities. Climate change, a critical concern for water resource management, is not taken into account or included in the planning, management, or use of water resources. The Act and its regulations place a strong emphasis on the necessity of preventing environmental contamination and, in particular, the advancement of water management through the creation of various water standards. However, the Act makes no explicit mention of the involvement of the user community in environmental management. The Department of Environment (DoE), a section of the Ministry of Environment and Forests, is in responsibility of enforcing the law. However, the Department of Environment only has offices in 23 districts.[19] Furthermore, the DoE is understaffed. Furthermore, no provisions are made in the Bangladesh Environment Conservation Act, 1995 for institutional coordination between the DoE and WARPO or other water authorities. Under section-5 of Environment Conservation Act,1995, four rivers; Buriganga, Turag, Sitalakhya, and Balu were declared ecologically critical area in 2009. The government has failed to conserve those ECAs so far, despite some so-called protective measures. Md Ziaul Haque, Deputy director of the Department of Environment and in charge of ECAs, stated that they had failed to regulate pollution and blamed it on a lack of coordination among multiple government departments, a lack of public awareness, and unscrupulous company owners. He also claimed that they had failed to manage them properly due to lack of funds and inadequate manpower. To safeguard the River Buriganga, the government launched a scheme in 2003 to transfer all tanneries from Hazaribagh in Dhaka to Savar. Finally, all tanneries were relocated to Hemayetpur, Savar, in 2017. However, the tannery nearly killed the Dhaleshwari and is now killing the Kaliganga.[20] According to Department of Environment officials, the tannery estate is still contaminating the rivers.

[18] Bangladesh Environment Conservation Act, No. 1 of 1995, § 3 (Bangl.).
[19] Md. Arifuzzaman et al., Laws Regulating Water Pollution in Bangladesh (2019).
[20] Rafiqul Islam et al., After Buriganga, Tannery Waste Now Pollutes Dhaleswari, *Bus. Standard* (Dhaka, Jan. 16, 2021).

The parliamentary standing committee on the Ministry of Environment, Forest, and Climate Change proposed closing the Savar Tannery Industrial Estate in Hemayetpur by August 23, 2020, due to a lack of sufficient facilities to treat the liquid waste produced by the tanners. Thus, it seems as though all efforts to move the Hazaribagh Tannery to Savar on the outskirts of Dhaka were in vain. After the Buriganga and the Dhaleshwari, Tannery Estate is now killing the Kaliganga.

4. Environment Court Act, 2010:

Environment Court Act, 2010 has been passed to repeal the Act of 2000. The current Act aims to establish an Environment Appellate Court as well as one or more Environment Courts in each district.[21] The Director General (DG) of the Department of Environment or any person designated by him may personally file the case or lodge a complaint with the police station in accordance with the Code of Criminal Procedure. An investigation is carried out by an Inspector or any other officer reporting to the DG.

Only on the written report of an Inspector or any other person authorized by the Director General the environment court can take cognizance of an offense or receive a compensation suit. Thus, the right of the general public to direct access to environmental courts is not recognized by this Act.

The environment court has jurisdiction exclusively over the Environment Conservation Act, 1995 and the Brick Kiln Control Act 2013, but it has no jurisdiction over all other environmental laws prevailing in the country.

Section-4 of Environment Court Act, 2010 states that, the government shall appoint a Joint District Judge as the judge of the environment court and he shall try the cases under the jurisdiction of the Environment Court in addition to the cases under his general jurisdiction. Usually under general jurisdiction, the court of Joint District Judge is already overburden with Civil and Criminal cases and he hardly manage any time to hear any environmental matter which make the delay disposal of environmental cases.

