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Balancing growth and river protection in Bangladesh's most important export industries

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Executive summary

This policy paper addresses the environmental, social, and regulatory complexities surrounding industrial production in Bangladesh as the country navigates its transition from a Least Developed Country to a Middle Income Country by 2026. The paper highlights the paradox of worsening pollution amidst a growing global environmental consciousness and examines how power dynamics in global supply chains influence state-market regulatory relationships.

Bangladesh, with its rapid economic transformation and central role in global supply chains, offers a critical case study. While the nation has seen remarkable progress since its independence, this has come at significant environmental and social costs. The rampant pollution of rivers poses multifaceted challenges, impacting agriculture, households, industries, and biodiversity. These issues underscore the urgency of effective interventions. The paper explores two notable developments:

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1. **The 2019 'Rights of Rivers' Verdict**: In a landmark decision, the Bangladesh High Court recognized the legal "rights" of rivers, a ruling intended to combat entrenched water pollution. The verdict set directives to empower the National River Conservation Commission (NRCC) and other regulatory bodies to act against river pollution and encroachment. This judgment highlights the evolving legal landscape and its implications for environmental governance.
2. **Private Governance and Regulatory Pressures**: The interface between private governance initiatives, such as corporate environmental responsibility programs, and regulatory frameworks is examined. These initiatives are scrutinized for their effectiveness in addressing environmental degradation and the power imbalances that emerge within global production hubs.

This paper assesses the intersection of state, market, and societal relationships and their consequences for tackling water pollution. It outlines implications for various stakeholders, including:

- **Factories and industries**: The need for stricter compliance with environmental regulations to reduce industrial pollution.
- **National policy and regulatory agencies**: Strengthening institutional capacity and enforcement mechanisms.
- **Civil society actors**: Mobilizing grassroots efforts to hold industries and regulators accountable.

The paper concludes by identifying avenues for future research, particularly on environmental regulation in the Global South, including exploring the contested dynamics of governance and the long-term effectiveness of legal and private-sector initiatives. By offering a snapshot of Bangladesh's current trajectory, the paper provides insights into the broader challenges of sustainable development, regulatory governance, and the global environmental movement.

Key messages

Context and challenges: Governance and institutional landscape

The water governance structure in Bangladesh is multi-tiered, involving national ministries, local governments, and international actors. However, the system faces several shortcomings:

- Policy Fragmentation: Overlapping mandates among agencies lead to inefficiencies and coordination challenges.
- Implementation Gaps: While policies like the National Water Policy (1999) exist, implementation often falls short due to limited resources and institutional capacity.
- Data and Monitoring Deficits: Inadequate hydrological data collection and sharing hinder effective decision-making and disaster preparedness.

The role of governance:

- Multiple state bodies are tasked with pollution regulation, yet overlapping mandates and weak coordination undermine their effectiveness.
- The Department of Environment (DoE) is hamstrung by inadequate resources and political interference, limiting its ability to enforce regulations and hold polluters accountable.
- The "Rights of Rivers" verdict represents a landmark legal framework for environmental protection, but its practical impact is constrained by the absence of robust enforcement mechanisms.

The role of private governance and industry:

- The RMG sector plays a dual role as both a driver of economic growth and a major source of industrial pollution.
- Global initiatives like the Higg Index have pushed for greener practices, but there is a risk of "greenwashing" if these efforts are not supported by robust state regulation.
- A tripartite interaction between global private governance, domestic industries, and state regulation shapes the landscape of pollution control, highlighting the need for a unified approach.

The role of civil society:

- Civil society actors, including local advocacy groups, have struggled to influence policy due to structural barriers and limited capacity.
- Vulnerable populations, such as *basti* dwellers, are disproportionately affected by water pollution, underscoring the need for inclusive policymaking.
- Translation of legal frameworks like the "Rights of Rivers" verdict into actionable outcomes requires stronger advocacy and public awareness campaigns.

Outlook:

1. Balancing economic growth and river protection is a significant undertaking, but not an impossible one. Bangladesh must adopt a coordinated, multi-stakeholder approach to address systemic challenges.
2. Future research should focus on innovative policy tools and mechanisms for fostering public-private partnerships and improving enforcement.
3. The role of international donors and organizations, such as the World Bank, is critical in providing technical and financial support for institutional reform and capacity building.

Introduction: Bangladesh in 2024

The shift of industrial production following the globalization of trade and capital built palaces of merchandise in the global North whilst leaving a dismal legacy of pollution concentrated in the global South (Nixon, 2011). Now, decades into an increasingly global environmental movement, an unwelcome paradox emerges: pollution worsens even as concern grows for the integrity of ecosystems and the disproportionate impact of pollution on vulnerable social groups. As donor funding has decreased in relative importance in light of rising gross national income, private governance initiatives have assumed greater significance in shaping the character of state-market linkages. With pollution on the rise (Landrigan et al., 2018) and corporate environmental responsibility claims under scrutiny, what may we learn about how power relations forged in the hubs of global production impact the character of regulatory relationships?

