



SIPG



SIPG POLICY BRIEF 38

Reviving Dhaka's Rivers: **Policy Options for Sustainable Management**

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Background

Dhaka, the capital of Bangladesh, is encircled by the Buriganga, Turag, Shitalakkhya, Dhaleshwari, and Balu rivers —the distributaries of the Ganges, Brahmaputra, and Meghna river systems. Historically, these rivers have sustained Dhaka's transport, economy, ecology, and urban life. Over the past few decades, however, rapid industrialization, unplanned urban expansion, and weak environmental governance have transformed these once-vibrant waterways into some of the most polluted rivers in South Asia.

Multiple stressors contribute to this ecological crisis:

- **Industrial effluents:** Untreated wastewater from tanneries, textile dyeing, pharmaceuticals, and chemical industries is directly discharged into rivers.
- **Municipal and domestic waste:** Dhaka generates nearly 6,000 tons of solid waste daily, a substantial portion of which is discharged into waterways untreated.
- **Urban runoff and oil spills:** Discharge from ports, shipyards, and vessels adds to surface contamination.
- **Encroachment and sedimentation:** Illegal landfilling, waste dumping, and riverbank occupation reduce flow and carrying capacity.
- **The “Cordon Approach”:** Traditional flood-control embankments have disconnected rivers from their natural floodplains, resulting in waterlogging and ecological decline.
- **Wetland loss:** Unplanned urban sprawl has destroyed canals and wetlands, allowing untreated sewage and stormwater to be channeled directly into river systems.

As a result, rivers such as the Buriganga and Shitalakkhya often record near-zero dissolved oxygen levels during the dry season, indicating a biological collapse. The implications are profound — loss of aquatic biodiversity, declining fisheries, severe public health hazards, and weakened climate resilience in Dhaka's urban ecosystem.

Under this context, a Policy Dialogue titled “Reviving Dhaka's Rivers: Policy Options for Sustainable Management” was held on 22 September 2025 at the Syndicate Hall, North South University (NSU). The event was jointly organized by the South Asian Institute of Policy and Governance (SIPG) at North South University and the H&H (Hussain & Hussain) Foundation. It was supported by the Bangladesh Inland Water Transport Authority (BIWTA), Dhaka North City

Corporation (DNCC), Daiki Axis Bangladesh Ltd., Berky Asia Pte. Ltd., and the CSD Academy.

This policy brief presents the discussions, significant findings, and policy recommendations that emerged from the dialogue. It aims to contribute to the formulation of actionable strategies to protect Dhaka's urban rivers and make the city more sustainable and livable for its residents.

Objectives of the Dialogue

The policy dialogue sought to:

- Formulate actionable policy recommendations for reducing river pollution.
- Identify institutional reforms to strengthen river governance.
- Promote sustainable wastewater management and industrial accountability.
- Foster multi-stakeholder collaboration among government, academia, and civil society.
- Raise public awareness on the urgency of restoring Dhaka's rivers and ecosystems.

Key Discussion Themes

- **Current Status of Dhaka's Rivers:** Scientific assessments reveal declining water quality, high concentrations of heavy metals, and critical oxygen depletion in several stretches.
- **Sources and Health Impacts:** Industrial effluents, sewage discharge, and solid waste are major contributors to carcinogenic and non-carcinogenic health risks.
- **Policy and Technological Interventions:** Emphasis on expanding effluent treatment, wastewater recycling, and adopting automated monitoring systems.
- **Institutional Coordination:** The dialogue underscored the need for an empowered Dhaka River Protection Authority with cross-ministerial mandates.
- **Community and Private Sector Engagement:** Behavioral change, green industry practices, and civic participation were emphasized as crucial for sustainable river conservation.



Scientific Assessment of River Pollution

A keynote research study presented at the dialogue evaluated the water quality of Dhaka's surrounding rivers using scientific indicators, including the Water Quality Index (WQI), Heavy Metal Pollution Index (HPI), Ecological Risk Index (ERI), and Human Health Risk Assessment (HHRA).

Key Findings:

- **Water Quality (WQI):** Most river segments were rated poor or unsuitable for domestic or ecological use.
- **Heavy Metal Pollution (HPI):** All rivers exceeded the critical threshold of 100, with the Buriganga reaching levels up to 660, indicating severe heavy metal contamination.
- **Ecological Risk (ERI):** Ranged from moderate to considerable, particularly during the dry season when reduced dilution exacerbates pollution.
- **Human Health Risks:**
 - Children are more vulnerable to non-carcinogenic risks due to higher exposure relative to body weight.
 - Arsenic poses the highest carcinogenic risk, with long-term exposure linked to cancer and chronic illness.

The study identified untreated industrial effluents, municipal sewage,

agricultural runoff, and weak enforcement of environmental regulations as primary causes. It further noted that while the Department of Environment (DoE) has established effluent standards, compliance and enforcement remain weak due to limited infrastructure and a lack of incentives for cleaner production technologies.

Policy Gaps and Governance Challenges

Despite the existence of environmental laws and standards, compliance remains poor. Institutional mandates are fragmented across multiple agencies — DoE, BIWTA, City Corporations, WASA, and industrial regulators — resulting in overlap, coordination failures, and inconsistent data management.

Key policy gaps include:

- Absence of seasonal monitoring systems to track pollution fluctuations.
- Lack of economic incentives for cleaner technologies.
- Insufficient public awareness and community participation in river stewardship.
- Weak institutional accountability and enforcement capacity.