Whereas Section-17 of the Environment Conservation Act, 1995 states that if a person or a group of persons or the public suffers loss as a result of a violation of any provision of this Act

[21] Environment Court Act, No. 56 of 2010, §§ 4, 20 (Bangl.).

or the rules made thereunder, that person, group of persons, or the public, or the Director General on behalf of that person, group of persons, or the public, may file a suit for compensation before the Environment Court; However, Section 7(4) of the Environment Court Act, 2010 expressly states that no Environment Court shall take cognizance of any offence or entertain any complaint for compensation under the Environment Conservation Act, 1995 unless accompanied by a written report from an Inspector of the Department of Environment (DoE). The provisions are self-contradictory.[22]

This provision has a more complicated exception, which states that if the Environment Court is convinced that a person submitted a written request to the said Inspector to accept a claim for compensation or a complaint and no action was taken within 60 (sixty) days of such request and that such claim or complaint deserves to be taken into cognizance for the purpose of trial, the Court may, after providing the Inspector or the Director General a reasonable opportunity of hearing, take the claim or complaint into cognizance for the purpose of trial without such written report, or may, if it thinks fit, direct the said Inspector to investigate the claim or offence. As a result, it is apparent that ordinary citizens have no right to file a direct suit in the Environment Court. It creates much dependency on the executive bodies rather than judiciary.

No question shall be raised before any court or any other authority about the proceedings, orders, judgments, decrees of compensation and penalties imposed by the Environment Court. There is no option to appeal to higher courts like the Appellate Division or High Court Division. Appeal can only be made before Environment Appellate court.

Only three Environmental Courts in Dhaka, Chittagong, and Sylhet divisions, as well as an Environment Appellate Court in Dhaka, were formed by the government. The number of cases filed in environmental courts is very lower in number.[23]

[22] Rafiqul Islam et al., After Buriganga, Tannery Waste Now Pollutes Dhaleswari, *Bus. Standard* (Dhaka, Jan. 16, 2021).
[23] Md. G.M. Hasan & Md. Rahmat Ullah, Environment Court and Special Magistrate Court in Bangladesh: A Comparative Study, 35(1) *Dhaka U. L.J.* 87 (2024).

Table-1: Number of cases filed in Dhaka Divisional Environment Court:[24]

Year	Case number
2016	4
2017	6
2018	19
2019	3
2020	29
2021	5
2022	19
2023	11

Due to lack of environmental cases, the country's sole environmental appellate court, located in Dhaka, is likewise also "inactive." It was found that there are just seven cases pending to be heard by the appellate court—two from the Dhaka Divisional Environment Court and five from the Chittagong Divisional Environment Court.

The numbers above reveal that affected persons are unwilling to seek justice due to, among other things, snags and difficulties in environmental law, confusing legal procedures, delayed case determination, low conviction rate, and a lack of adequate courts.

5. Water Supply and Sewerage Authority Act, 1996:

The Water Supply and Sewerage Authority Act of 1996 was enacted to establish a water supply and sanitation system, as well as to provide water supply, sewerage, and storm water drainage services. It creates self-governing corporate structures for Water Supply and Sewerage Authorities (WASAs).[25] The authority appears unconcerned about industrial effluents. This act fails to address the issue of assuring water quality. There is no mechanism for monitoring water tables, collecting data, maintaining databases, or long-term planning for the sustainable use and

[24] Asaduzzaman & Ahmed Deepto, Environment Laws and Courts Exist, but No Cases, *Prothom Alo* (Dhaka, Mar. 13, 2021).
[25] Water Supply and Sewerage Authority Act, No. 5 of 1996, § 3 (Bangl.).

management of water resources.[26] The Act does not even incorporate collaboration of WASAs with other water governance bodies.

6. Brick Manufacture and Brick Kilns Establishment (Control) Act 2013:

The purpose of this Act was to create control over brick production and the installation of brick kilns for the conservation of the environment and biodiversity. The Act makes it illegal to build brick kilns within the Ecologically Critical Area (ECA) and its neighboring regions. According to the law, no brick kiln can be retained or built within an ECA or within one kilometer of its boundaries. In 2009, the Department of Environment (DoE) identified four rivers bordering Dhaka as ECA. Buriganga, Turag, Sitalakhya, and Balu are among these rivers. On the other side, nearly all of Dhaka's brick kilns are located along these rivers' banks.[27]

Only with the approval of the competent authorities brick producers are permitted to cut or gather dirt from dead ponds, canals, swamp land, creeks, deep tanks, rivers, haor-baor, char land, and fallow land. The Act, however, does not specify the competent authorities or the process.

