

**GNAMAMI
GANGE**



Annual Report

2023-24



National Mission for Clean Ganga

Department of Water Resources, River Development
& Ganga Rejuvenation, Ministry of Jal Shakti,
Government of India



ANNUAL REPORT

2023-24



NATIONAL MISSION FOR CLEAN GANGA
An Authority (under EPA vide notification dated 07 October 2016)
Ministry of Jal Shakti
Department of Water Resources, River Development & Ganga Rejuvenation
Government of India

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NAMAMI GANGE OVERVIEW

1.1 Background

The River Ganga has been deeply intertwined with Indian civilization, serving as a crucial source for physical, economic, livelihood, and spiritual needs. It is not only a symbol of India's rich history and cultural heritage but also a representation of the collective faith and sentiments of the people. Covering 26% of India's land and supporting 43% of its population, the Ganga River Basin is the largest in the country, contributing significantly to its water resources and biodiversity.

Despite its immense value, the Ganga has been severely polluted over time due to industrialization, rapid population growth, and inadequate waste management. Municipal sewage, industrial effluents, agricultural runoff, and deforestation have all contributed to its deterioration, threatening the river's health and the livelihoods dependent on it. Although efforts to rejuvenate the Ganga began in the 1980s, the challenge remains daunting, requiring a more integrated approach.

The government, alongside public and private institutions, has launched various initiatives to restore the river's ecological and spiritual status while also harnessing its economic potential. The evolution of these conservation efforts reflects the ongoing struggle to preserve this vital national treasure.

Hence, the evolution of Ganga River Conservation programmes is depicted below:

1.1.1 Evolution of Ganga River Conservation Programmes



a. Ganga Action Plan I and II

Cleaning of Ganga was initiated in 1985 by launching Ganga Action Plan (GAP) as a centrally funded scheme under Ministry of Environment and Forests (MOEF), which was followed by GAP

Phase-II initiated in 1993. Various pollution abatement schemes including interception & diversion of sewage and setting up of sewage treatment plants were taken up under GAP. Under both phases of GAP, a total of 575 schemes were sanctioned for undertaking pollution abatement activities in the identified polluted stretches of the river Ganga.

b. National Ganga River Basin Authority

In 2009, Government of India set up the 'National Ganga River Basin Authority' (NGRBA) as an empowered planning, financing, monitoring, and coordinating authority for the Ganga River, to ensure effective abatement of pollution and conservation of the river Ganga by adopting a holistic approach with the river basin as the unit of planning.

1.1.2 National Mission for Clean Ganga (NMCG)

In 2011, National Mission for Clean Ganga (NMCG) was registered as a society under the Societies Registration Act'1860. It acted as the implementation arm of NGRBA which was constituted under the provisions of the Environment (Protection) Act (EPA), 1986. On 31.7.2014¹, the Ministry of Water Resources was renamed as "Ministry of Water Resources, River Development & Ganga Rejuvenation" (MoWR, RD & GR). The work of rejuvenation of river Ganga and its tributaries was transferred with effect from 01.08.2014 from MoEF&CC to MoWR, RD & GR. NGRBA has since been dissolved with effect from 7.10.2016², consequent to constitution of **National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council)** vide notification no. S.O. 3187(E) dt. 7-10-2016 under Environment Protection Act' 1986.

River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 was promulgated on 7th October 2016. The order includes various principles which are being followed for rejuvenation, protection, and management of River Ganga. The regulatory functions to manage unique environmental & ecosystem of the River Ganga.

The Act envisages five tier structure at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga and to ensure continuous adequate flow of water so as to rejuvenate the river Ganga as below;

- i. National Ganga Council under chairmanship of Hon'ble Prime Minister of India.
- ii. Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation).
- iii. National Mission for Clean Ganga(NMCG).
- iv. State Ganga Committees (SGC's) and
- v. District Ganga Committees (DGC's) in every specified district abutting river Ganga and its tributaries in the states.

¹ https://nmcg.nic.in/writereaddata/fileupload/15_ChangeinBussinessAllocation.pdf

² https://nmcg.nic.in/writereaddata/fileupload/47_AuthorityNotification.pdf

The governance structure is given as below –



Figure 1 five tier structure at national, state and district level

NMCG has a two tier management structure and comprises of Governing Council and Executive Committee. Both of them are headed by Director General, NMCG. Executive Committee has been authorized to accord approval for all projects up to ₹1000 crore. Similar to structure at national level, State Programme Management Groups (SPMGs) acts as implementing arm of State Ganga Committees. Thus the newly created structure attempts to bring all stakeholders on one platform to take a holistic approach towards the task of Ganga cleaning and rejuvenation.

i. National Ganga Council

The NGC is responsible for the ‘protection, prevention, control and abatement of environmental pollution in River Ganga’, and for ‘its rejuvenation to its natural and pristine condition, and ‘to ensure continuous adequate flow of water in the River Ganga,’ and with connected matters.

• 1st National Ganga Council Meeting:

The first meeting of the National Ganga Council (NGC) was held on 14th December 2019 at Kanpur under the Chairmanship of Hon'ble Prime Minister. The meeting was attended by Members of Union Council of Ministers, Chief Ministers, and Deputy Chief Minister of Ganga Basin States, among others. During the 1st meeting of NGC, the discussion includes expediting sewerage projects, effective management of municipal solid waste, resource recovery from waste water, capacity building of Urban Local Bodies, sustainable agricultures, forestry interventions, Ganga Dolphin Project, Integrated Wetland Conservation, protection of flood plains, youth involvement in river conservations, institutional development for DGCs and continuation of Namami Gange beyond 2020 in view of long term O&M, 15 year annuity for HAM projects and regulatory role as an authority and projects on tributaries.