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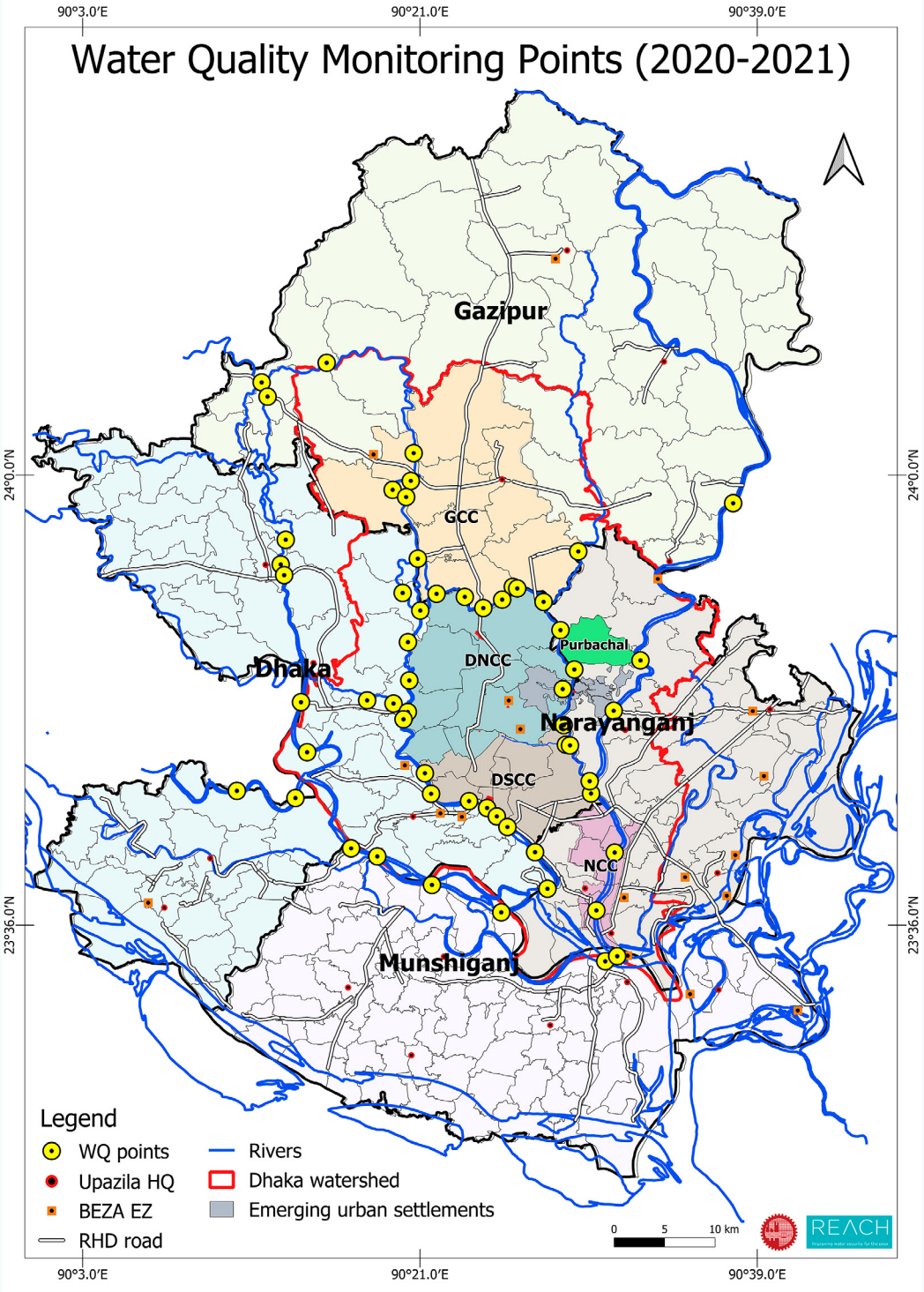
Bangladesh provides a useful vantage point to examine these issues. In the five decades since achieving independence, Bangladesh has become a destination for global supply chains, resulting in extraordinary economic development and societal change. Yet, as Bangladesh prepares to formally shift from 'Least Developed Country' to 'Middle Income Country' status by the end of 2026, economic growth has come at the expense of hundreds of rivers and riverbank dwellers in informal settlements called *basti* (Hoque et al., 2021). Entrenched water pollution poses challenges for the many uses of water: agriculture, households, industry, and biodiversity and is seen as symbolic of societal decline. Indeed, Bengali script emblazoned in white paint on a bridge traversing the Buriganga River, a major artery of the waterways forming the historic lifeblood of the Bangladeshi economy, translates to: 'If the river lives, the country will live–and bring back golden Bangladesh.' (Peters, 2022) (Figure 1). In other words, addressing pollution is an urgent task, as well as a tall order.

Figure 1: A bridge crossing the Buriganga river in Dhaka, Bangladesh. The Bengali text reads "*Nodi bachle bachbe desh, firiye anbo shonar desh*". This translates to "If the river lives, the country will live – and bring back golden Bangladesh".

Photo © Rebecca Peters

Through research conducted 2017 to 2022, this paper assesses this critical juncture in Bangladesh's trajectory at a time when attention to global environmental issues is at a historic high (Smith, 2021; BBC, 2021). By foregrounding a vantage point from Bangladesh, this research sought to understand how the exertion of regulatory power within a particular political economy becomes implicated in mandates for economic growth and subject to multiple sources of influence. The research focused on the urban rivers, communities, factories, and government agencies of Dhaka, drawing on extensive fieldwork, secondary literature, 10 years of DOE-originated factory penalty data, and 140 interviews with government policy makers, regulatory agencies, factory owners, factory auditors, brand and retail representatives, civil society leaders, lawyers, judges, and journalists. The research was guided by three questions: How do actors and institutions across civil society, national government bodies, and the private sector shape regulatory responses to water pollution? How do state regulatory agencies and private sector actors shape their relationship with one another? And, how do civil society actors negotiate access to regulatory authority? In answering these questions, this political economy study concurs with research showing how available but incomplete factory-level penalty data may be combined with qualitative research on the ways that firms avoid penalties by investing in uninspectability (Gupta et al., 2019; Heyes, 1994) or concealment activity (Linder & McBride, 1984). Based on the research findings, the paper offers recommendations including for three key policy interventions: the National Industrial Water Use Policy, led by the Water Resources Planning Organization (WARPO); the National Water Quality Monitoring System (WQMS) (REACH, 2024), led by a multi-stakeholder partnership of government agencies and private industries in collaboration with the World Bank Water Resources Group 2030 and the Department of the Environment (DoE) (Figure 2); and (3) the Ready Made Garment (RMG) Sustainability Council (RSC), launched in 2020 and led by the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) to develop an industry-led environmental sustainability mandate.

Figure 2: Map of Greater Dhaka Watershed showing the location of sampling points under the REACH programme (2020-2021). REACH's water quality monitoring work was conducted in partnership with the Bangladesh University of Engineering and Technology and has contributed to the design of a new enhanced Water Quality Monitoring network with 20 automated stations installed across Dhaka's rivers. Source: REACH, 2024. REACH Story of Change: Monitoring and modelling river water quality to protect Dhaka's river system.



This paper first traces two circumstances amplified since the onset of the Covid-19 pandemic: the 2019 'rights of rivers' verdict of the Bangladesh High Court, and the changing interface of private governance programs and regulatory pressures on exporting factories. Building on these reflections, the paper then goes on to assess the regulation of water pollution from the intersection of state, market, and society relationships. The subsequent section assesses the implications of this research for factories, national policy and regulatory agencies, and civil society actors. The paper concludes with avenues for future research to analyze environmental regulation in the global South.

Rights of rivers High Court verdict

The Daily Star headline minced no words: *Time to declare Turag dead: River grabbers appear mightier than [government], judiciary; all steps go in vain*. This 2016 headline set in motion a series of court hearings that redefined the Bangladeshi legal landscape. Nearly two and half years after the article's release, the Bangladesh High Court reached a landmark verdict establishing 'rights for rivers' in February 2019. The 456-page written decision, released in July 2019, contained seventeen directives for immediate action, outlined in the Appendix.[1] One of these directives empowered the National River Conservation Commission (NRCC), an agency currently administratively located within the Ministry of Shipping, to act "*in loco parentis*"[2] for rivers. Another directive to the Bangladesh Bank required a circular declaring "any institution, company, or person involved in river encroachment or pollution" to be ineligible for loans (High Court 2019, 456. See Appendix). The determination of 'encroachment' would be based on the "original territory" of the rivers, based on historical maps.[3] The decision also asked the National Election Commission to disqualify identified encroachers or polluters from contesting any type of elections, including Parliamentary polls, and to submit a list of disqualified people to the court. The verdict was largely upheld in an appeal, renewing pressure for addressing the longstanding impact of pollution on rivers and communities.[4]

The article author's bleak view sharply contrasted with celebrations of the verdict, largely from organizations based in the global North. While the concept of legal rights for non-human entities is not new, only recently has it been applied to nature (Stone, 1972; O'Donnell & Talbot-Jones, 2018). The application of legal rights to specific natural features, particularly rivers, built on international movements to pass legislation recognizing the rights of nature.[5] Whereas other countries including New Zealand and the Indian state of Uttarakhand granted rights to individual rivers, the Bangladesh case was the first of its kind to grant legal protections to all national rivers.[6]

1 The English translation is 454 pages; the original, which is about half English, half Bengali, is 283 pages.

2 Meaning 'in place of a parent', or in this case, for the NRCC to have legal responsibility to carry out functions established in the verdict. From the English translation of the original verdict (Human Rights and Peace for Bangladesh v. The Government of Bangladesh, Writ Petition No. 13989/2016, 96).

