



# RRI Newsletter

Issue-28 A quarterly Newsletter of RRI December 2025

*"Revive the endangered river"*  
 -Hon'ble Advisor, MoWR



## SENIOR SECRETARY, MOWR'S VISITING TO RRI



Photo: Director General of RRI along with other high officials welcomed Mr. Md. Mokabbir Hossain, Senior Secretary, Ministry of Water Resources.



Photo: Discussion meeting among Senior Secretary, MoWR and the officers and staff of RRI.

Mr. Md. Mokabbir Hossain, Senior Secretary of the Ministry of Water Resources, paid an official visit to the River Research Institute (RRI) Head Office in Faridpur on 14 December 2025. As part of the program, he attended a discussion meeting with the officers and staffs of the institute, where he listened their perspectives on ongoing projects, operational challenges, and future development needs for RRI. In his remarks, he highlighted the vital role of RRI in supporting national water resources management, river training, and hydraulic research, and he urged the institute to further enhance its technical capacity, innovation, and research quality to meet emerging national priorities. The Senior Secretary emphasized the importance of adopting modern technologies, strengthening laboratory capabilities, and ensuring efficient project implementation. Following the meeting, he visited the physical model facilities and various state-of-the-art laboratories of RRI, where he observed the research set-up, interacted with technical personnel, and appreciated the institute's efforts in conducting high-quality scientific studies and investigations. His visit served as an encouragement for the entire RRI team to continue

advancing the institution as a center of excellence through modelling for water and river research in Bangladesh.



Photo: Senior Secretary along with high officials of RRI observed RRI demonstration model of Bangladesh river.

## ATTENDING HILL TRACTS RIVER CONSERVATION CONVENTION 2025



A group of Scientists of River Research Institute attended the Hill Tracts River Conservation Convention 2025 at Khagrachori Town Hall Auditorium on 6th December 2025. Syeda Rizwana Hasan, Honorable Advisor of the Environment, Forest and Climate Change Ministry and Ministry of Water Resources, was the Chief Guest at the convention. S M Abu Horayra, Director General of River Research Institute (RRI), Dr. Engr. Md. Alauddin Hossain, Director, Geotechnical Research Directorate of RRI along with three officials attended the convention. S M Abu Horayra, Director General, was the Special Guest of the Inaugural Session and Mr. Md. Moniruzzaman, Senior Scientific Officer, presented an article in that session. Dr. Engr. Md. Alauddin Hossain, Director, Geotechnical

Research Directorate, chaired another Session entitled “Proposed National Water Act 2025: People’s perception and expectation (public hearing) for River Conservation”. It is needed to mention here that Prof. Dr. Md. Manzoorul Kibria, member of BOG, RRI and VC, BGC Trust University attended the Convention as a special guest. Before this Convention, on 5th December 2025, all the participants of the convention, including the Director General, had a River cruise from Rangamati to Khagrachori. In the cruise, they saw different rivers like the Kaptailake, Karnaphuly and Chengi river.



## COMPLETED RESEARCH PROJECT

### ASSESSMENT OF WATER QUALITY OF THE KUMAR RIVER IN FARIDPUR DISTRICT USING THE WATER QUALITY INDEX

*-Md. Dulal Bawali, Senior Scientific Officer and Team Leader*



Photo: Respected Academician Expert, high officials of RRI and DC Office, Faridpur attended the seminar.

The seminar of the research project entitled “Assessment of Water Quality of the Kumar River in Faridpur District Using the Water Quality Index” was held at the River Research Institute (RRI), Faridpur on 28 October 2025. The event was presided over by the Director General of RRI, Mr. S M Abu Horaira (Joint Secretary). In the presence of invited guests from various government departments, academic institutions, and the media, Mr. Mohammad Dulal Bawali, Senior Scientific Officer and Team Leader of the project, presented the key findings, detailing the water quality



Photo: Mr. Mohammad Dulal Bawali, Senior Scientific Officer and Team Leader presented the findings of the research.

parameters, dissolved heavy metal concentrations, and the computed Water Quality Index for 12 sampling points along a 45 km stretch of the Kumar River. Distinguished participants shared valuable insights on river pollution control, public awareness, and the need for expanded seasonal water quality monitoring. In the concluding remarks, the Director General expressed that the outcomes of this research would serve as an important baseline for future scientific studies and formally brought the seminar to a close.

## PROGRESS OF ONGOING RESEARCH PROJECTS

### ASSESSMENT OF SPATIO-TEMPORAL VARIABILITY OF SOIL AND WATER SALINITY AND THEIR IMPACT IN SHATKHIRA DISTRICT OF BANGLADESH

-Dr. Moniruzzaman Khan Eusufzai, Chief Scientific Officer and Team Leader

The study has been approved by the Ministry of Water Resources. First installment of funding has been received in June 2025, which was 30% of the total budget of research. The initiation of the field work of the study has been kicked off on 20th May 2025 in the form of a short field visit to the study area. Further field visits had been done in July 2025 and an extensive field visit has been conducted on 9-14<sup>th</sup> November 2025. Water quality parameters such as Temperature, pH, DO, EC, TDS, and Salinity have been determined in-situ in various rivers of the Satkhira district, all the way from north, the border of Jashore district to south, the start of the Sundarban, spread over Kalaroa, Satkhira Sadar, Debhata, Kaliganj, Tala, Ashashuni and Shayamnagar Upazila. The sampling includes surface water of the Betna, Kobadak, Kholpetua, Labangabati, Shalikka, Mather, etc. and the adjacent groundwater available. Some images of the field visit have been shown below.