7. National River Protection Commission (NRPC) Act 2013:

This Act was enacted in response to the Hon'ble High Court Division's direction in the matter of Human Rights and Peace for Bangladesh and Others vs. Bangladesh, Writ Petition No. 3503 of 2009.

The National River Protection Commission Act of 2013 provides no explicit recommendations or signs on implementation instruments for carrying out the Act. The Commission is just a recommending body with no formal authority; if any of its recommendations are not adopted by the government, it cannot take any action.[28]

8. Water Act 2013:

Based on the National Water Policy, the Water Act of 2013 was enacted which aims to promote the integrated development, management, extraction, distribution, utilization, protection, and

[26] Asaduzzaman & Ahmed Deepto, Environment Laws and Courts Exist, but No Cases, *Prothom Alo* (Dhaka, Mar. 13, 2021).
[27] Imtiaz Ahmed Sajal, Feasibility of Brick Kiln Control Act, *Daily Star* (Dhaka, May 17, 2016).
[28] Id.

conservation of water resources in Bangladesh. The National Water Resources Council was established by this Act. The decisions of the Council are carried out by an Executive Committee under the Ministry of Water Resources. Individuals or organizations are not permitted to collect, distribute, use, develop, protect, or conserve water resources without prior approval from the Executive Committee, nor to construct structures that hinder the natural flow of rivers permitted. But there are some shortcomings of this Act:[29]

1. In the lack of a specific assurance from the government to ensure the quality of water for a range of useful purposes, as described in the Environmental Conservation Act of 1995, the Act remains ambiguous.

2. This law contradicts the Environment Conservation Act of 1995.

3. Punishment for industrial discharges is not provided in this Act.

4. There are no provisions for establishing discharge criteria or for the establishment of Effluent Treatment Plants (ETPs) or Waste Water Treatment Plants (WWTPs). Its primary interest is water management.

5. The maximum penalty for offenses is five years in prison and/or Tk.10,000 fine. Because the monetary penalty is so minor, many people may choose to pay the fee rather than observe the law. The Act does not address adequate penalty for water quality degradation caused by industrial discharge and other pollution sources.

6. Non-point water pollution sources such as fertilizer and pesticides are not regulated under the Water Act of 2013.

Role of Judiciary in regulating Water Pollution:

The Supreme Court has made a significant contribution to the reduction of water pollution by rendering significant rulings in Public Interest Litigation (PIL) cases brought by either individuals or non-governmental organizations (NGOs).

In the case of **Dr. M. Farooque vs. Bangladesh** the Appellate Division ruled that, "Our

[29] Y. Wang & M.N. Islam, Legal Institutional Inefficiency and Water Pollution Problem in Bangladesh, 4(2) *Res. & Env't Econ.* 147 (2022).

constitution's Articles 31 and 32 protect the right to life as a fundamental right."[30] Its scope includes environmental conservation and preservation, ecological balance free of pollution of air and water, and sanitation, without which life is difficult to enjoy. Any act or omission contrary to this shall be considered a violation of the right to life."

In the case of **Human Rights and Peace for Bangladesh and others vs Bangladesh**, Human Rights and Peace for Bangladesh petitioned before the High Court Division with Writ Petition No. 3503 of 2009, challenging pollution, illegal encroachment, land filling, and the removal of temporary and permanent structures or buildings on the four rivers in and around Dhaka, namely the Buriganga, Turag, Balu, and Shitalakkha. In its Judgement High Court Division directed the Government to take 3 steps as follows;

1. To form a "National River Protection Commission" comprised of experts to clean up all rivers in the country and provide sufficient protection and management.

2. To implement the River Protection Commission's recommendations while developing short- and long-term policies to develop all of the rivers of the country.

3. To take the necessary, effective, and quick actions to restore navigability of the Buriganga, Turag, Balu, and Shitalakhya rivers.

The Hon'ble Court additionally directed the respondents:

1. To outline the original territories of the rivers through survey as per CS or RS Map and restore the said rivers to their original condition.

2. To declare the concerned rivers as ecologically critical areas

3. To remove all kind of obstruction from the rivers

4. To remove all unauthorized shops and structures from the riverfront.

5. Within 5 years, dredge the Jamuna-Dhaleswari, Dhaleswari-Buriganga, Old Brahmaputra-Bangshi-Turag, Jamuna-Punglikhal, Turag, and Tongi canals.