• 2nd National Ganga Council Meeting:

The 2nd meeting of the National Ganga Council was held on 30th December 2022 under the chairmanship of Hon'ble Prime Minister of India at Kolkata. Hon'ble PM joined via video conferencing, while the other members of NGC were physically present.

During the meeting Hon'ble Prime Minister complimented the functioning of NMCG and mentioned about the selection of Namami Gange as one of the top 10 Eco-Restoration Flagships of the world by UN agencies. He said that it was a great opportunity to discuss ways to further strengthen the Namami Gange initiative. Hon'ble PM spoke about ways to enhance cleanliness efforts including expanding the network of sewage treatment plants in the smaller towns. He also emphasised on ways to enhance various forms of herbal farming along the Ganga and the need to boost tourism infrastructure along the river, which can provide livelihood opportunities to several people.

ii. Empowered Task Force

An Empowered Task Force under the Chairmanship of Union Minister for Jal Shakti has been constituted to exercise the powers and discharge functions as specified in NMCG Authority Order and Environment Protection Act. The Committee has representation of Chief Secretaries of States on Ganga basin besides Secretaries from concerned departments of Government of India. The Empowered Task Force coordinates and advises on matters relating to Rejuvenation, Protection and Management of river Ganga and its tributaries and require the Ministries, Departments and State Government to frame Action Plan with specific activities timelines and mechanism for their implementation.

On 20th April 2023, Hon'ble Minister of Jal Shakti chaired the 11th Meeting of the Empowered Task Force (ETF) of National Mission for Clean Ganga(NMCG).



Figure 2 Hon'ble Minister and MoS, Ministry of Jal Shakti, Sh Gajendra Singh Shekhawat chaired the 11th ETF (Empowered Task Force) meeting on 20th April 2023

iii. Governing Council

The Governing Council is headed by Director General of NMCG, and comprises members from MoEF&CC, MoHUA, NMCG etc. The Governing Council may constitute a sub-committee from out of its members and also by associating some technical experts for appraisal of the projects. The Sub-Committee of the Governing Council shall appraise the project only after completion of Third

Party Appraisal of the project by technical experts or consortium of recognized institutes or Indian Institutes of Technology, as the case may be.

iv. Executive Committee

As per River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016, the National Mission for Clean Ganga have a two-tier management structure and Executive Committee is one of the two tiers. The Executive Committee is constituted out of the Governing Council and headed by Director General NMCG. The Executive Committee includes Joint Secretary, Department of Expenditure, Representative of NITI Aayog (not below Joint Secretary), Principal Secretaries of Ganga States, and all senior officials of NMCG.

v. State and District Ganga Committees

The State Ganga Committee headed by Chief Secretary of the respective State has representation of Principal Secretaries of relevant Departments of the State besides five experts from relevant fields nominated by the State Government.

Similarly, the District Ganga Committee is headed by the District Magistrate of the district abutting river Ganga, which has representation of two nominated members from Municipalities and Gram Panchayats of the District, one member each from concerned Departments

The Committee is constituted based on nominations received from the Government Authority and with the approval of Hon'ble Minister of Jal Shakti. So far **52 DGCs on Ganga main stem and 87 on tributaries have been duly notified** as per following breakup:

Table 1 DGCs on Ganga and its Tributaries

S. No	Name of the State	DGC constituted on main stem of Ganga	No. of DGC constituted Tributaries of river Ganga
1	Uttarakhand	7	6
2	Uttar Pradesh	25	50
3	Bihar	12	26
4	Jharkhand	1	3
5	West Bengal	7	2
Total		52	87

1.2 NAMAMI GANGE - An Integrated Ganga Conservation Mission

Cabinet approved the Namami Gange programme on 13th May 2015 as a comprehensive approach to rejuvenate river Ganga and its tributaries under one umbrella. A total of ₹20,000 crores have been allocated for this project to be spent over the next five years (2020). This includes funds allocated for ongoing projects to clean river Ganga and new initiatives. In 2022, the Cabinet has approved Namami Gange II for ₹22,500 crores for the period 2021- 2026. The focus shall be on sewerage infrastructure creation in Ganga tributaries, scaling up of public private partnership efforts, circular water economy model and fecal sludge and septage management.

Namami Gange Programme II

The first phase of the NMCG has ended in 2021 and **Namami Gange Programme II (NGP II)** has been approved till March 2026. The key features of NGP II include:

- Empanelment of agencies to support DPR preparation
- Standardization of DPRs and training for its preparation
- Mapping and monthly monitoring of drains by SPCBs
- Characterization of sludge and its monetization
- Monthly reports & review of activities for improved monitoring system
- Institutional strengthening of SPMGs by filling up of vacancies
- Stringent monitoring of DPRs and procurement process
- Strengthening of DGCs through capacity building
- Fixed day, mandated monthly, minuted DSC meetings
- More Participation in NG Programs- Arth Ganga etc.