Photo: In-situ water quality determination at Agarghata Bazar of Kobadak River.



Photo: Soil sample collection at the Kulla point of Betna River.

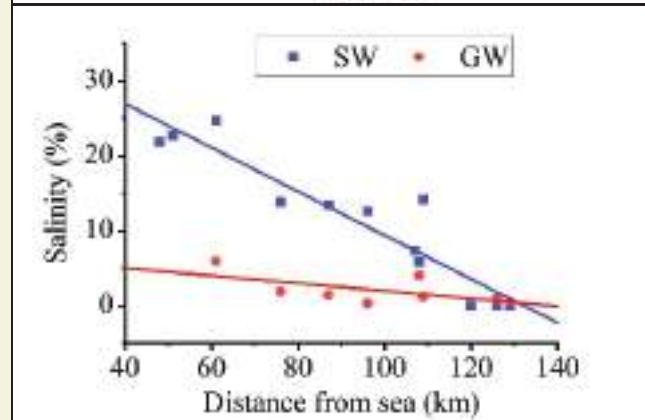
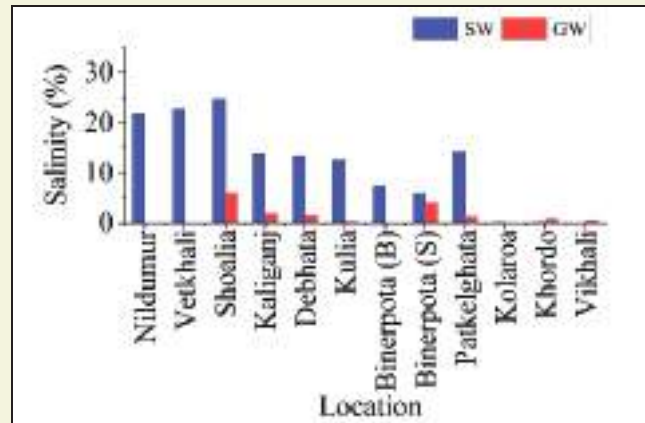


Figure: Spatial variation of salinity of Satkhira district.

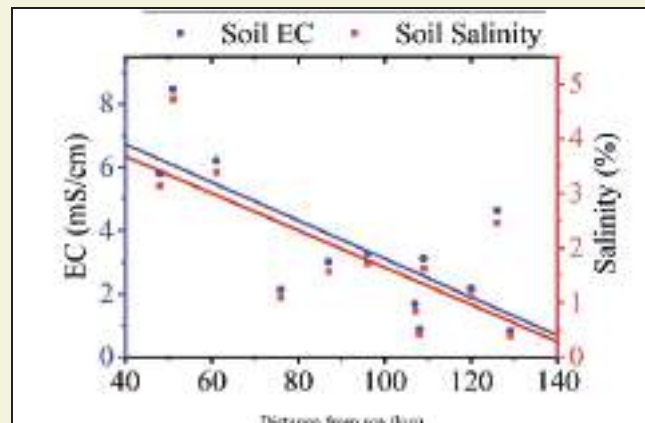


Figure: Variation of soil EC and Salinity shows the same decreasing trend from the sea.

The Salinity values for the surface water are much more than the values of groundwater near the sea. As it goes away from the sea, the Salinity value decreases rapidly for the surface water than the groundwater and becomes equivalent to each other at nearly 120km from the sea as shown in Figure. TDS and EC levels also follow a similar trend. Soil salinity also follows a similar trend.

## PROGRESS OF ONGOING RESEARCH PROJECTS

**PROGRESS OF ONGOING RESEARCH: PERFORMANCE EVALUATION OF SOME MAGNETICALLY RESPONSIVE NANOPARTICLES (NPS) AND METAL ORGANIC FRAMEWORKS (MOFS) FOR HEAVY METAL REMOVAL AND ORGANIC DYE DEGRADATION IN POLLUTED WATER.**

*-Nayan Chandra Ghosh, Senior Scientific Officer and Team Leader*

An extensive field survey was carried out during the pre-monsoon and post-monsoon seasons to assess the water quality of inland surface water bodies in and around Dhaka city, with particular emphasis on variations in dissolved oxygen (DO) as depicted in the corresponding graph. A total of 16 sampling sites were investigated, covering both the eastern and western river systems flowing through Dhaka, including the Turag, Buriganga, Tongi Canal, Balu, and Shitalakhya rivers. Water samples from each site were analyzed for a comprehensive suite of physicochemical parameters, including pH, temperature, chloride, sulphate, ammonia, phosphate, electrical conductivity (EC), resistivity, salinity, total suspended solids (TSS), total hardness (TH), total alkalinity (TA), total dissolved solids (TDS), turbidity, chemical oxygen demand (COD), and dissolved oxygen (DO).