[30] *Dr. Mohiuddin Farooque v. Gov't of Bangladesh*, CA No. 24 of 1994, 47 DLR (AD) 1 (1995).

In light of this direction, the government established National River Protection Commission by passing National River Protection Commission Act, 2013. And Buriganga, Turag, Balu, and Shitalakhya were declared as ecologically critical area in September, 2009.[31] To remove permanent and temporary structure from the river bank BIWTA conducts regular evacuation campaign. This campaign often obstructed by the illegal encroacher. In 2010, the government embarked on the five- year Buriganga River Restoration Project, which encompassed the New Dhaleswari-Pungli-Bangshi-Turag-Buriganga river system, with a Tk 944 crore outlay to restore the rivers through dredging a 162-kilometer river system. Though the estimated project period has been elapsed no work has fully been done.

Although the BWBD began river dredging operations in 2012, it was discontinued after a year due to a lack of dredger and enough funding. So far, the government has only allotted roughly Tk 104 crore for its implementation. According to Bangladesh Water Development Board chief engineer (central zone) and project director Abul Kalam Azad, the biggest impediments to project implementation are a lack of funds, unplanned development of structures like as bridges, and illegal encroachment on river banks. Former Water Resources Minister Anisul Islam Mahmud then stated that the Buriganga Restoration Project was undertaken to boost river flow in order to revitalize the rivers surrounding Dhaka, but sufficient funding could not be found to continue the project's operation. "As a result, we're looking for foreign funding to launch a new project in this regard,"

High Court Ruled Against Dhaka WASA; On December 8, 2019, the High Court Division bench of Justice Gobinda Chandra Tagore and Justice Mohammad Ullah observed that the time has come to declare Dhaka as an ecologically critical area due to widespread pollution while hearing a rule on contempt of court against the managing director of Dhaka WASA for providing false information about the pollution of the Buriganga River and the legality of the operation of mills and factories without ETPs.[32] The same bench ordered Dhaka Water Supply and Sewerage Authority (WASA) to remove all their sewerage connections connected to the Buriganga River within six months.

The court ordered the Department of Environment to shut down those industrial farms that discharge waste into the river and those that operate without Environmental Clearance

[31] BSS, Four Rivers Around City Declared Ecologically Critical Area, *Daily Star* (Dhaka, Nov. 24, 2009).
[32] *Human Rights & Peace for Bangladesh v. Bangladesh*, Writ Petition No. 3503 of 2010 (H.C. Div., Sup. Ct. Bangl.).

Certificate. The Court also ordered BIWTA to take action to stop any further sewer lines on both banks of the river and to provide a compliance report. On November 17, 2019, the High Court ordered the Department of Environment to shut down 27 establishments along the Buriganga within 15 days for lack of environmental clearance certificate.

Human Rights and Peace for Bangladesh (HRPB) vs Bangladesh (Turag River Case): In Writ Petition No. 13989 of 2016 filed by Human Rights and Peace for Bangladesh (HRPB), The High Court Division rules that the Turag River and all other rivers in the country are "living entities" with rights as "legal persons." The National River Conservation Commission is recognized as acting "in loco parentis" (legal guardian) for all rivers in Bangladesh in order to maintain and protect them from encroachment and pollution in this historic decision.

In order to defend the rights of the rivers and the riparian ecosystems, the Commission will act as their protector. In addition, the ruling allows for the enforcement of river rights against both private and public (government) enterprises. The High Court Division gave some important directions in this case:[33]

1. Precautionary Principle and Polluters' Pay Principle are to be treated as the part of the laws of our country.

2. Before embarking on any new project involving rivers, canals, or water bodies, all concerned authorities, including the Planning Commission, LGED, Water Development Board, BIWTA, and BADC, must follow the recommendations of the National River Conservation Commission (NRCC) and obtain a No Objection Certificate (NOC) from the NRCC.

3. To take necessary actions to amend the National River Conservation Commission Act 2013 by inserting provisions of criminal offences for river encroachment and pollution with greater punishments and fines as well as with procedure of institution of case, its investigation and trail.