1.2.1 Pillars of Ganga Rejuvenation

This approach differentiates this from earlier attempts. Integrated River Basin Management (IRBM) approach is followed with multi sectoral and multi-agency interventions such as;

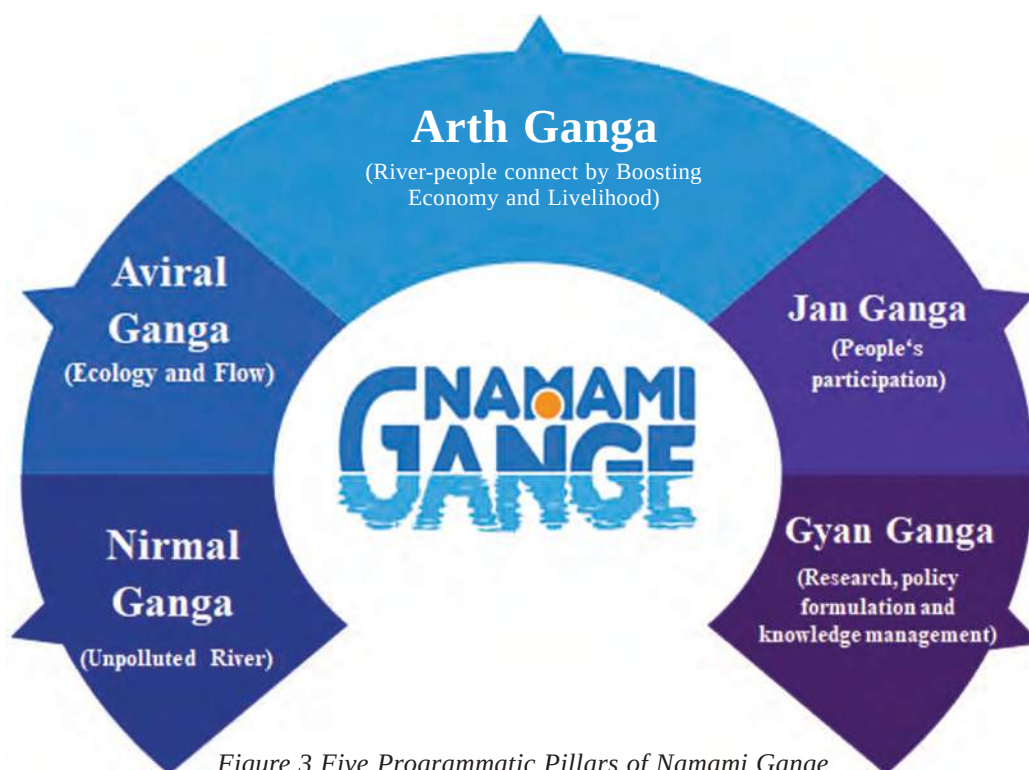


Figure 3 Five Programmatic Pillars of Namami Gange

(i) pollution abatement (**Nirmal Ganga**), (ii) improving ecology and flow (**Aviral Ganga**), (iii) strengthen people river connect (**Jan Ganga**) and (iv) facilitate diversified research, scientific mapping, studies, and evidence-based policy formulation (**Gyan Ganga**). Over the years, concerted efforts made by NMCG are beginning to find success in restoring the pristine glory of the river. One such effort is the **Arth Ganga** which was envisioned by the Hon'ble Prime Minister in 2019, during the National Ganga Council. The model is based on the symbiotic relationship between nature-society and aims to strengthen the people-river connect.

A total of **462 projects** have been sanctioned under Namami Gange programme at a cost of **₹38,690 crores**. 286 projects have been completed and the remaining are in progress. Pace of execution and consequently the expenditure has increased many folds with the expenditure for **FY 2023-24 being ₹18,548 crores as compared to ₹171 crores in FY 2014-15**.

Table 2 Project Summary under Namami Gange Programme as on 31st March 2024

S. No.	Type of Project	Name of State	Sanctioned				Completed		
			No of Projects	Capacity (MLD)	Network (km)	Cost (in ₹Cr)	No of projects	MLD Created/ Rehabilitated	Network (km)
1	Sewerage Projects	Uttarakhand	42	244	207	1,717	36	165	175
		Uttar Pradesh	69	2,347	1,895	14,097	39	945	1,805
		Bihar	38	757	1,793	6,256	14	274	1,357
		Jharkhand	5	262	151	1,310	2	16	88
		West Bengal	29	899	982	4,838	14	466	865
		Haryana	2	145	41	218	2	145	52
		Delhi	9	1,268	37	1,951	8	1,064	36
		Himachal Pradesh	1	1.72	-	12	1	1.72	-
		Rajasthan	1	36	146	258	0	36	140
		Madhya Pradesh	3	237	29	670	0	0	0
		Modular STP Decentralised Treatment	1	-	-	410	-	-	-
		Total	200	6,196	5,282	31,737	116	3,111	4,517
2	River front, Ghats and Crematoria		108	-	-	1,809	82	-	-
3	Afforestation and Biodiversity conservation		51	-	-	776	40	-	-
4	Ghats Cleaning & River Surface Cleaning		6	-	-	93	4	-	-
6	Industrial Pollution Abatement		21	-	-	1,609	8	-	-
7	Institutional Development		8	-	-	156	3	-	-
8	Other Projects		68	-	-	2,510	33	-	-
	Grand Total		462	6,196	5,282	38,690	286	3,111	4,517

1.3 Namami Gange Highlights in 2023-2024

a. Hon'ble Prime Minister inaugurated Sewerage Infrastructure Projects at Masani and Moradabad, Uttar Pradesh:

On 25th January, 2024, the Hon'ble Prime Minister inaugurated the following sewerage infrastructure projects with a cumulative cost of ₹790.5 Crores.

- Construction of 30 MLD STP at Masani, Mathura
- Rehabilitation of existing 30 MLD at Trans Yamuna and 6.8 MLD STP at Masani, Mathura
- Construction of 20 MLD Tertiary Treatment and Reverse Osmosis Plant (TTRO plant) at Masani, Mathura
- Construction of 58 MLD STP with 264 km and Sewerage Network at Moradabad



Figure 4 Hon'ble Prime Ministers inaugurated the of Sewerage Infrastructure Projects at Masani and Moradabad, Uttar Pradesh

b. Hon'ble Union Minister of Jal Shakti inaugurated 14 MLD STP at Baghpat, Uttar Pradesh:

On 4th January 2024, the Hon'ble Union Minister of Jal Shakti inaugurated 14 MLD Sewage Treatment Plant (STP) with 2.4 km Interception & Diversion (I&D) Network worth ₹77.36 crores in Baghpat, Uttar Pradesh.