The comparative assessment of dissolved oxygen (DO) concentrations between the pre-monsoon (May) and post-monsoon (September) periods reveals a clear seasonal variation across all investigated river systems. During the pre-monsoon season, DO levels remain critically low at most sampling locations, particularly in the Buriganga, Balu, and Shitalakhya rivers, where values frequently fall below 1 mg/L, indicating severe hypoxic to near-anoxic conditions. This pronounced depletion of DO can be attributed to reduced river discharge, higher water temperatures, increased residence time of pollutants, and elevated organic and industrial effluent loads, which collectively intensify microbial oxygen consumption. Even comparatively less polluted rivers such as the Turag exhibit only moderate DO concentrations in May, reflecting the overall stress imposed by dry-season hydrological conditions.

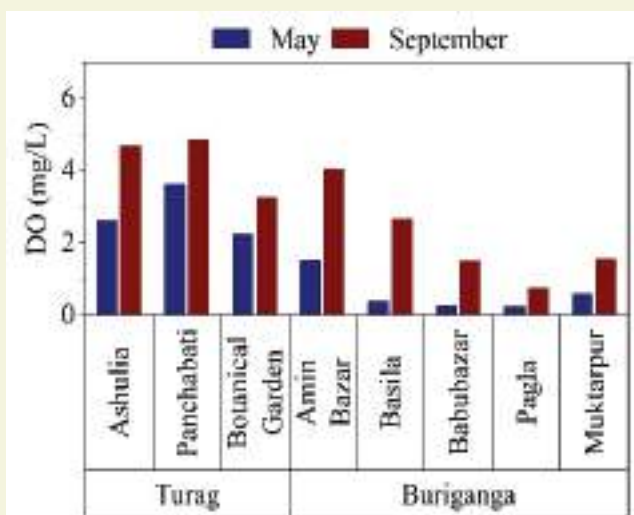


Figure: Variation of DO at the rivers of the western reach of Dhaka city in May and September.

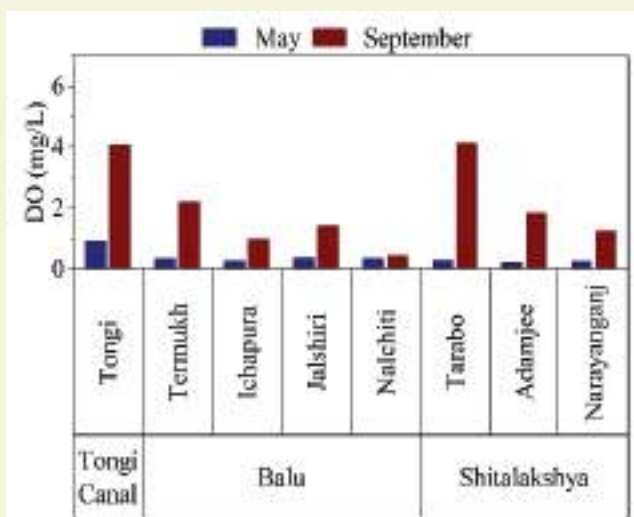


Figure: Variation of DO at the rivers of the eastern reach of Dhaka city in May and September.

In contrast, the post-monsoon season shows a substantial improvement in DO concentrations at all sites, with September values consistently higher than those recorded in May. Increased monsoonal rainfall enhances river flow, promotes dilution of contaminants, and improves vertical and lateral mixing, leading to greater atmospheric reaeration and partial recovery of oxygen levels. Rivers such as the Turag and Tongi Canal demonstrate notable post-monsoon restoration, with DO levels approaching ecologically acceptable limits at several locations. However, despite this seasonal recovery, many sites especially within the Buriganga and Balu river systems continue to exhibit DO concentrations below the threshold necessary to sustain healthy aquatic ecosystems. This indicates that monsoonal flushing provides some temporary relief, and long-term improvement of DO levels will require effective control of industrial and municipal discharges alongside sustained river management and pollution mitigation measures.

In addition to the field-based assessment of surface water quality, two dedicated laboratory facilities have recently been established and made operational. The Materials Synthesis and Sample Preparation Laboratory has been established for the synthesis of nanoparticles using multiple established routes, including auto-combustion, co-precipitation, and hydrothermal methods. The Water Treatment Materials Research Laboratory has been developed to evaluate the performance of synthesized materials. This laboratory supports a range of adsorption techniques, batch experiments, and photocatalytic degradation studies. Furthermore, to enhance in-house analytical capabilities, several advanced characterization instruments are currently under procurement process, including ICP-OES, FT-IR, and a UV-Visible Spectrophotometer, to Upon completion, these instruments will enable detailed elemental, structural, and optical analyses, thereby significantly improving the analytical depth and overall research capacity of the project.