4. Because the environment, climate, water lands, sea, sea-beach, river, river foreshore, canal-bill, hawor-bawor, nala, jhil, and all open water bodies are Public Trust Property,

[33] *Human Rights & Peace for Bangladesh v. Bangladesh*, Writ Petition No. 13989 of 2016 (H.C. Div., Sup. Ct. Bangl.).

Bangladesh Bank is directed to issue a circular to all Scheduled Banks in Bangladesh declaring any institution, company, or person involved in encroachment or pollution of such lands ineligible for any loans.

5. The Election Commission is mandated to bar all encroachers and pollutants of aforesaid properties from running in any sort of election, including Union, Upozila, Municipality, Zila Parishad, and National Parliament elections.

6. The Secretary of Ministry of Education is directed to incorporate the subject of river protection and pollution into the curriculum of schools, colleges, and universities in order to improve student awareness.

Furthermore, the high court has stated clearly that all of these directions will be considered part of the current laws of the land. But those directions are yet to implement.

Role of Water Governance Bodies in controlling pollution:

1. **Department of Environment:**

The Department of Environment's comprehensive mandate is to maintain environmental conservation, improvement of environmental standards, and control and mitigation of environmental pollution, as outlined in the Bangladesh Environment Conservation Act of 1995. DoE is also empowered to monitor environmental quality, issue environmental clearance certificate, comply and enforce environmental regulations, declare ecologically critical area and deposing environmental complaints. But DoE has some functional constraints as follows;[34]

1. DOE lacks the requisite manpower and technical competence.

2. DoE has given unfettered power for issuing environmental clearance certificate. It has absolute power to accept or reject any application which may promote corruption.

3. DoE is responsible only for the mandates outlined in the Bangladesh Environment Conservation Act of 1995. It is not empowered or held responsible to implement other

[34] Md. Al-Ifran Hossain Mollah, Department of Environment (DOE) and Its Role in Protecting the Environment of Bangladesh, https://www.academia.edu/3832861/Department_of_Environment_and_its_role_in_protecting_the_environment_of_Bangladesh (last visited May 1, 2025).

environment related laws.

4. Most of the projects under DoE depend on foreign funding.

5. In case of Ecologically critical area, DoE haphazardly perform their obligation just by declaring. It does not even give specific direction what measures should be undertake for their actual protection. In BELA v. Secretary, MoEF & others case, BELA sought protective measures to conserve Sonadia Island as an ECA. The High Court Division after hearing the petition issued a Rule Nisi directing the respondents to show cause why they should not be compelled to undertake protective measures required by Section 5 of the Environment Conservation Act of 1995 to preserve Sonadia Island as an ECA. Its prove that though Sonadia Island was declared ECA in 1999, no protective measures were taken by DoE until the ruling of the High Court.

6. Every year, the Department of Environment develops and revises its strategic plans, but only a small percentage of them are implemented within the time limit specified. Most of their projects are stopped midway or are shelved for years.

7. Most of the projects and initiatives failed due to the lack in co-ordination between other government bodies.

2. Bangladesh Water Development Board:

The Bangladesh Water Development Board (BWDB) is a government authority responsible to manage surface and ground water. The BWDB is the primary implementing organization for almost all water-related projects, including macroenvironmental protection such as flood control. Some of these projects are viewed as having societal significance, while others are viewed as contentious. The problem stems from a lack of community involvement in the planning process. According to the Master Plan for Agricultural Development in Coastal Region of Bangladesh 2013, the Bangladesh Water Development Board lacks a framework to deal with land use tradeoffs. A sustainable institutional framework is not yet introduced for the Bangladesh Water Development Board (BWDB) to implement the said Master Plan.