Figure 5 Glimpses from the in-inauguration of 14 MLD STP and I&D at Baghpat, Uttar Pradesh

c. Hon'ble Union Minister of Jal Shakti laid Foundation Stone of 220 MLD STP at Meerut, Uttar Pradesh:

On 18th January 2024, the Hon'ble Union Minister of Jal Shakti laid the foundation stone for the 220 MLD Meerut sewage treatment plant (STP) with interception and diversion (I&D) project worth ₹370 crore in Meerut, Uttar Pradesh.

d. Hon'ble Prime Minister inaugurated Sewerage Infrastructure Projects at Bally, Kamarhati & Baranagar and Howrah, West Bengal:

On 1st March 2024, Hon'ble Prime Minister inaugurated three projects worth ₹575 crore from Hooghly, West Bengal. The projects include:

- STP with capacity of 40 MLD and Interception & Diversion work at Bally, West Bengal, with sanctioned cost of ₹191.51 crore;
- STP with capacity of 60 MLD and Interception & Diversion work at Kamarhati and Baranagar Municipalities, West Bengal, with sanctioned cost of ₹174.15 crore;
- STP with capacity of 65 MLD and Interception & Diversion work at Howrah, with sanctioned cost of ₹209.13 crore.



Figure 6 Hon'ble Prime Ministers inaugurated the of Sewerage Infrastructure Projects at Bally, Kamarhati & Baranagar and Howrah, West Bengal

e. Hon'ble Prime Minister inaugurated Sewerage Infrastructure Projects at Patna, Bhagalpur, Saran and Chapra, Bihar:

On 2nd March 2024, Hon'ble Prime Minister inaugurated twelve projects worth ₹2,189 crores from Aurangabad, Bihar. These projects include:

- STP with capacity of 60 MLD and sewerage network at Saidpur, Patna, with sanctioned cost of ₹ 184.93
- Sewerage network of 162 km at Saidpur, Patna; with sanctioned cost of ₹268.63
- STP with capacity of 60 MLD and sewerage network at Pahari, Patna; with sanctioned cost of ₹191.62
- Sewerage network of 93 km at Hill Zone IVA, Patna; with sanctioned cost of ₹230.48
- Sewerage network of 116 km at Hill Zone V, Patna; with sanctioned cost of ₹356.37

- Sewerage network of 180 km at Beur, Patna; with sanctioned cost of ₹225.77
- Sewerage system and sewerage network of 96 km at Karmalichak, Patna; with sanctioned cost of ₹277.42
- STP with capacity of 11 MLD and I&D network at Barh, Patna; with sanctioned cost of ₹58.26
- STP with capacity of 10 MLD and I&D network at Sultanganj, Bhagalpur; with sanctioned cost of ₹60.22
- STP with capacity of 9 MLD and I&D network at Navgachia, Bhagalpur; with sanctioned cost of ₹60.79
- STP with capacity of 3.50 MLD and I&D network at Sonpur, Saran; with sanctioned cost of ₹38.26
- STP with capacity of 32 MLD and I&D network at Chapra; with sanctioned cost of ₹236.15



Figure 7 Hon'ble Prime Ministers inaugurated the of Sewerage Infrastructure Projects at Patna, Bhagalpur, Saran and Chapra, Bihar

f. Hon'ble Prime Minister inaugurated Sewerage Infrastructure Projects at Prayagraj, Jaunpur and Etawah, Uttar Pradesh:

On 10th March 2024, Hon'ble Prime Minister inaugurated three sewage projects worth ₹1,114 crores from Azamgarh, Uttar Pradesh. These projects include;

- STP with capacity of 72 MLD and I&D network work at Naini (District-G, 42 MLD), Phaphamau (District-F, 14 MLD) and Jhunsi (16 MLD), Prayagraj; with sanctioned cost of ₹767.59 crore;
- STP with capacity of 30 MLD and I&D network work at Jaunpur; with sanctioned cost of ₹206.05 crore;
- STP with capacity of 45 MLD and I&D network work at Etawah; with sanctioned cost of ₹140.6 crore.



Figure 8 Hon'ble Prime Ministers inaugurated the of Sewerage Infrastructure Projects at Prayagraj, Jaunpur and Etawah, Uttar Pradesh

g. Meeting with World Bank Executive Directors Team:

On 5th August 2023, DG, NMCG, along with senior NMCG officials, attended a meeting held with the World Bank Group's Executive Directors at Agra during their study visit to India. The meeting was organised to understand the transformational impact of World Bank projects in the country. The EDs appreciated the clarity of vision of the leadership and were especially impressed by the HAM model, One City One Operator Model, Arth Ganga initiative and Public Participation efforts put under Namami Gange mission.



Figure 9 DG NMCG & Senior Officials Meeting with Team of Executive Directors from World Bank in Agra on 5th August 2023

h. Launch of Monitoring Centre – “PRAYAG”:

On 20th April 2023, Hon'ble Union Minister launched the Monitoring Centre “PRAYAG” Platform for Real-time Analysis of Yamuna And Ganga & their Tributaries at National Mission for Clean Ganga (NMCG) office in New Delhi. PRAYAG is a real time monitoring center for planning and monitoring of projects, river water quality, etc. through various online dashboards such as Ganga Tarang Portal, Jajmau Plant through Online Drone Data, PMT Tool Dashboard, Ganga Districts Performance Monitoring System, etc.