## NEWLY APPROVED RESEARCH PROJECTS

### DEVELOPMENT OF A COST-EFFECTIVE AND SUSTAINABLE EROSION PROTECTION STRATEGY FOR BANGLADESH'S MEDIUM AND SMALL RIVERS, AND ENHANCEMENT OF THE RESEARCH FACILITIES OF THE RIVER RESEARCH INSTITUTE

-Dr. Moniruzzaman Khan Eusufzai, Chief Scientific Officer and Project Director

#### Background

Bangladesh lies at the heart of the Ganges–Brahmaputra–Meghna Delta, also known as the Bengal Delta. This vast deltaic landscape has been shaped over centuries by sediments carried by the country's three major rivers—the Ganges, Brahmaputra, and Meghna. In addition to these major systems, Bangladesh is home to 57 transboundary rivers, along with numerous medium and small rivers. While erosion in medium and small rivers generally occurs at a lower rate than in major rivers, its long-term impacts are severe. Progressive riverbank erosion threatens homes, infrastructure, and livelihoods across the country. Each year, nearly one million people are directly affected, with estimated economic losses of around US\$500 million. Approximately 300,000 displaced people seek temporary shelter on roads, embankments, and government land annually. Overall, 15–20 million people remain at risk, and nearly 500 kilometers of riverbank suffer from serious erosion.

Riverbank erosion is recognized as a major natural disaster and a critical delta challenge in the Bangladesh Delta Plan 2100 (BDP 2100), the country's long-term integrated development framework. Current erosion control measures, such as groynes, geobags, concrete blocks, hard points, and dredging, are often costly and not always environmentally sustainable. In some cases, these interventions simply shift erosion from one location to another. Given Bangladesh's limited resources and high vulnerability to climate change, there is a pressing need for cost-effective, sustainable, and nature-based solutions to riverbank erosion. In response, River Research Institute (RRI) has undertaken a development project titled: *“Development of a cost-effective and sustainable erosion protection strategy for Bangladesh's medium and small rivers, and enhancement of the research facilities of the River Research Institute.”*

#### Objectives

The main objective of this project is to devise site specific, cost effective and environment friendly solutions to the riverbank erosion problems using either low cost bandle type structures based on indigenous knowledge or combination of traditional protective works and bandle type structures using hybrid modelling approach of state-of the art physical and numerical modelling technology.

#### Study Area

Three rivers of Bangladesh namely (1) Vodra (2) Arial Khan and (3) Gorai, having different characteristics have been selected for this research. The selection of rivers has been made based on previous experience in dealing either with these rivers or these types of rivers. Piloting of the selected low-cost bank protection measures will be carried out at some preselected erosion prone locations. A field reconnaissance has been made to identify erosion prone locations of these rivers.



Figure: Map showing tentative project site in Gorai-Madhumati River system of Bangladesh

#### Expected Output

Together with this research, this project aims to enhance and upgrade the research laboratories including establishment of physical infrastructures and procurement of equipment to facilitate research capability of RRI to conduct test and research in the field of water resources sector in accordance with its mandate.

#### Duration and Budget

The project has been approved with a total budget of BDT 45.82 crore, fully funded by the Government of Bangladesh, and will be implemented from July 2025 to June 2029.

#### Progress

The implementation of the project schemes is in progress in the current fiscal year.

## NEWLY APPROVED RESEARCH: INTEGRATED EVALUATION OF SAND/ STONE MINING IN HAOR AREAS: RESOURCE MAPPING AND SOCIO-ECONOMIC ANALYSIS

-Dr. Fatima Rukshana, Principal Scientific Officer and Team Leader

### Background

The haor region of north-eastern Bangladesh, encompassing Sylhet, Sunamganj, Habiganj, Moulvibazar, Netrokona, Kishoreganj, and Brahmanbaria, is shaped by sediments transported from Indian hill catchments through numerous transboundary rivers. Over centuries, monsoon-driven erosion and deposition have created a dynamic sedimentary system, where coarse materials settle near foothills and finer sediments spread across floodplains, supporting geomorphic stability, ecological productivity, and local livelihoods. These sand, gravel, and stone resources stabilize riverbanks, enhance soil quality, and provide materials for construction and tourism, contributing to the region's economy and scenic value. However, rapid urbanization and excessive, often illegal, sand and stone extraction have disrupted natural sediment balance, leading to erosion, habitat degradation, and river system instability. Despite existing laws, weak enforcement, high demand, and political influence have enabled widespread unregulated mining, threatening both ecosystems and riverine communities. The haor region thus represents a resource-rich yet socio-economically fragile system, highly dependent on seasonal hydrology and vulnerable to environmental change. Sustainable management requires understanding sediment transport and deposition patterns to balance resource use with ecological integrity. Accordingly, the River Research Institute plans an integrated study to address data gaps and support evidence-based regulation for long-term socio-ecological resilience in the north-eastern hydrological region of Bangladesh.

**Objective:** The overall objective of this project is to conduct an integrated evaluation of sand/ stone mining in haor areas through resource mapping, hotspot identification, and socio-economic analysis for sustainable resource management.