These challenges reflect systemic governance deficits that hinder effective implementation of the **National Environment Policy (2018)** and the **Bangladesh Water Act (2013)**.

Key Takeaways

- **From reactive to preventive policy:** River management must evolve beyond ad-hoc clean-up drives to preventive, ecosystem-based strategies grounded in accountability.
- **Integrated river governance:** Coordination among the National River Conservation Commission (NRCC), BIWTA, DoE, Dhaka North and South City Corporations (DNCC & DSCC), the Ministry of Water Resources, the Ministry of Shipping, and the Ministry of Industries is essential, ideally under a unified Dhaka River Protection Authority.
- **Pollution control at the source:** With over 80% of pollution originating from untreated sewage and industrial effluents, strict on-site treatment and green incentives are crucial.
- **Community engagement:** Lasting success depends on civic awareness, behavioral change, and local stewardship.
- **Data-driven collaboration:** Cross-sectoral, research-based policy integrating health, urban planning, and environmental science is vital.

Key Quotes from the Policy Dialogue



“Dhaka’s development priorities must become nature-centric. Quick fixes cannot prevent irreversible ecological damage. We must treat rivers as living ecosystems, not drains.”

Syeda Rizwana Hasan

Advisor, Ministry of Environment, Forest and Climate Change (Guest of Honor)



“ We have successfully restored two dead rivers through coordinated local action. A water-source approach and biodiversity-centered urban planning are key to a sustainable Dhaka.”

Mohammad Azaz

Administrator, Dhaka North City Corporation (Special Guest)



“Heavy metal contamination in the Buriganga and Shitalakkhya reflects systemic governance failure. Without strong regulation, industrial relocation alone cannot solve the problem.”

Dr. Abdus Samad

Associate Professor, DHP, North South University (Keynote Speaker)



“ River pollution is not just an environmental issue—it is a development crisis requiring integrated policy, behavioral change, and community engagement.”

Prof. Md. Jakariya

Director, Center for Climate Change and Disaster Resilience (CDR), NSU (Discussant)



“ The sources of pollution are well known; what’s missing is enforcement. Strong laws exist, but implementation and political will are lacking.”

Prof. Dr. Mohammed Julfiker Ali,

Consultant, H&H Foundation (Discussant)



“Effective river management must begin with removing physical and institutional impediments. Sustainable navigation and solid waste control are crucial.”

Commodore Arif Ahmed Mostafa
Chairman, BIWTA (Discussant)



“Nearly 80% of river pollution originates from untreated sewage. Solutions must be smart, automated, and applied at the source.”

Rui Owase
Managing Director, Daiki Axis Bangladesh Ltd. (Discussant)



“Continuous improvement, not perfection, should guide our actions. Step-by-step progress can yield transformative results.”

Martin Alkemeier
Managing Director, Berky Asia Pte. Ltd. (Discussant)



“Many people are not even aware that the National River Conservation Commission (NRCC) exists in Bangladesh. This institution must be empowered with stronger authority to enforce laws to protect our rivers.”

Professor Sk. Tawfique M. Haque
Director, South Asian Institute of Policy and Governance (SIPG), North South University (Moderator)



“We must save our rivers for our existence. This dialogue embodies our shared commitment to restore Dhaka's rivers through knowledge, policy, and partnership.”

M. Shafaq Hussain
Executive Director, H&H Foundation (Joint Organizer)

Policy Recommendations

1. Regulatory and Institutional Reforms

- Establish a Dhaka River Protection Authority with cross-ministerial coordination powers encompassing Environment, Industry, Shipping, Local Government, and Water Resources.
- Strengthen the Department of Environment's enforcement capacity with authority for inspection, sanction, and prosecution.
- Introduce seasonal discharge limits, stricter during the dry season.
- Deploy digital monitoring platforms (IoT sensors, GIS dashboards) for real-time tracking of water quality and effluent discharge.

2. Economic and Market-Based Incentives

- Offer green tax rebates and low-interest loans to industries adopting cleaner technologies.
- Implement Extended Producer Responsibility (EPR) frameworks.
- Apply polluter-pays charges linked to pollutant loads rather than fixed fines.

3. Infrastructure and Technological Upgradation

- Mandate Effluent Treatment Plants (ETPs) and centralized treatment facilities in industrial clusters.
- Promote eco-friendly industrial zones with standard sewage treatment systems.
- Encourage phytoremediation, aeration, and dredging for river restoration.
- Integrate water recycling and reuse within urban and industrial planning.

4. Ecosystem Restoration and Urban Planning

- Reconnect rivers with wetlands and floodplains to restore natural hydrology.
- Enforce river zoning to prevent industrial encroachment.
- Align interventions with SDG 6 (Clean Water and Sanitation) and SDG 14 (Life Below Water).

5. Public Engagement and Capacity Building

- Launch awareness campaigns on solid waste management and the impacts of pollution.
- Engage community organizations and schools in river stewardship.
- Strengthen academic-policy partnerships to inform evidence-based decision-making.

Way Forward and Conclusion

Sustainable river management demands a synergy of science, policy, and community action. Immediate interventions must prioritize the Buriganga and Shitalakkhya, where pollution levels are most critical. Strengthening institutional accountability, transparent data systems, and participatory governance are vital for reversing decades of degradation.

Dhaka's rivers stand at a crossroads — once vibrant arteries of life, now burdened by neglect. Reviving them requires collective will, integrated planning, and evidence-based policymaking. Protecting these rivers is not merely an environmental necessity but a moral and developmental imperative, central to ensuring public health, urban resilience, and the sustainability of Bangladesh's capital for generations to come.







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