Figure 10 Hon'ble MoJS inaugurated the PRAYAG Monitoring Centre on 20th April 2023

i. Launch of a JALAJ Awareness and Marketing (JAM) Center started functioning at Dilli-Haat:

On 17th September 2023, a JALAJ Awareness and Marketing (JAM) Center started functioning at

Dilli-Haat. This is a very unique information dissemination and livelihood opportunities initiative under Arth -Ganga. Products made by Women SHG under JALAL and the other NGOs of Ganga Basin are being sold by an Apex Jalaj SHG (JALAJ-NAULA) in a stall leased out by NMCG.



Figure11 Hon'ble MoJS visiting the JALAJ Awareness and Marketing (JAM) Center at Dilli-Haat on 22nd December 2023

j. **Launch of Global River Cities Alliance during COP 28 in Dubai:**

The National Mission for Clean Ganga (NMCG) under the Ministry of Jal Shakti, Republic of India launched the Global River Cities Alliance (GRCA) on 10th December 2023 at the COP28 of the United Nations Climate Change Conference in Dubai, United Arab Emirates.



Figure 12 Launch of Global River Cities Alliance during COP 28 in Dubai

k. **Signing of Memorandum of Common Purpose (MoCP) with Mississippi River Towns and Cities:**

Earlier on 6 December 2023, at the COP 28, NMCG representing RCA had signed a Memorandum of Common Purpose (MoCP) with Mississippi River Towns and Cities Initiative representing 124 member river-cities of the USA. The Global River Cities Alliance, the first of its kind alliance in the world is a unique platform of 270 global river-cities with the launch at COP28, Dubai, UAE.



Figure 13 Signing of Memorandum of Common Purpose (MoCP) with Mississippi River Towns and Cities

l. IWA's Special Recognition to NMCG under Climate Smart Utilities Initiative:

On 13th December 2023, NMCG was recognized as a “Climate Smart Utility” within the framework defined by the International Water Association (IWA) following a review by three different jury members. This recognition is awarded under IWA’s Climate Smart Utilities Initiative—Recognition Program. NMCG’s success was celebrated by IWA during one of the renowned platforms of the World Water Congress 2023, held from 10th to 14th December in Kigali, Rwanda.

m. 2023 Going Digital Awards:

The 318 MLD STP at Coronation Pillar in North Delhi achieved global recognition at the ‘2023 Going Digital Awards’ in Infrastructure. The pioneering project was financed jointly by Namami Gange and the Delhi Jal Board at a cost of ₹515 crores.

Project Monitoring, Financial Control, Budget & Audit, CGF

2.1 Project Monitoring

2.1.1 Project Monitoring Tool (PMT)

A centralized cloud-based Project Monitoring Tool has been implemented in NMCG to monitor all the NMCG projects;

- **Project Monitoring Module:** A comprehensive project monitoring module which is used by operational resources to capture the key elements related to projects.
- **Overall Dashboard:** A visual representation of overall progress (Physical and Financial Progress) and performance of all the projects status with multiple filters such as state wise, town wise, river wise etc.

The overall dashboard consists of:

- The state-wise total number of projects chart.

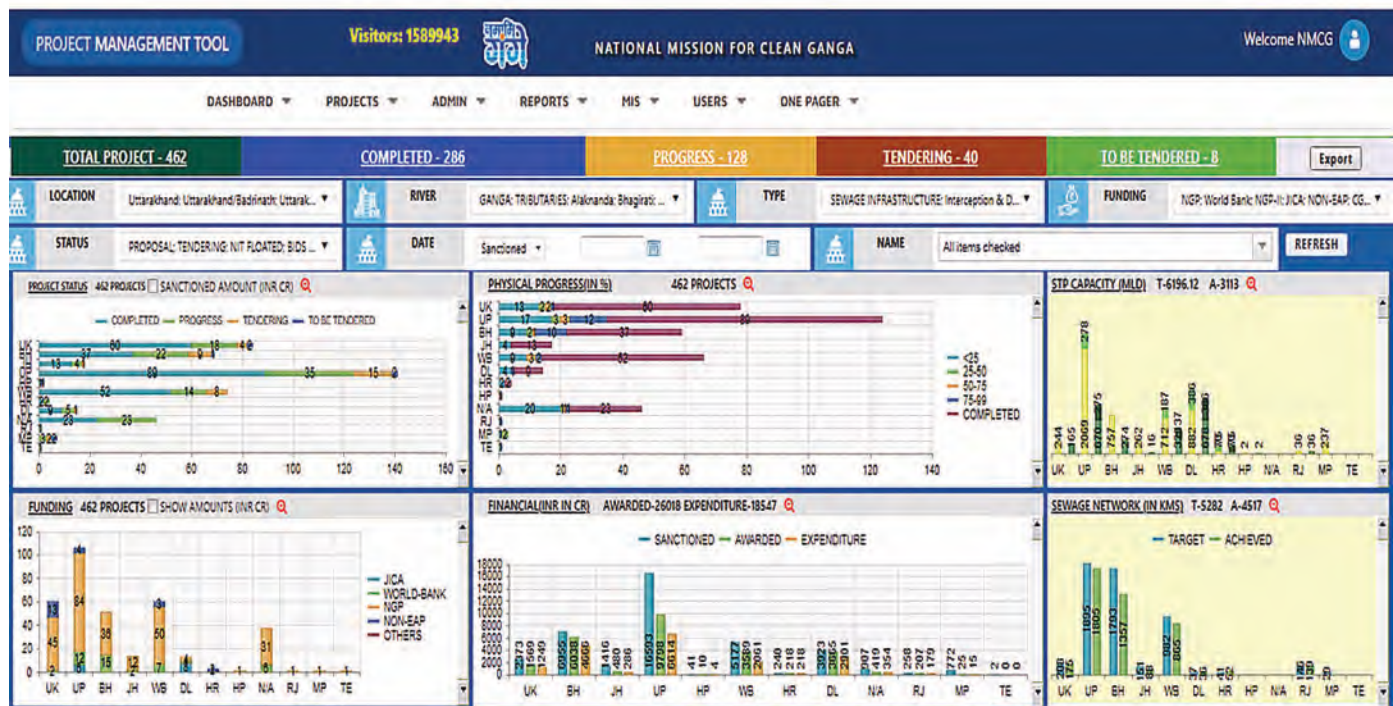


Figure 14 Snapshot of PMT of Namami Gange Programme

- State-wise project status and how many projects in each state
- State-wise financial progress for projects
- Funding organizations and respective funded amount for each state
- Sewer network
- STP capacity