The specific objectives are following:

- To map sand/ stone resources in haor area using GIS & RS techniques and field data.
- To identify and quantify extraction hotspots and analyze spatial and temporal patterns of mining activities.
- To understand the sediment transport mechanism
- To investigate socio-economic drivers of sand/ stone extraction and assess the livelihoods.
- To suggest alternative and better options of sand management
- To recommend sustainable management strategies and specific zoning guidelines for policymakers.

### Study Area

The study area encompasses the seven districts of the North-eastern hydrological haor region of Bangladesh that include Sylhet, Sunamganj, Habiganj, Moulvibazar, Netrokona, Kishoreganj, and Brahmanbaria (Figure 1) which collectively form one of the most ecologically and hydrologically significant wetland systems in Bangladesh.

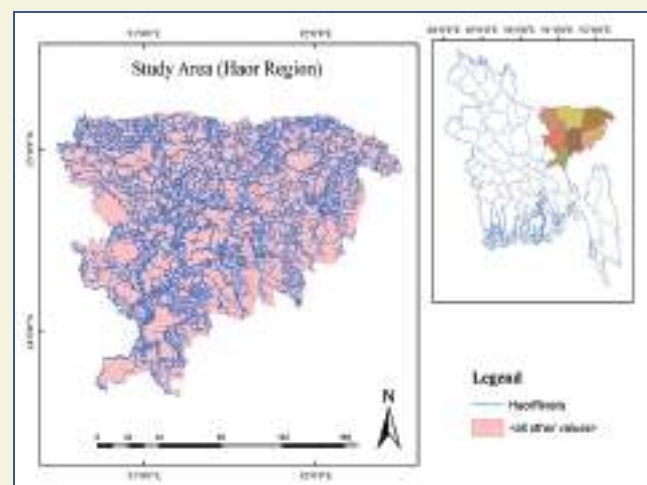


Figure: Study area of the project showing Rivers and wetland of the Haor Region

### Expected Outcomes

- Spatial database and maps of sediment sand /gravel/stone resources map in the north-eastern hydrological region (haor areas)
- Hotspot of extraction zones
- Understanding the sediment transport mechanism
- Quantifying legal and illegal extraction
- Socio-economic condition
- Proposing a nature-based economy rather than mining
- Legal audit highlighting policy gaps, enforcement weaknesses and reform needs.
- Recommendations for sustainable extraction, zoning and management
- Dissemination of findings through seminar/workshop and article publications

### Duration and Budget:

Duration: 18 (Eighteen) months (from November 2025) and  
Budget: 147 Lac

## NEWLY APPROVED RESEARCH: ESTIMATING FLOODS IN THE MUHURI-SELONIA-FENI WATERSHED IN BANGLADESH USING HYDROLOGICAL MODELING

-Md. Moniruzzaman, Senior Scientific Officer and Team Leader

### Background

Flooding is a natural phenomenon that takes place in various countries, inundating large areas and directly affecting the daily lives of impacted communities, along with increase of ecological sensitivity and social and economic repercussions. The change of land use and land cover (LULC) is considered as the main factor that influences the hydrological cycle ultimately affecting water resources. A number of rivers enter Bangladesh after emerging from the hills of Tripura, India. And of the 54 recognized trans-boundary rivers flowing into Bangladesh from India, 15 flow through the Tripura state of India. These are Juri, Monu, Dhalai, Langla, Khowai, Sutang, Sonai, Haora, Bijani, Salda, Gomati, Dakatia, Silonia, Muhuri and Feni. Among these, six flow towards the north, six to the west, and the remaining three towards the south after entering Bangladesh. It implies that the rain-water can swiftly enter Bangladesh from Tripura in no time through these rivers. And when the rain is excessive within a short period of time, then it takes the shape of flash-flood. The recent flash floods of eastern region of Bangladesh have severely impacted Feni and adjacent districts. The main three rivers of the Feni and adjacent districts are Selonia, Muhuri and Feni. This river system has contributed to the recent floods of 2024 and 2025 significantly affecting whole Feni district and adjacent areas. Scientific understanding of rainfall-runoff relationship to flood level for Selonia- Muhuri-Feni River watershed in Bangladesh part will be conducive to provide actionable information for managing flood risks in the aforesaid river system but also aims to contribute broadly to flood resilience in similar regions.

### Research Objectives

The broad objective is to comprehensively understand and analyze the change in rainfall pattern and to establish a rainfall-runoff relationship to flood for Muhuri river watershed in Bangladesh part.

Followings are the specific objectives-

- To assess the likelihood of extreme rainfall events in future in the watershed of Muhuri-Selonia-Feni River system.
- To assess rainfall-runoff relation to flood level for the watershed of Muhuri-Selonia-Feni River system.

- To assess the social perception relating to flood mitigation measurement.
- To devise the alternative solutions to flooding problem of Muhuri-Selonia-Feni River system.