3. National River Conservation Commission (NRCC):

National River Conservation Commission (NRCC) has been identified as legal guardian for all

the rivers by the Apex Court of Bangladesh. The Court also entrusted the NRCC with the role of river protection and development. As per the direction of the court the Government enacted National River Conservation Commission Act, 2013, and form the Commission in September 2014. According to the preamble, the Act was enacted "to establish a Commission to prevent illegal encroachment of rivers, water and environment pollution, river pollution caused by industries, illegal construction of structures, and various irregularities, and to ensure multi-dimensional use of rivers in socio-economic development, including recovery of natural flow of rivers, proper maintenance of rivers, and to make rivers navigable,". The preamble is consistent with the letter and spirit of the HCD's order, but the text of the statute is not. According to section 12 of the Act, the sole function of the NRCC is to make recommendations to the government for preventing pollution and illegal encroachment, eviction of illegal structures, excavation of extinct or dying rivers, ensuring ecological balance and sustainable river management, necessary changes in relevant laws, and overall river development. According to the preceding provision, the NRCC is just a recommending body with no legislative power of implementation. Moreover, the Commission has nothing to say when its recommendations are not considered by the concerned authorities. There is no penal provision which NRCC can impose to prevent river encroachment and pollution. So, it is clear that NRCC cannot take any independent action. That's why High Court Division in Turag River Case in 2019 gave new direction to the government to amend the National River Conservation Commission Act 2013 by inserting provisions of criminal offences for river encroachment and pollution with greater punishments and fines as well as with procedure of institution of case, its investigation and trail. In response to the Court's ruling The NRCC prepared a draft of 'The National River Conservation Commission Act, 2020. One of the objectives of the new law is to establish NRCC as an effective independent body. According to the proposed legislation, each division will have one or more special courts known as the 'River Conservation Tribunal,' which will be linked to the NRCC. But unfortunately, the draft is pending till now. It is not yet got the status of law.

4. Water Supply and Sewerage Authority (WASA):

Water Supply and Sewerage Authority (WASA) is a service-oriented autonomous commercial organization in the public sector responsible for providing water supply, sewerage disposal (wastewater), and storm water drainage services to metropolitan residents. WASA has over 8,000 kilometers of supply line, approximately 3,000 kilometers of which are derelict 150-

year-old pipes, for approximately 3.9 lakh connections in its 360 square kilometer service area.[35] It produces 255 million litres of water per day. But according to a Transparency International Bangladesh (TIB) report published on April 17, 2019, 91 percent of WASA consumers had to boil the supply water to make it drinkable, consuming Tk 332 crore in gas every year. According to the same report, about 45 percent of consumers do not receive sufficient quantities of water, and approximately 35 percent complain of poor-quality water. Moreover, on December 2, 2019, the Managing Director of WASA presented a report to the HC stating that there are 67 underground drains and sewerage lines connecting to the Buriganga River. Though WASA is responsible for proper disposal of waste water, they are directly disposing it into the river and polluting its water. Thus, the High Court Division ordered Dhaka Water Supply and Sewerage Authority (WASA) to remove their all-sewerage connections connected to the Buriganga River within six months. Dhaka WASA had been managing 26 canals spanning around 80 kilometers since 1986. During this long time those canals got more polluted and used to carry drainage water. No feasible measures taken to restore those canals in their original state. For this adversity, on 31 December, 2020, the two city corporations of Dhaka officially took charge from Wasa to maintain those 26 canals and drainage system.

5. Water Resource Planning Organization (WARPO):

Water Resources Planning Organization is an apex planning body in the water sector. It serves as a secretariat for the National Water Resources Council's Executive Committee. WARPO is in charge of drafting the National Water Management Plan, maintaining the National Water Resources Database, reviewing and declaring project proposals, providing technical support to the Planning Commission, and monitoring and evaluating the implementation of National Water Management Plan. WARPO is the primary authority in charge of implementing the Water Act of 2013. But the duties and responsibilities WARPO officials are not determined in Water Act, 2013. There is no specific provision in Water Act regarding institutional framework and financial mechanisms of WARPO. According to the National Water Management Plan (NWMP) 2001, all water- related projects will be coordinated at the national level by the Planning Commission, with specialized assistance from WARPO - and at the local level by District Committees under Local Government, with technical assistance from the Bangladesh

[35] Helemul Alam, Dhaka WASA's Legacy: A Decade of Failure and Inefficiency, *Daily Star* (Dhaka, July 29, 2020).

Water Development Board.