2.2 Financial Controls

Highlights of FY 2023-24

- Full Transition to the Treasury Single Account (TSA) System – 10 more organizations on-boarded.
- Full disbursement of budget provision (RE) of ₹2400 crore.
- Pending Utilization Certificates have been reduced substantially. Total outstanding UCs for grant-in-aid released since inception of the programme in FY 2011-12 are ₹366.69 crore (as on 30.06.2024).
- Improving internal controls:
 - Sole Audit jurisdiction of SMCGs entrusted to the C&AG.
 - Quarterly meetings of NMCG's Audit/Budget Review Committees.
 - Coordinated internal audit of NMCG and SMCGs through centrally engaged agency.
 - Monthly structured reviews with SMCG Finance Teams.
- Reconciliation of NMCG accounts completed with SMCGs (except Uttar Pradesh) and CPCB. Reconciliation on-going with State Forest Departments.
- C&AG Audit completed as per prescribed timelines, and Audit Report for FY 2022-23 laid in the Parliament within stipulated time of 31.12.2023 (Lok Sabha on 18.12.2023 & Rajya Sabha on 19.12.2023).
- ₹496.60 crores refunded to the Consolidated Fund of India.
 - ₹41.28 crores accrued interest on Grants-in-aid.
 - ₹455.32 crores unutilized grants-in-aid.

2.2.1 Overview of the Finance Unit of NMCG

NMCG's Finance Wing is a combination of Integrated Finance and Pay and Accounts Divisions in a typical Ministry/ Department of the Government of India. In addition, it is also responsible for conducting all Audits of NMCG, and related coordination, as also the management of financial aspects of the Clean Ganga Fund. The Finance Wing is headed by the Executive Director (Finance).

The main functions of the Finance Wing include:

- (i) Financial scrutiny of proposals.
- (ii) Ensuring financial prudence and observance of relevant Government of India Rules & Procedures.
- (iii) Budget of NMCG.
- (iv) Release of Funds to implementing/ executing agencies, and payments to vendors.
- (v) Preparation of Annual Accounts of NMCG.
- (vi) Audit of Annual Accounts by C&AG as per Authority Notification & GFR.
- (vii) Ensuring timely conduct of all other mandated Audits, and coordination with various Divisions of NMCG and State Missions for Clean Ganga (SMCGs) on Audit related matters. In addition to Audit of NMCG's Annual Accounts, the Audit activities include:
 - a. Tax Audit by a CA Firm to fulfill the requirement of the Income Tax Act, 1961.
 - b. Compliance/ Transaction Audit done periodically by the C&AG.
 - c. Certification Audit in respect of World Bank-assisted Projects by the C&AG.

- d. Performance Audit by the C&AG.
- e. Quarterly Internal Audit as per NGRBA framework.

(viii) Management of Clean Ganga Fund.

2.2.2 Fund Flow for Namami Gange Programme

NMCG fully transited to the Treasury Single Account (TSA) system in Financial Year (FY) 2022-23. NMCG has been designated as the Central Nodal Agency (CNA) in respect of the Namami Gange Programme. The SMCGs and Executing Agencies (EAs) receiving funds from NMCG are Sub-Agencies (SAs) of NMCG so far as the Namami Gange Programme is concerned. The CNA, as also the Government Sub-Agencies, are required to open assignment accounts in the Reserve Bank of India (RBI). The allocation for Namami Gange is part of the approved budget of the Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD&GR). Assignment limits for NMCG are approved by the DoWR, RD&GR on the basis of quarterly requirement of funds projected by the NMCG. NMCG in turn approves assignment limits for SMCGs and EAs after assessing their fund requirements. Expenditures are booked only when payments are made to a vendor/contractor. Unutilized Assignment Limits lapse at the end of the FY.

The typical architecture of the Namami Gange Programme posed an additional challenge. Several Sub-ABs (such as the SMCGs, CPCB and State Forest Departments) have a third-tier executing agency (such as UP Jal Nigam, BUIDCO, KMDA etc. for SMCGs and Regional offices for CPCB & State Forest Departments). Since TSA at present is applicable only up to two levels, in consultation with the Department of Expenditure, the Sub-ABs at third tier have been notified as vendors for the purpose of fund flow till the TSA is extended to the third level and below.

2.2.3 Transition to Treasury Single Account System

Treasury Single Account System – Objectives

In order to minimize the cost of Government borrowings and to enhance the efficiency in fund flows to Autonomous Bodies (ABs), the Expenditure Management Commission (EMC), in its report (September 2015, Para 125) recommended gradual transition of Autonomous Bodies to Treasury Single Account (TSA).

Department of Expenditure accepted the said recommendation of the EMC; and a pilot project on TSA was initiated in ICMR in February 2019. In May 2020, Department of Expenditure issued instructions extending the TSA system to 18 Autonomous Bodies, including the NMCG.