### Study Area

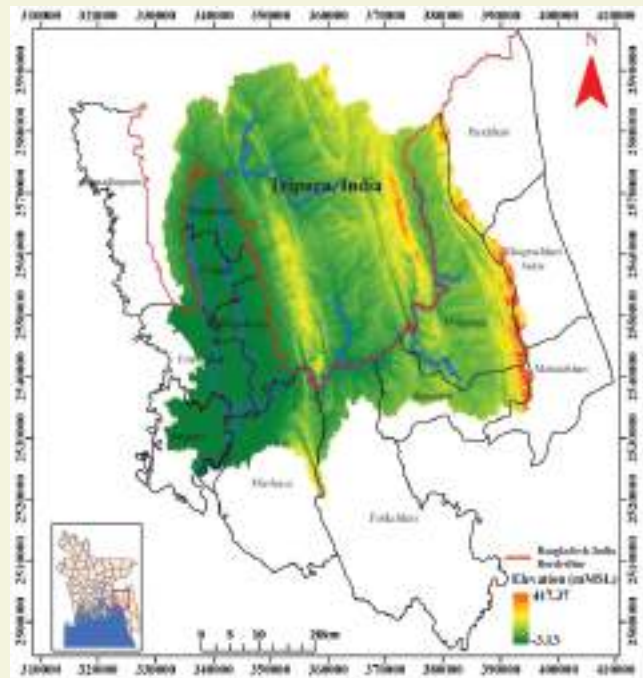


Figure: Muhuri-Selonia-Feni Watershed

### Expected Outcomes

The proposed study is expected to generate both scientific knowledge and practical solutions to flooding problems in the Muhuri-Selonia-Feni river system. Major expected outcomes include the following—

- ✓ Improved understanding of rainfall variability for the watershed
- ✓ A reliable relationship between rainfall-runoff to flood level for the selected river system
- ✓ Flood inundation and hazard maps
- ✓ Practical recommendations for flood mitigation
- ✓ Scientific evidence for supporting future research

### Duration and Budget

Duration: 18 (Eighteenth) months (from November 2025) and Budget: 40 Lac.

## NEWLY APPROVED RESEARCH: SURVEY OF RIVERS IN THE HILL TRACTS AND SUNDARBANS

-Md. Moniruzzaman, Senior Scientific Officer and Team Leader

### Background

Bangladesh is a riverine country with a complex network of rivers including the Hill Tracts and Sundarbans regions of Bangladesh. The roots of our cultural, social, and economic comfort originate from these river systems and their linked bionetworks. The Hill Tracts and Sundarbans regions of Bangladesh are ecologically sensitive and geographically distinct. The rivers in Sundarbans act as breeding and nursery grounds for fish and crustaceans, support livelihoods through fisheries and navigation, and provide resilience against cyclones and storm surges by buffering tidal energy. Similarly, hilly rivers are vital to Bangladesh's Hill Tracts region, serving as crucial waterways for transportation, a source of livelihood for local communities through fishing and agriculture, and essential for environmental balance and ecosystem health. River identification and mapping are crucial for managing natural resources, mitigating disasters, and understanding ecosystems. So, determining the number and spatial distribution of these rivers is critical for conservation, management, and resources planning. Yet, they remain among the least documented river systems in Bangladesh. Despite their ecological and socio-economic significance, no comprehensive inventory exists that accounts for their number and distribution. This knowledge gap not only impedes the preparation of a complete national river inventory but also constrains effective water resource planning, biodiversity conservation, and disaster risk reduction. Therefore, a systematic and updated assessment of rivers in these two ecologically sensitive regions is essential to generate reliable baseline data, guide conservation strategies, and strengthen national capacity for sustainable river basin management.

### Objectives

The overall objective of this study is to conduct a comprehensive assessment and enumeration of rivers in the Hill Tracts and Sundarbans regions of Bangladesh. The specific objectives are as follows:

- To develop a comprehensive geodatabase of rivers, streams, and canals in the Hill Tracts and Sundarbans regions of Bangladesh using remote sensing, GIS, and field validation. ■
- To prepare an inventory of rivers in the Hill Tracts and Sundarbans regions, categorized by flow regime

(perennial, seasonal, tidal), morphology, and ecological significance.

- To identify and document transboundary rivers in the Hill Tracts and Sundarbans regions, highlighting their spatial distribution and management implications.
- To design a framework for long-term monitoring and updating of river information, ensuring institutionalization within RRI for sustained application.
- To explore future research directions related to river ecosystems, biodiversity, and water resource management in ecologically sensitive regions of Bangladesh.



Figure: Birds eye view of a hill tracts river.

### Expected Outcomes

- ✓ Comprehensive geodatabase of rivers in the Hill Tracts and Sundarbans Regions of Bangladesh.
- ✓ Inventory of rivers in the Hill Tracts and Sundarbans Regions of Bangladesh.
- ✓ Identification and compilation of a list of transboundary rivers in the Hill Tracts and Sundarbans regions of Bangladesh.
- ✓ Framework for Long-term Monitoring, ensuring the river inventory can be updated and institutionalized within RRI for continued relevance.
- ✓ Dissemination and Knowledge Sharing through a final workshop with stakeholders.