3 It should be noted that the selection of maps and their demarcations is extremely controversial; the maps are not (yet) publicly accessible, but the implications of returning rivers to a historic baseline throws up significant practical barriers.

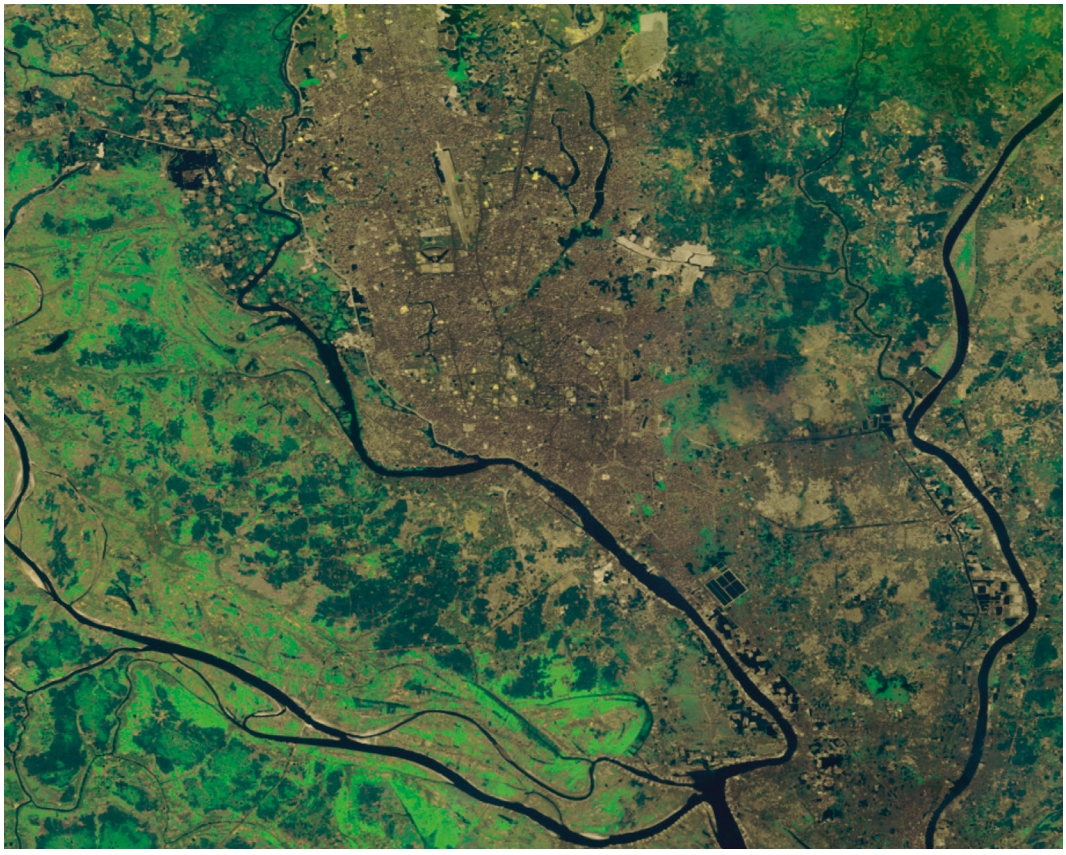
4 A Daily Star article released two days after the verdict posed the question "will the HC judgement be enough to save our rivers?", to which the author immediately responded: "The answer is probably no" (Khalequzzaman 2019).

5 For example, as in Ecuador and Bolivia.

6 The New Zealand case granted specific legal rights to the Whanganui River; the case in India granted legal rights to the Yamuna and the Ganges rivers.

Reflecting the optimism of the 'legal personhood' movement, the U.S.-based organizations Earth Law Center and International Rivers argued that a universal declaration of rights for rivers "will foster the creation of a new legal and social paradigm based on living in harmony with nature and respecting both the rights of nature and human rights." (Universal Declaration of the Rights of Rivers Preamble, 2020). However, this new paradigm has not arrived in Bangladesh. After the High Court verdict, the Inland Water Transport Authority (IWTA) led eviction drives of *basti*, or informal settlement, dwellers from their homes to clear riverine land of unpermitted structures, rather than enforce regulations on industries (Chandran, 2019). In an editorial reflecting on the International Day of Action for Rivers in March 2022, the Daily Star reported on data from the Dhaka-based River and Delta Research Centre that the "quantity of the occupied land [has] increased" since the verdict (Roy, 2022). The former NRCC chairman argued that the "threat [*basti* dwellers] pose to rivers is insignificant compared to that by large industries, developers, politically influential people and government bodies." (Alam Alvi, 2023) While *basti* dwellers awaited resettlement or struggled to rebuild precarious riverine-based structures, factories continued to occupy riverbanks.

The High Court verdict and intersecting roles of the judiciary and executive branches have shifted the foundations for the distribution of regulatory power and shaped the political economy of water pollution regulation. Yet only five years have passed since the verdict; more time may be needed for implementation, particularly with significant state and private sector attention and energy diverted to manage the pandemic response since March 2020. However, the muted outcome to date compared with the faith placed in the verdict speaks to enduring belief in the ability of formal law and institutions to deliver regulatory change. The verdict represented a window of hope for aggrieved communities living in polluted riverine areas; yet, this hope has since been eroded by the IWTA evictions, the stubborn patterns of absent enforcement, and the saga of the leather tannery relocation.



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The widespread optimism in the global North regarding the ability of law to drive change clashes with the reality in Bangladesh, where beleaguered environmental leaders face a discouraging outlook. While a more activist judiciary has taken up public interest litigation cases since 1994, the executive branch has not followed through on the institutional reform needed to ensure the independence of regulatory agencies including the NRCC and the Department of Environment (DoE). This judicial action-executive inaction divide exhibits that 'the state' is not homogenous, nor uniformly responsive to political-economic pressures. Moreover, resistance to change shows how efforts to achieve redistribution of regulatory power may be subverted by the significant influence of private industry, the hamstrung role of civil society groups, and the high degree of autonomy of domestic state regulatory institutions. Under these conditions, public interest litigation may result in a landmark verdict (granting legal rights to all rivers), but in practice have limited environmental protection benefit and face perverse outcomes (evictions of riverine *basti* residents) without corresponding institutional or political change.