The objectives for implementing a new system for releasing funds to Autonomous Bodies include the following:

- Enhance efficiency of fund flows to ABs by using the 'just in time' principle for release of funds and thereby ensuring better Cash Management.
- Reduce parking/idling of funds by the Autonomous Bodies in their bank accounts.

10 more agencies were on-boarded on TSA during FY 2023-24 (Table 3), thereby taking total number of organizations on-boarded on TSA to 30.

Table 3 Agencies On-boarded on TSA during FY 2023-24

Sl. No	Name of Agencies
1.	Wildlife Institute of India
2.	Ayodhya Development Authority
3.	National Institute of Urban Affairs
4.	Survey of India
5.	NABARD Consultancy Services Pvt. Ltd.
6.	NBCC (India) Limited
7.	Jal Shakti Department, Government of Himachal Pradesh
8.	Water Resources Department, Madhya Pradesh
9.	Directorate of Urban Administration & Development, Madhya Pradesh
10.	Indian Institute of Public Administration

NMCG continued to handhold Sub-Agencies for transition to the TSA. Relevant resources, including a self-contained Guidance Note and FAQ on TSA, were collated and uploaded on the NMCG website for the benefit of the grantee organisations.

2.3 Budget and outlay

2.3.1 Budget and Disbursement: FY 2023-24

The revised allocation for FY 2023-24 was ₹2400 crore, which the NMCG had fully disbursed/ allocated as assignment limits. Regular monitoring of utilization by executive agencies ensured near full utilization of allocated limits. Agencies unable to spend assigned limits fully were advised to refund the amount likely to remain unutilized and thus would have lapsed. A total of ₹80.12 crore was refunded by various agencies which was successfully reassigned by the NMCG. Only an amount ₹3.88 crore lapsed with executing agencies, which is a vast improvement on ₹36.69 crore lapsing in FY 2022-23.

2.3.2 Outlay and Expenditure under NGRBA and Namami Gange Mission

The efforts to abate pollution of River Ganga were first initiated in 1985 with the launch of the Ganga Action Plan (GAP I) covering 25 towns of the Ganga mainstem followed by Ganga Action Plan II (GAP II) in 1993, which extended GAP I to 60 towns, including towns along some of the tributaries - Yamuna, Gomti, Damodar and Mahananda. National River Conservation Plan (NRCP) was launched in 1995 to address pollution in all major rivers of the country and the GAP II covering 8 rivers from Ganga Basin (Ganga, Yamuna, Gomti, Damodar, Mahananda, Betwa, Mandakini & Ramganga) was merged into NRCP.

“Namami Gange” was launched in 2015 with an outlay of ₹20,000 crores as a holistic basin-wide initiative to rejuvenate River Ganga. The second phase of the programme (Namami Gange II) was approved by the Cabinet on 19th January, 2022 with an outlay of ₹22,500 crores for a period up to 31st March, 2026. The approved outlay includes committed liabilities up to March 2026, as also new initiatives taken up under the NGM-II.

Table 4 Component-wise approved allocations

Nirmal Ganga (Unpolluted Ganga)	₹18,400 crores
Aviral Ganga (Uninterrupted Ganga)	₹950 crores
Gyan Ganga (Research & knowledge related to Ganga)	₹1,795 crores
Jan Ganga (River –people connect)	₹775 crores
Artha Ganga (Ganga-centric economy)	₹100 crores
Institutional Development	₹480 crores

2.3.3 Refund of unutilized grants with executing agencies

General Financial Rules (Rule 230-8) require “All interests or other earnings against Grants in aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India (CFI) immediately after finalisation of the accounts”. Further, the guidelines for implementation of TSA also require all unspent grants-in-aid received prior to the introduction of TSA be refunded to the CFI.

NMCG has been pro-actively pursuing refund of unutilized grants-in-aid and accrued interests with all executing agencies since FY 2022-23. This drive was continued vigorously during FY 2023-24, resulting in a total refund of ₹496.60 Crore to the CFI during the year. With this the total unutilized grants and interests refunded to the CFI during the last two years are ₹925.54 crore.

2.4 Audit

2.4.1 Audit Mechanism of NMCG

NMCG has been established as an “Authority” under the Environment Protection Act, 1986 with administrative and financial empowerment. Given the special nature of NMCG, its accounts and activities are subject to multifarious Audits:

- I. Audit of Annual Accounts by C&AG as per Authority Notification dated 07.10.2016 & GFR.
- II. Tax Audit by a CA Firm to fulfill the requirement IT Act, 1961 (commonly referred to as Tax Audit).
- III. Compliance/ Transaction Audit done periodically by the C&AG
- IV. Certification Audit in respect of World Bank assisted Projects by C&AG, done annually.
- V. Performance Audit by C&AG.
- VI. Quarterly Internal Audit as per NGRBA framework.

a. Audit of Annual Accounts of NMCG by the C & AG

Para 43(3) of the “The River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016” dated 07 October 2016, stipulates that the audit of National Mission for Clean Ganga accounts

shall be done by the Comptroller and Auditor-General of India and after completion of the annual audit, the audit agency shall furnish annual audit certificate. Further, Paragraph 43(5) of the said order also provides that the annual expenditure statement of NMCG with the audit report shall be forwarded annually to the Empowered Task Force (ETF) and the Central Government for being laid before each House of the Parliament. Accordingly, the audit of NMCG is carried out by the Office of the Comptroller & Auditor General every year.