However, according to the Water Act 2013, WARPO will plan, design, monitor, and supervise all water-related projects in Bangladesh. This is a major legal inconsistency that will impede the Act's proper implementation. Moreover, WARPO is not empowered to make any environmental impact assessment before planning or implementing any water related project.

Role of NGO in Bangladesh:

NGOs undertake different programs to ensure pure drinking water and prevent pollution and have also exhibited notable success in afforestation programs. There are number of International and national NGOs working in Bangladesh. WaterAid is an international NGO that works only to ensure that everyone has access to clean water, toilets, and hygiene education. Since 1986, WaterAid has operated in Bangladesh. Since their founding, they have provided safe drinking water to 2,860,000 individuals and sanitation to 7,690,000.[36] Five thematic focal areas can be used to organize their work in Bangladesh: Rural WASH, urban WASH, peri-urban and small-town WASH, Equity and Inclusion and Climate Change. 63 projects are now being managed by WaterAid Bangladesh throughout 25 districts. Basmah is another organization which work to give access to clean water in remote and poor communities in Bangladesh. BASMAH has constructed hundreds of clean water wells, which provide free clean water to poor and needy people in Bangladesh's distant regions.[37] They cannot reach the large population lack of enough funding. Some of renowned NGO also filed various Public Interest Litigation for prevention of water pollution.

Recommendations:

1. We should adopt Anaerobic Digestion technique as waste to energy (WtE) conversion processes. This process is suitable to convert organic waste into electricity. In Bangladesh, as in other underdeveloped nations, the majority of garbage produced—68% to 81%—is organic waste. In Bangladesh, garbage contains around 60% water, 26% combustible components, and 18% ash. Waste containing less than 50% water, 25% or more combustible components, and less than 60% ash could be burned directly without the use of additional fuel38. Because of the predominance of organic waste,

[36] WaterAid, WaterAid Bangladesh, *Water Action Hub*, https://wateractionhub.org (last visited Dec. 21, 2024).
[37] BASMAH, Clean Water, https://basmah.org (last visited Dec. 21, 2024).

garbage in Bangladesh is not suitable for combustion because it contains more than 50% water. Anaerobic digestion to manage wastes with high water content is a viable alternative for underdeveloped countries. Under this process Wastewater, liquid wastes, digestate, and non-compostable materials (e.g., metals, plastics) can all be converted to methane, which can subsequently be utilized to generate heat and light. As primary constituent of natural gas is Methene, it can be directly used for residential purpose. Methane can also be converted to electricity via chemical conversion or gas-turbine generator set. While cost comparison between different types of conversion process Anaerobic Digestion is more cost effective than Incineration or Co- processing technique. For example In Jashore, country's first AD-based waste-to-energy plant went into operation in 2019.39 So, it can be implemented for Dhaka city as well.

2. Recycle Jar Ecosystem should be institutionalized. Recycling Glass and plastic waste can reduce water pollution extensively.

3. To accomplish sustainable waste management and energy generation, policymakers must work on multiple levels of the waste management system. Waste management should include reuse and waste minimization, which necessitates an integrated policy. This must contain two components: waste management that is sustainable and waste-to-energy generation. A program of this type should also target waste prevention, such as the use of polyethylene shopping bags, which are harmful to the environment and difficult to manage. To put this strategy into action, the authority should establish objectives and timelines. A sustainable waste management system with maximum energy recovery can be achieved if all of these procedures are followed. Separation of trash at the source is critical in this case. Waste of different kinds should be collected and carried separately and then recycling, anaerobic Digestion, incineration, gasification, or landfill with gas recovery process can be applied.

4. Environmental court should be established in every district and Appellate court should be established in every Division. The judge of the Environmental court should be appointed solely for environmental matter; he should not have any additional duty.

5. To improve the coordination between the Department of Environment and other government departments, the proper provisions and actions should be made.

6. Department of Environment should be made accountable for their activities.

7. Social awareness regarding various environmental issues should be expanded among mass people through mass media.

8. Environment conservation should be incorporated in our academic curriculum and more research should be conducted at university level.

9. National River Conservation Commission (NRCC) should be independent and their recommendations must have binding effect. And to prevent criminal offences against river and pollution a River conservation tribunal should be established.