Private governance initiatives

Compared with the High Court verdict, external private governance programs exert outsize impact on shaping the regulatory operating environment. This influence is exemplified in debates on the legitimacy of garment and tannery sector sustainability metrics. Now, private governance programs' vulnerabilities to external scrutiny are illustrated by the controversy surrounding the Higg Index, the de facto global sustainability assessment tool used by brands and retailers including Patagonia, H&M, and Walmart.[7] The Higg Index is a metric used in private environmental governance programs to produce lifecycle assessment (LCA) analysis of fabrics and materials used in apparel production and to conduct factory sustainability audits; factories and brands sign up and share their environmental performance score to show their sustainability bona fides. In June 2022, the Norwegian Consumer Authority (NCA), the country's consumer watchdog group, raised the possibility of banning public-facing sustainability labels for individual products on the basis of violating the country's Marketing Act (Tabuchi, 2022). The suspension of the use of the Higg Index by its owner, the Netherlands-based Sustainable Apparel Coalition (SAC), was announced by the CEO in a written statement, arguing that the SAC recognized "the additional challenges that come from translating LCA data to consumer facing information. [The SAC] will be working with our program partners directly to determine how this will work operationally and hope to reactivate the program upon alignment with the NCA and other regulatory bodies." (Razvi, 2022).

Further investigation into the index, and the stringent anti-greenwashing stance of a number of national regulators like the NCA, suggest that this 'alignment' may be challenging for private governance entities to overcome. Though the methodology of how the Higg Index is calculated is not available to external examination, the SAC (2022) maintains that the index is underpinned by "independent, scientifically reviewed data." A review of the input data contends the accuracy of this claim. For example, the index rates polyester as a 'sustainable fabric' based on data supplied by a plastics-industry group of based on European methods of polyester production; however, most polyester is made in Asia with non-renewable energy sources and less regulated environmental standards (Tabuchi, 2022).

7 Because this issue is so recent, there is no peer reviewed literature on the incident. Therefore, a variety of trade and news publications were consulted.

This misrepresentation of data allows the SAC make certain claims, and the high rating for polyester stands to benefit the membership base of the SAC, which are largely the same 'fast fashion' companies using polyester in the majority of their apparel products. Alternatively, silk garnered an unfavorable rating based on a 2014 study from Oxford-based researchers of 100 farmers using irrigated land in a state in India (Astudillo et al., 2014). The abstraction of a small, limited study to use for a standard global index raises significant questions about the underlying methodology of private governance and sustainability reporting programs.

While brands and retailers in the global North grapple with the regulatory implications of the collapse of the Higg Index in light of corporate sustainability reporting requirements, garment and leather factory owners in Bangladesh face an increasingly fragmented landscape of international private governance programs. Factory owners continue to manage the perceived environment-economic tradeoffs: to allocate financial resources to comply with ever-changing and often contradictory sustainability standards from buyers to be able to sell to more regulated markets, or to supply goods at a lower price to less regulated markets. Factories unable to meet the criteria of buyers from the global North may resort to the latter strategy, as the increase of volume of export trade with China, which is less concerned than U.S., Canadian, or European buyers with environmental standards. While these options may be framed in the economics literature as a matter of rational choice, such tradeoffs are shaped by multiple forces, including the availability of capital to upgrade facilities, the low prices paid for apparel by buyers in the global North, taxes on imported water treatment technology that is not domestically available, and other constraints of globalized supply chains. This bifurcation in factory strategies enables better-resourced factories to upgrade and pass audits, while other factories remain uncertified and perhaps less likely or able to attain improvements in water effluent quality. Though this research has shown that passing a private audit and achieving a certification does not ensure that water effluent quality standards are achieved, the incentives for factories able to export to more regulated markets in the global North to remain compliant are higher than the alternative.

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This bifurcation has implications for the direction of environmental regulation and economic development pursued in Bangladesh. The tensions of private governance programs in the global North and domestic industries in the global South come as the European Union develops new laws to drive circularity in the apparel industry.[8] The forthcoming European Union-wide apparel Extended Producer Responsibility (EPR) law stands to shift regulatory relations by obliging producers to internalize the costs associated with recycling the post-consumer textiles they sell. However, without a stronger evidence base, the potential benefits and drawbacks are unclear. For example, under France's textile EPR initiated in 2007, textile companies selling to the French market became responsible for recycling or otherwise properly disposing of products.[9] The benefits of the program included significantly reducing the volume textiles sent to municipal solid waste. However, once leaving France, the fate of the goods is unknown; a substantial amount of what is collected for reuse ends up in African countries and goods for recycling are exported to Asia. The influx of these goods is not always properly managed, leading to headlines in the global North regarding how "fast fashion is using the global South as a dumping ground for textile waste." (Wohlemuth, 2022).

The rights of rivers verdict, shifts in private governance, and changing patterns of economic development, trade, and regulation leave an ambiguous future for redressing water pollution in Bangladesh. The resulting uncertainties increases the stakes of understanding the implications of state, market, and society relations for how regulatory power is exerted to address water pollution.

Insights for scholars and practitioners

Implications for political economy and regulatory scholarship

Prevailing economics and political science scholarship about regulation suggests that regulation primarily or only comes from the state. An incomplete picture remains of how national political dynamics interface with private governance programs and domestic civil society actions. To address this gap, this research applied the decentered regulation concept to explore the emergence of normalized non-compliance with water quality regulation. The research extended the political-strategic framework of Marques and Eberlein (2021) by applying the lenses of autonomy, fragmentation, and the public-private distinction to a historical analysis of the consequences of the interface of the national government, leather tanneries, and transnational private regulatory interests. The research examined how regulatory power is distributed, contested, and pursued by contending actors and institutions. At the heart of this research is an interest in how relationships shape consequences for regulatory action.

8 Circular economy may be defined as a "development model" that aims to "minimise the negative impact of human activities by applying principles related to the '3 Rs': reduce, reuse, and recycle" and "to maintain the highest utility and value of products, components, and materials at all times" (Scarpellini et al., 2019, 2211).

9 Sellers have two ways to comply: (1) contributing financially to a third-party producer responsibility organization or (2) establishing an in-house take-back program approved by the French regulatory bodies (Bukhari et al. 2018). 'Take-back' programs usually occur in one of two ways: (1) A specific brand allows customers to bring back their old clothes from that brand to be collected and either resold, recycled, or discarded; or (2) general recycling schemes, where retailers will collect any apparel from any brand and work with a recycler to recycle the apparel. (Bukhari et al., 2018.)