### Duration and Budget

Duration: 18 (eighteenth) months,(from November 2025)

Budget: 50 Lac.

## NEWLY APPROVED RESEARCH: HYDRAULIC PERFORMANCE AND OPTIMIZATION OF MAIN AND MINOR GROIN CONFIGURATIONS FOR BANK PROTECTION IN ALLUVIAL RIVERS

-Md. Tofiquzzaman, Senior Scientific Officer and Team Leader

### Background

Bangladesh's alluvial rivers are highly dynamic and frequently experience bank erosion, channel migration, and sediment instability. Groins are widely used river training structures to protect riverbanks, but traditional designs often suffer severe local scour, especially at the first groin, leading to structural failure. For this reason, this research aims to explore innovative combinations of main and minor groin configurations to develop stronger, smarter, and more sustainable riverbank protection systems.

### Problem Statement

Existing groin systems have not been systematically evaluated for combinations of main and minor groin configurations. This lack of assessment creates uncertainty in their design and performance. Consequently, riverbank protection structures remain vulnerable to local scour and flow-induced stresses. Scientific optimization is therefore required to improve their effectiveness and longevity.

### Objectives

This study is mainly aimed at the reduction of local scour on the groins placed in a series. The specific objectives are:

- To examine scour development at conventional groins under upstream parallel flow.
- To investigate scour-deposition patterns for various groin configurations, and arrangements.
- To evaluate hydraulic performance to identify the most effective design for practical applications.

### Methodology

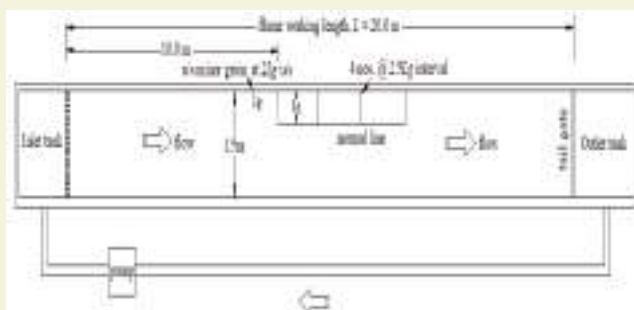


Figure: Model Layout.

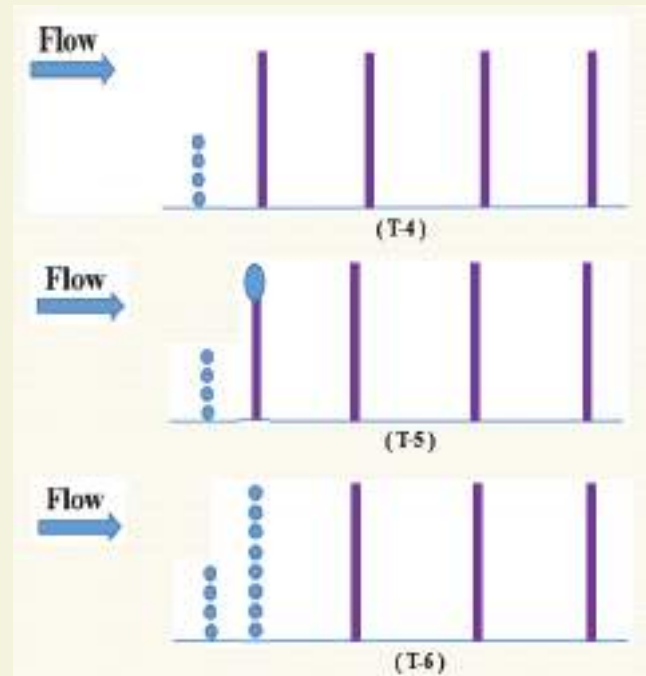


Figure: Some Tentative Test Scenarios.

### Possible Outcomes

This study is expected to reveal an advanced concept of stabilizing the groins in a series for long-term through modification of main and minor groin configurations and arrangements. It will help designers and field engineers to take steps for improving the longevity and functionality of groins.

### Present Progress

A comprehensive Literature Review is currently ongoing, focusing on global and regional studies related to groin hydraulics, scour mechanisms, and optimized configurations.

### Duration & Budget

The study is planned for 22 months with an estimated cost of BDT 49 lakh from the RRI Research Budget.

## NEWLY APPROVED RESEARCH: REASSESSING THE NUMBER OF TRANSBOUNDARY RIVERS IN BANGLADESH THROUGH HYDRAULIC CHARACTERIZATION AND MULTI-SOURCE DATA ANALYSIS

-Md. Tofiqzaman, Senior Scientific Officer and Team Leader

### Background

Being located at the downstream end of the Ganges–Brahmaputra–Meghna (GBM) Basin, Bangladesh depends heavily on transboundary rivers for water security, agriculture, navigation, and ecosystem sustainability. Despite their vital role in Bangladesh’s river system, no scientifically verified and universally accepted inventory of transboundary rivers currently exists. Inconsistent institutional records and the lack of reliable data hinder effective water governance, basin management, and policy formulation. Therefore, a systematic, data-driven reassessment of transboundary rivers is essential for sustainable water resources management in Bangladesh.