The answers to these questions suggest that the uptake and direction of regulation related to the management of water pollution is characterized by the elements of decentered regulation – complexity, fragmentation, autonomy, interdependence, and the collapse of the public-private distinction.

First, a relational approach to how the institutions and actors of state, market, and society interface extended to how regulatory power is understood in the context of shifting relations between the global North and South, as Southern governments and private sector entities exert their agency within their structural-institutional context. This relational view aimed to extend the scholarship on decentered regulation to nuance the elements first introduced by Black (2001, 2002), particularly related to autonomy, fragmentation, and the collapse of the public-private distinction. By focusing on decentered regulation as a lens with which to study regulatory relations, the research refocused attention on how private sector actors make use of linkages to gain access to state power, while applying their autonomy to reject regulatory enforcement. For example, in contrast with siloed economics-based notions of regulatory failure or political science concepts of political control or state capacity, the integrated political economy-decentered regulation analysis in this research finds the DoE's approach to regulation is characterized by a retreatist pattern. By adopting a retreatist style of enforcement, the DOE and the factories it levies penalties on shape mutually their relationship through negotiated compliance strategies. The research found that civil society actors have utilized public interest litigation when seeking access and redress through the courts in their efforts to exert regulatory power. However, this strategy was found to be limited by the high autonomy of leather tanneries and inability of state agencies to change retreatist patterns to enforce regulation.

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Second, domestic regulatory institutions and state government, civil society, and private governance interact in response to regulatory change remains understudied. Drawing from comparative analysis of scholarship in other countries in global South, this research extended the concept of dimensions of enforcement style into decentered regulation. By doing so, this perspective develops deeper understanding of penalties for polluters as a contested arena of resistance, negotiation, and discretion. This research considered how low degrees of state autonomy interact with a high degree of autonomy for private governance actors, garment factories, and tanneries. This low state autonomy-high private sector autonomy is brought into conversation with Marques and Eberlein's (2021) political-strategic framework to examine how a state may initially reject, then accept the influence of private governance reforms, but that if sufficient domestic private sector rejection occurs, the intended regulatory reforms will not sufficiently embed. As a consequence of this distribution of autonomy and influence, both state and market-led regulatory efforts are limited by the DoE's retreatist approach to regulation, which reflects both material limitations in capacity to enforce and deference to private sector actors in garments and leather tanning industries.

Third, regulatory power as exerted by specific actors and institutions is both diffuse and embedded, driven by strong personalities with deep personal networks, yet still constrained by shifts in political tides. By foregrounding the intersection of relationships in this research, analysis may expand beyond a narrow reading of the state's use of force to a longer temporal arc that includes multiple actors and institutions through which regulation is contested (Shover et al., 1986). When understood through this lens, power is less a matter of 'having' power or 'not having' power, but about the distribution of ability to exert influence across a variety of dimensions based on different characteristics. Viewed this way, civil society groups do exert regulatory power by effectively using the linkages made available to them through public interest litigation. However, this society-driven exertion of power is limited by the high degree of autonomy of private actors and the low capacity of state regulatory agencies to coerce compliance or carry out enforcement.

Fourth, from the decentered view we may learn something of the limitations and possibilities of regulation and exertions of regulatory power to achieve change in material conditions. Political economic analysis suggests that the limitations of environmental regulatory effectiveness are "institutionalized in the enduring structures" of state, society, and market relations in a given political economy (Yeager, 1991).[10] Though these limits are not fixed, they are more "stable and forceful" than episodes of economic growth, political change, or corruption (Yeager, 1991; ix). Narrow interpretations of environmental regulation and private governance have yielded instrumental understandings of regulatory challenges, but regulatory change without corresponding opportunities to redistribute power will mean little for those most impacted by the consequences of prioritizing economic growth at the expense of environmental and social protection. The experiences of these communities are not represented or valued by static models of regulatory failure or efficiency. In this way, understanding regulation as dynamic and embedded in enduring relations of power creates analytical pathways to imagine how a 'social sphere' (Lange, 2013) may harness the agency to respond to risks posed by environmental pollution and address accountability deficits (Mason, 2008).

10 For further elaboration, see Braithwaite (2007) and Polanyi (1944).

Last, using multiple methodological approaches to study regulatory relationships and behaviour may support analysis in circumstances when regulatory data may be limited, of low quality, or inaccessible to the public. Rather than rely solely on or be constrained by the availability of secondary or country-level penalty data, qualitative research methods are well-suited to assessing regulatory conditions. If official penalty data are available, complementing analysis of this data with examination of the domestic policy landscape and legal framework may offer a deeper understanding of what accounts for variation in penalty frequency, payment rates, or ability of firms to contest the penalty. Moreover, in using qualitative-led methods, the research foregrounded accounts of regulatory dynamics which aided in thinking relationally across state, market, and society spheres. This approach contributed the voices and perspectives of a range of actors and institutions not all often represented in scholarship on environmental regulation in the global South.

Implications for Bangladeshi factories, state policy, and regulatory agencies

The findings of this research are intended to generate policy-applicable ideas. Specifically, the contributions of this research may be applied to consider the implications for three distinct policy plans currently underway in Bangladesh: (1) the National Industrial Water Use Policy, led by the Water Resources Planning Organization (WARPO); (2) the National Water Quality Monitoring System (WQMS); and (3) the RMG Sustainability Council (RSC). These emerging programs are too recent to assess their outcomes in shifting the regulatory landscape toward more effective enforcement, compliance, and deterrence. However, based on the results of this research, these entry points may identify regulatory trends that historically have contributed to normalized non-compliance and prevented meaningful improvements to reduce pollution.

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First, the WARPO-led Industrial Water Use Policy seeks to (1) optimize industrial water use efficiency; (2) reduce pollution; and (3) ensure effective monitoring for compliance (Uddin, 2024). However, this research has shown that policy interventions to date are either too unevenly applied to achieve widespread impact (such as fines), or are too diffuse to be accountable (such as audits associated with private governance). Though the Industrial Water Use Policy aims to build from World Bank advocacy for a 'rule-based system' in which the state penalizes polluters, the findings suggest that increasing fines without a simultaneous increase in the DoE's bargaining power may continue a pattern of non-payment or firms with a high degree of autonomy disputing fines in court (World Bank Country Environmental Analysis, 2018). Further, without a concurrent increase in DoE leverage, retreatist state environmental enforcement may continue. As a result, without motivation to comply generally, the policy change represented by the Industrial Water Use Policy is unlikely substantially alter behavior.[11] Further, interpretation of the penalty fines and interview data suggests that firms will not respond to regulations evenly; rather, their capacity to respond to or evade rules relates to their relative political-economic position. However, the Policy may also create a new basis to build the legitimacy of state regulation with industry. The Policy could shift the regulatory approach for non-compliant factories: rather than the arbitrary application of penalties, the Policy could create a new basis to collect detailed information on the processes of polluting industries, and then respond with consultations to factories without in-house expertise or those struggling to manage environmental aspects of factory production.

Second, for the WQMS to achieve its aims, government policymakers must critically assess the role of information in the landscape of fragmented knowledge and power. For example, the WQMS is led by a multi-stakeholder partnership of government agencies and private industries in collaboration with the World Bank Water Resources Group 2030 and the DoE. It strives to "gather maximum information at minimum effort and cost."[12] Rather than creating a parallel information system, integrating the WQMS with existing but underutilized approaches to data collection would allow the multi-stakeholder partnership and DoE to apply lessons from similar contexts.[13] For instance, the Bangladesh Center for Environmental and Geographic Information Services (CEGIS) under the Ministry of Water Resources (MoWR) has collected extensive water quality data. Gathering these data alongside public disclosure or public rating programs such as pollutant release and transfer registries (PRTRs) or performance evaluation and ratings programs (PERPs) have supported regulatory compliance under certain conditions in other South and Southeast Asian countries (Powers et al., 2011; Garcia et al., 2009). Such programs offer a compelling opportunity as administration costs diminish due to the spread of information technology (Dasgupta et al., 2006).

11 Policy proposal based on a draft document of the DoE fine schedule (2019).

12 Draft WQMS document (2017).

13 The GoB acknowledges this in the paper dedicated to the environment and climate change section of the 7th Five Year Plan (FY2016-2020) highlights issues that relate to the need to improve environmental governance. It notes that "Policies to combat pollution are largely ineffective because of loose regulatory practices. Governance elements such as information access, transparency, accountable decision-making, management tools all need improvement. The GoB realizes that environmental policies need to instil market-based incentives to firms to encourage good environmental performance. Access to information and knowledge about risks could greatly reduce the harmful impacts of environmental factors" (2015; 425).

Last, based on the decentered regulatory approach, the RSC could test the adoption of hybrid approaches, such as professionalizing and licensing ETP operators. Additionally, the RSC is positioned to strengthen externally led compliance programs by advocating to close the gap between industry and government standards for wastewater quality and improve oversight of brand compliance programs. By being agnostic about specific programs at risk of defaulting, such as the Higg Index, this approach may allow complementary programs such as Zero Discharge of Hazardous Chemicals that outline roadmaps for industries to phase out toxic chemicals from their supply chains and for governments to develop more effective regulatory strategies to monitor and control chemical production, storage, and use in industrial application. Other research finds that "regulatory and market-based pressures do not have a direct impact on toxic releases but an indirect effect by encouraging institutional changes in the management of environmental concerns." (Anton et al., 2004; 632). However, developing structural interventions–such as through release of firm-level environmental performance (Dasgupta et al. 2001), incorporating environmental criteria into credit risk management (Weber et al., 2015), or import countries adopting extended producer responsibility (Niinimäki et al., 2020) – require systematic cooperation and would be outside the remit of the RSC. In this regard, international retailers and brands remain in a stronger position to close loopholes in auditing systems and align their purchasing with responsible sourcing to advance a tangible intervention point.

Implications for civil society

This research's examination of environmental regulation points to the role of civil society groups, particularly those involved in social movement building and legal advocacy to drive policy change. Yet, civil society groups also have limited pathways to build meaningful linkages to state or market entities to directly influence the distribution of regulatory power. Civil society-oriented forums created by the state, such as the environmental courts, offered the promise of an alternative arena in which everyday people, not just political or market elites, might make themselves heard. However, in light of the strong basis of state-market linkages allowing private sector actors to disproportionately influence the direction of regulation, many goals of society-led movements have been subverted. The opportunity for society to build meaningful linkages with the state seems to be through the engagement of the Bangladesh Environmental Lawyers Association (BELA), BAPA, and other public interest environmental groups seeking to leverage the courts, though this research suggests limitations to this strategy.

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First, courts are reactive, not proactive. Generally, a court may only rule based on cases raised before it, meaning that it provides "only a temporary solution where legislative and executive systems have failed." (Faure & Raja, 2010; 292). Whereas the executive and legislative bodies of national government largely maintain a narrow focus on economic growth and state regulatory agencies exhibit retreatist behavior, the judiciary has played a countervailing role to create a legal framework for environmental protection. On the back of the 'rights of rivers' High Court verdict, Bangladeshi civil society groups have two primary pathways for judicial influence: judicial review and binding precedent. Although not explicitly used in Bangladeshi law, Article 102 of the Constitution allows for writ petitions to be filed at the High Court Division to review the actions of public authorities (Khilnani et al., 2012). The court cases that spurred the relocation of the tanneries from Hazaribagh to Savar indicated the seriousness of purpose of the judiciary to address pollution. However, this approach risks the critique that the judiciary is substituting "judicial governance for executive governance" whereby judicial decisions are reactive and may result in an underdeveloped independent national bureaucracy (Razzaque, 2000).

Second, courts have not successfully mandated agencies such as the DoE or NRCC to establish and execute environmental standards. In this way, court interventions may only be effective to the "extent they act as a remedy to executive apathy" (Faure & Raja, 2010; 291). For example, a key element of the High Court verdict is the legal empowerment of the NRCC as the 'legal guardian' of all rivers. However, the NRCC is not an implementing agency itself and does not have institutional independence; rather, it provides recommendations to other agencies for implementation. The NRCC's main source of authority will be the annual reports that it submits to Parliament, showing the list of recommendations it has made to different regulatory agencies and whether those agencies fulfilled their tasks to show compliance. Parliament could then, in theory, use this mechanism to change budgetary allocations to agencies if they are not carrying out their duties. This means that the NRCC could leverage enforcement agencies (such as the DOE) into imposing fines. Time will tell if the NRCC is a viable societal counterweight to the retreatist approach of DoE toward regulation.

Recommendations

The recommendations resulting from this research include:

1. Strengthen DoE's capacity:

- **Increase funding and resources**: Allocate adequate financial and technical resources to expand DOE's monitoring capabilities, including advanced tools for tracking industrial effluents and pollutants in key river basins.
- **Establish political independence**: Enforce measures to shield the DoE from political interference, enabling impartial enforcement of environmental regulations.
- **Enhance institutional coordination**: Form a central water governance body to harmonize efforts across ministries and departments such as DOE, Industries, and Local Government, reducing redundancy and addressing systemic inefficiencies.
- **Implement transparent accountability systems**: Introduce regular public reporting on enforcement actions and pollution metrics to ensure transparency and build public trust.