- To delineate transboundary rivers networks across Bangladesh using GIS and satellite data.
- To collect, compare, and consolidate existing institutional records.
- To verify river presence, characteristics, and naming through targeted field investigations.
- To assess and document hydraulic characteristics of identified rivers.
- To prepare a geo-database and map of verified transboundary rivers with hydraulic data.

### Methodology



Figure: Rivers of Bangladesh



Figure: Flowchart of the research methodology.

### Problem Statement

Bangladesh currently lacks a standardized, field-verified, and hydraulically validated directory of transboundary rivers. This knowledge gap creates uncertainty in river identification, cross-border connectivity assessment, and evidence-based decision making. Without a reliable national inventory of transboundary rivers, effective negotiation, planning, and sustainable management of shared river systems remain significantly constrained.

### Objectives

This study aims to update and refine the inventory of transboundary rivers through hydraulic characteristics and multi-source data integration. The specific objectives are:

### Expected Outcomes

- ✓ Verified inventory of transboundary rivers to support water management, sharing, and climate resilience.
- ✓ Geo-hydraulic database with river details and key hydraulic features.
- ✓ High-resolution geospatial map showing transboundary river networks and cross-border connectivity.
- ✓ Analytical report highlighting data gaps, discrepancies, and policy implications.
- ✓ Recommendations for integrating national water resources management with JRC mandates.

### Present Progress

An extensive literature review is currently in progress, focusing on transboundary river identification methods, GIS applications, and hydraulic characterization techniques.

### Duration & Budget

The study is planned for 18 months with an estimated cost of BDT 1 Crore 40 Lakh from the RRI Research Budget.

## VICTORY DAY CELEBRATION IN RRI

The Victory Day of Bangladesh was celebrated with great enthusiasm and deep patriotic spirit at the River Research Institute on 16 December, 2025. The day began with solemn tributes paid at the memorial, honoring the valiant martyrs whose supreme sacrifices during the Liberation War of 1971 secured the nation's independence and sovereignty. A disciplined parade followed, symbolizing unity, resilience, and the enduring strength of the nation inspired by the legacy of the freedom fighters. Various sports events,

including volleyball and badminton matches, were organized to promote teamwork, discipline, and a healthy spirit among the participants, alongside many other cultural and recreational activities. The celebration not only commemorated the historic victory but also reaffirmed a collective commitment to building a prosperous, progressive, and self-reliant Bangladesh, guided by the ideals of freedom, justice, and national pride inherited from the heroic struggle of 1971.



Some snippets of the great Victory Day celebrations at the RRI.



## FAREWELL CEREMONY OF GOSWAMI BILWA MONGAL

River Research Institute (RRI) organized a heartfelt farewell ceremony on 03<sup>rd</sup> November 2025 to honor Mr. Goswami Bilwa Mongal's retirement. Mr. Goswami started his journey at RRI on December 14, 1988, as a Concrete Technician. Then he was recruited as a Sub-Assistant Engineer for RRI on April 04, 2000. In his academic career, he completed Diploma degree in Civil Engineering from Dhaka Polytechnique Institute, Tejgaon, Dhaka. Mr. Goswami was a dynamic Diploma Engineer who performed maintenance and operational work of RRI and engaged in procurement section in his career as a focal point officer. He was one of the longest serving professionals and contributed a lot to RRI. Mr. Goswami was active in the cultural arena. He was a good presenter and commentator. RRI family will remember him for a long time for his contribution to RRI. After a very successful career, his post-retirement leaves (PRL) started from 30 October 2025 and due to unavoidable reasons, the farewell ceremony was organized on 03<sup>rd</sup> November 2025. RRI family wish him good health, good time and all the success in the future.



Photo: Farewell ceremony of Goswami Bilwa Mangal, SAE.

## INDUSTRIAL TRAINING AT RRI, A NEW DIMENTION



A team of eight students from the Department of Water Resources Engineering (WRE), Chattogram University of Engineering & Technology (CUET) participated on a three-week-long industrial training program at River Research Institute (RRI). During their stay, the students actively engaged in hands-on learning across various laboratory units, including sediment analysis, hydrology, geotechnical investigation, and hydraulic modeling. They had the opportunity to observe real-time research activities, interact with technical experts, and gain practical exposure to river management and water-related project studies. The training program enriched their academic knowledge with field-oriented experience and provided valuable insights into the applied aspects of water resources research and engineering.

## VISITS IN RRI

Chairman, Bangladesh River Foundation Mr. Muhammad Monir Hossain along with other high officials have visited River Research Institute (RRI). In their visit, an opinion meeting among the officials of RRI and Bangladesh River Foundation has taken place in the Madhumati Conference

Room, RRI, Faridpur. In the meeting, both parties aim to find a collaborative ground on the sustainable development strategy of the water resources of Bangladesh. Later, they visit RRI's modeling and laboratory facilities.



Photo: Opinion sharing meeting between RRI and Bangladesh River Foundation officials.



Photo: A view of in front of Director General Office

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