2. **Align environmental goals with national economic priorities:**

- **Present river restoration as economic policy**: Highlight the economic benefits of healthy rivers, such as improved water availability for agriculture and reduced health costs, to align restoration efforts with Bangladesh's development goals.
- **Support cleaner production in RMG**: Introduce subsidies for low-waste dyeing technologies and zero-discharge systems in textile factories, incentivizing sustainable practices without compromising economic output.
- **Adopt a Green Growth Strategy**: Develop national strategies that integrate environmental sustainability as a pillar of Bangladesh's transition to a middle-income economy.
- **Strengthen legal frameworks:**
- **Update outdated regulations**: Modernize water pollution laws to reflect current challenges, including stricter limits on industrial discharge and penalties for violations.
- **Enforce rigorous compliance**: Equip enforcement agencies with legal authority and tools to prosecute offenders, ensuring that industries adhere to pollution control standards.
- **Integrate climate resilience**: Incorporate measures in legal frameworks that account for climate-induced water scarcity and extreme weather, ensuring equitable access to clean water for all communities.
- **Develop Action Plans**: Draft and implement practical guidelines for enforcing the Supreme Court's "Rights of Rivers" verdict, ensuring clear roles for stakeholders at local and national levels.
- **Support disadvantaged communities**: Incorporate protections for *basti* dwellers and other vulnerable populations in policy frameworks, ensuring equitable access to clean water and mitigating displacement risks due to industrial activity.
- **Monitor judicial implementation**: Establish an independent oversight body to track progress and compliance with the verdict. Develop actionable guidelines for implementing the verdict at the local and national levels.

3. **Enhance civil society participation in regulatory processes:**

- **Facilitate stakeholder dialogues**: Entities including the World Bank are positioned to create inclusive platforms where civil society groups, local communities, and industry representatives can jointly discuss challenges and co-create solutions for water management.
- **Strengthen advocacy capacity**: Provide training, resources, and funding for grassroots organizations to enhance their ability to hold polluters accountable and influence policymaking.
- **Create platforms for civil society**: Enable a wider range of stakeholders to engage with policymakers and contribute to decision-making processes.
- **Provide training and resources**: Resource local advocacy groups to amplify their impact.

4. **Strengthen public-private parnerships through global-local alignment:**

- **Collaborate with industry stakeholders**: Encourage partnerships with industries, particularly the readymade garment (RMG) sector, to implement wastewater treatment plants and explore innovative technologies like membrane-based water recycling.
- **Incentivize green investments**: Offer tax rebates or grants to industries adopting cleaner production technologies and adhering to pollution mitigation standards.
- **Promote technology sharing**: Facilitate knowledge exchange programs with global companies to introduce cost-effective solutions such as decentralized wastewater treatment systems and desalination technologies.
- **Leverage global standards**: Integrate international private governance tools into domestic policies to ensure accountability while addressing limitations like lack of transparency.
- **Foster industry-brand cooperation**: Encourage global brands sourcing from Bangladesh to invest in supply chain sustainability, including funding for cleaner production technologies and third-party audits.
- **Promote sustainable trade**: Collaborate with international trade partners to align environmental goals with trade agreements, ensuring long-term economic and ecological benefits.

Priorities for future research

While the recommendations resulting from the research findings offer a starting point, institutional transitions to advance environmental protection is an ongoing task. Therefore, further research focused on sustainable development in the global South could develop a more complete understanding of the political economy of state-market-society relations. This research could support the craft and implementation of hybrid strategies that strengthen regulatory institutions and align economic development with environmental and social commitments. Research could also elaborate upon a typology of linkages beyond the established state-market and state-society connections. Refinement in understanding linkages may help to identify generalizable patterns of behavior. A focus is needed on how regulatory power is distributed and ways to challenge entrenched interests thwarting compliance and enforcement. Further elaboration on regulatory power could entail deeper engagement with the mechanisms, tactics, and strategies of states and specific industries to shape the direction and outcomes of environmental regulation.

Additionally, Bangladesh could learn from countries that have successfully navigated achieving regulatory goals a similarly challenging political economic context. Understanding what works and under what conditions to improve environmental outcomes will be a crucial step to implement improved practices and build toward institutional change. This could include a deeper examination of the political economic circumstances (rather than strictly legal factors) under which environmental public interest law may improve policy enforcement. In such instances, what role do pockets of bureaucratic effectiveness (McDonnell, 2020), community-driven development (O'Rourke, 2004), or private interests play in achieving successful regulatory outcomes? Research on what drives successes could clarify the conditions under which regulation can deliver environmental protection and distributes benefits to vulnerable social groups.

There is also a gap related to linking research to policy impact. Academics are rarely comfortable with, nor rewarded professionally for, engaging directly in policy change. Similarly, the pace and demands on policy makers do not align with the constraints and timelines of academia. Though the pathway to effective research-based policy is lengthy and non-linear, researchers working at the intersection of political economy and decentered regulation may also strive to maximize impact by appropriately integrating with colleagues and research stakeholders. Building a research agenda with, rather than for, people directly impacted by problems associated with pollution and poverty may be challenging, but the increased likelihood of sustained and beneficial outcomes would be worth the effort.

This paper examined key controversies in the political economy of water pollution regulation. Now, humanity's task in the twenty-first century is to address the degradation of environmental systems from intense pollution (Folke et al., 2011). Addressing barriers to improve water quality may remain a tall task. But with advancements in these areas of scholarship and practice, a better world is possible, and 'bringing back golden Bangladesh' may no longer be just words written in vain on a bridge, but actions in reality.

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Appendix: High Court Directives (2019)

High Court directives of the 'rights of rivers' verdict (2019). All spelling and word usage preserved from translation.

Supreme Court of Bangladesh

High Court Division
(Special Original Jurisdiction)
Writ Petition No. 13989/2016
Human Rights and Peace for Bangladesh
---- Petitioner.
Versus
Government of Bangladesh and Others
---- Respondents.
Advocate Manzill Murshid with
Advocate Md. Sarwar Ahad Chowdhury
Advocate Ekhlas Uddin Bhuian
Advocate Ripon Baroi
Advocate Sanjay Mondal
---- On behalf of the Petitioner.
Advocate Syed Mafizur Rahman
--- On behalf of Respondent No. 2.
Advocate Md Imam Hasan with
Advocate Md Shahinul Islam
---- On behalf of Respondent No. 3.
Advocate Khandoker Shahriar Shakir
---- On behalf of Respondent No. 4.
Advocate Md Harun-ur-Rashid
---- On behalf of Respondent No. 10.
Advocate Md. Asaduzzaman
----- On behalf of Respondent No. 12.
Advocate A.M. Mahbub Uddin with
Advocate Saqeb Mahbub
---- On behalf of Respondents No. 13 to 21.
Advocate Mohammad Mehedi Hasan Chowdhury
Advocate Sheikh Fazle Noor Taposh
Advocate Apurbo Kumar Biswas
Advocate Josna Parvin Advocate Upama Biswas
Advocate Swapnil Bhattacharya
---- On behalf of Respondents No. 22, 23.
Advocate Md Ekramul Hoque, Deputy Attorney General with
Advocate Purabi Rani Sharma, Assistant Attorney General
Advocate Purabi Saha, Assistant Attorney General
--- On behalf of Respondent No. 5.

Present:
Justice Moyeenul Islam Chowdhury
And
Justice Md. Ashraful Kamal

In the riverine Bangladesh, lifestyle and economy is entirely dependent on water. Most of our communication system is dependent on seas, rivers, canals etc. The most cost-effective means of transportation is the waterway. Civilisations have grown up on the banks of rivers and seas. Destroying the rivers is, after all, the same as our collective suicide. Destroying the rivers is like destroying our present and future generations. River polluters and encroachers are the enemies of our country, our independence and of humanity. River polluters are the killers of the human race. They are the killers of civilisation.

The clean and pristine water of the Turag River, the navigability of its waters, the riverine wind blowing over it, its scenic and incomparable beauty, the unrestricted movement and growth of its fishes, the control of pollution in Turag river and its conservation are all valuable and protected by the Constitution, laws and the Public Trust Doctrine. All rivers including the Turag must be made free of pollution and encroachment and must be made for transportation.

If 'special measures' are not undertaken in 'specially important circumstances', there is a possibility of irreparable harm which will be impossible to mitigate. The current matter is so significant, our existence is at the risk of extinction. The pollution and encroachment in the Turag River has reached such terrifying levels, that, as the last option of protecting the River, we are declaring it as a legal person.

Therefore, the court orders that the current Rule is finalized without any cost as to expenses.

The 'inaction' of the Respondents with regard to the protection of the Turag River from pollution and encroachment have been undertaken without lawful authority thus, it is declared that such 'inaction' have no legal authority, and it is directed that the respondents ensure that the illegal structures, encroachment and pollution in the Turag River shall be removed at the expenses of the encroachers, as is their duty. We, therefore, issue the following orders and directions:

1. The broad explanation, analysis and description of the Public Trust Doctrine made in the present judgment is a part of the law of Bangladesh.
2. Turag river has been declared as a legal person/legal entity/living entity. All rivers flowing within and across Bangladesh shall be granted with the same status.
3. The River Conservation Commission has been declared as the legal guardian (person in loco parentis) with regard to the conservation, protection and development of and removal of pollution and encroachment from Turag and other rivers. The National River Conservation Commission, with the cooperation of concerned organizations, departments and ministries shall be bound to remove all pollution and encroachment from rivers and make it fit for navigation, and protect, conserve and develop the rivers. All the concerned organizations, department and ministries shall be bound to provide all necessary assistance.
4. The 'Precautionary Principle' and 'Polluter Pay Principle' are declared as parts of our laws.
5. The Planning Commission, LGED, Water Development Board, BIWTA, BADC and other concerned officials shall notify the National River Conservation Commission regarding any new programme regarding the Turag and other rivers and shall obtain a no-objection certificate from the same.
6. Respondents No. 10 to 23 shall remove their encroachments from the concerned rivers within the next 30 (thirty) days. Otherwise, the National River Conservation Commission, with the assistance of concerned authority, shall evict the

respondents at the cost of the Respondents themselves. The encroachers shall pay for the removal of the encroachment and for the return of the river to its earlier condition. 231

7. Respondent No. 1 shall make necessary amendments to the National River Conservation Commission Act 2013, declaring river encroachment and river pollution criminal offences, imposing strict penalties for the offences and laying out the procedure for filing, investigating and trying such cases, and shall notify the court regarding the steps it has undertaken in that regard by submitting an affidavit within the next 6 (six) months.
8. The SPA, RRSO satellite with the help of RS/GIS developed technology shall be used for the preparation of the digital database and the determination of the geographical location of rivers, lakes, canals and waterbodies; and maps of all Unions, Upazila and Districts are to be prepared and displayed as billboards in open spaces by the concerned departments and the upazila and district administrative office shall take steps to ensure that any citizen, upon payment of a fixed fee, shall be able to collect such map.
9. Respondent No. 1 shall undertake all necessary measures to make the River Conservation Commission an effective and independent body.
10. All the public and private schools, colleges, schools and colleges, colleges, madrasas, vocational training institutions, public and private institutions of Bangladesh shall, in every two months, conduct a one-hour awareness session on the importance of rivers and their conservation and protection from pollution in every class and shall conduct regular field visits to the rivers in the nearby areas. Apart from this, all educational institutions are directed to take measures to display local and international documentaries on the importance of rivers, nature and environment on large-screens. The Ministry of Education is directed to supervise whether all educational institutions are conducting classes as per these directions.
11. All small, medium, large, public and private industries and factories shall, in every two months, conduct one 'discussion' on river with the participation of all its workers. The Ministry of Industries is directed to supervise whether the industries are undertaking necessary measures in this regard.
12. All Union Parishad Chairmen, Upazila Chairmen, Paurashava Mayors, and District Parishad is directed to conduct a day-long rally related to rivers, art exhibition, and other competitions, discussions and seminars once every three months in all Unions, Upazilas, Paurashavas and Districts.
13. Every Union, Upazila, and District shall prepare a list of polluting individuals and corporations and encroachers in rivers within their territory and all chairmen and 232 district administrators are directed to hang such list in an open place as a billboard for the awareness of the people within 6 (six) months.
14. Since the environment, climate and waterbodies, i.e seas, rivers, seashores, riverbanks, lakes, canals, marshes, wetlands, drains, waterfalls and open waterbodies, hills, mountains, wildlife, air are public trust properties, or public property, therefore, any person or corporation against whom complaints of such land grabbing or pollution exists shall be ineligible for any loans, and such necessary directions as may be necessary shall be issued by circulars and notices by the Bangladesh Bank to all its scheduled banks. The Governor of Bangladesh Bank is directed to submit an affidavit regarding the progress in the realization of these directions to notify the court in that regard.

15. Since the environment, climate and waterbodies, i.e seas, rivers, seashores, riverbanks, lakes, canals, marshes, wetlands, drains, waterfalls and open waterbodies, hills, mountains, wildlife, air are public trust properties, or public property, therefore, any person or corporation against whom complaints of such grabbing or pollution exists shall be ineligible for nomination as a candidate for all Union, Upazila, Paurashava, district and national elections and the Election Commission is directed l incorporate these directions and notify the court with an affidavit within the next 6 (six) months.
16. Secretary, Ministry of Education is directed to include subjects related to river conservation and pollution in the curriculum of schools, colleges and universities with the aim of raising awareness about rivers.
17. The Director General, Bangladesh Television is directed to broadcast documentaries prepared in the country and abroad on rivers, nature and environment every Friday for one hour on Bangladesh Television. Further, private television channels are directed to broadcast documentaries made in the country and abroad on rivers, nature and environment for one hour, one day every week. The current writ petition shall continue in the form of a ***Continuing Mandamus***.

It is further ordered that in case of any doubts arising out of the directions issued in the present judgment, the applicants, respondents, National River Conservation Commission, Election Commission, Bangladesh Bank, Ministry of Labour and Employment, Ministry of Education and other concerned ministries, government and non-governmental organizations and any citizen of Bangladesh can file an application requesting the directions of the High Court Division.

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