All key timelines for the C&AG Audit were adhered to as mandated by the GFR and Authority Notification. The Annual Accounts for FY 2022-23 were finalized and submitted to the C&AG on 28 June 2023; Audit Report from C&AG was received in October 2023, and the Audited Accounts were laid on the Table of both houses within the stipulated time (Lok Sabha on 18.12.2023 & Rajya Sabha on 19.12.2023).

b. Certification Audit under the World Bank assisted Projects by the C&AG

The World Bank is assisting the Namami Gange Programme under the Second National Ganga River Basin Project (SNGRBP), for which a loan agreement (IBRD 9136-IN) was signed on 7 July, 2020. The loan was declared effective from 21.07.2020. However, disbursement under this loan commenced from FY 2022-23 after closure of the first IBRD loan (IBRD 8065 IN) under the National Ganga River Basin Project (NGRBP).

The extant guidelines require that the sole Audit jurisdiction of the Auditee entities be entrusted to the C&AG before the Audit of expenditures incurred by them is undertaken by the State Accountant Generals concerned. Since the sole audit jurisdiction of none of the SMCGs was with the C&AG, they were required to complete the audit entrustment first (SMCG- Jharkhand being part of the State Urban Development Department was exempt).

Therefore, the Audit by C&AG was undertaken after SMCGs of Uttarakhand, Uttar Pradesh, Bihar and West Bengal had entrusted their sole audit jurisdiction to the C&AG. SMCG- West Bengal did not report any expenditure under SNGRBP and hence was not Audited (although they have completed entrustment). Since the entrustment process had taken some time, audits could not be completed within the stipulated time. However, all Audit Reports in respect of the NMCG and 4 SMCGs were submitted to the World Bank within the 4- month grace period.

c. Tax Audit

Under the Income Tax Act 1961, NMCG is registered as a “Trust” under Section 12-A and is required to file its “Return of Income” (RoI) along with a report/certificate from a Chartered Accountant. This requires the NMCG to get their Annual Accounts audited by a CA firm for the limited purpose of complying with the provisions of the Income Tax Act. The relevant Audit was completed within stipulated timelines, and the Return of Income for FY 2022-23 was filed on 24 November 2023.

To dispense with the requirement of Tax Audit, NMCG had applied for notification under section 10 (46) of the IT Act. After persistent follow-ups, the IT Department on 26 March 2024, notified registration of NMCG under section 10 (46) of the IT Act. However, the notification is “*deemed to have been applied for assessment years 2021-22, 2022-23 and 2023-24 relevant for financial years 2020-21, 2021-22 and 2022-23 respectively.*” NMCG has since applied for an extension of the applicability of the notification.

d. Performance Audit

A Performance Audit of Namami Gange Programme was undertaken by the C&AG in 2017, which covered the period 2014-15 to 2016-17 (Report No. 39 of 2017). The final ATN was uploaded on APMS Portal in May 2022. The Report was deliberated in several meetings of the Public Accounts Committee (PAC). In June 2023, the Director General of Audit (Agriculture, Food & Water) proposed a follow-up performance Audit of NMCG. After a preliminary scoping exercise, an Entry Conference was held on 27.06.2023. The NMCG made a detailed presentation, including action taken on the Report of the earlier Performance Audit. Acknowledging “valuable insights” received during the presentation, DG-Audit vide letter dated 25 July 2023 conveyed that “*Performance Audit will not proceed as initially scheduled this year*”.

e. Internal Audit

Internal Audits are an important instrument of internal control. They provide independent opinions on the adequacy of internal safeguards to mitigate financial risks in the program. The Internal Audit is required to be conducted every quarter for NMCG and SMCGs.

Till FY 2022-23, Internal Audits were conducted by the Chartered Accountant Firms engaged by the NMCG and each SMCG. The ToR and schedules of Audit were decided by the Agencies concerned. To improve the efficacy of Internal Audit, effective FY 2023-24, a new system has been adopted through the engagement of a common internal auditor by the NMCG. This has ensured a coordinated schedule of audits for NMCG and all SMCGs. Further, Internal Auditors now have a wider mandate, and separate ToRs are drawn up for each quarterly audit in consultation with SMCGs.

Internal Audits for the NMCG and all SMCGs have been completed up to Q-3 of FY 2023-24. Q-4 Audits will be completed in June 2024. Observations of Internal Audit are also regularly reported to the Audit Review Committee of the NMCG.

f. Audit Review Committee (ARC) and Budget Review Committee (BRC)

Financial Management Manual for NGRBA framework mandates the constitution of ARC and BRC, both at the level of NMCG and each SMCG. At the NMCG level, both Committees are chaired by the Director General, NMCG. At the SMCG level, the BRC consists of Heads of Engineering, Finance, Procurement and Monitoring Wings.

Table 5 ARC/BRC Meetings held during FY 2023-24

Quarter	Date
Quarter-1 (20 th Meeting)	22 June 2023
Quarter-2 (21 st Meeting)	29 September 2023
Quarter-3 (22 nd Meeting)	22 December 2023
Quarter-4 (23 rd Meeting)	24 April, 2024

2.4.2 Reconciliation of Books of Accounts

An exercise commenced in FY 2022-23 for a thorough reconciliation of NMCG’s accounts with the books of SMCGs. After several rounds of visits and scrutiny of records, the reconciliation was completed during FY 2023-24 for all SMCGs except SMCG- Uttar Pradesh. Further, during FY 2023-24, the reconciliation

was taken up and completed with the CPCB. Reconciliation of accounts with State Forest Departments is currently underway. The reconciliation exercise has led to refund of unspent central share of previously released grants-in-aid, in the process substantially reducing outstanding Utilization Certificates.

2.4.3 Substantial reduction of pending Utilization Certificates (UCs)

As a result of the reconciliation of accounts and persistent follow-up with SMCGs and Executing Agencies, outstanding UCs have been reduced significantly as indicated below:

- Inspection Audit conducted by the C&AG in October 2022 reported outstanding UCs of ₹2800 crore against grants-in-aid released up to 31.03.2022. This has now been brought down to ₹135.15 crore (as on 30.06.2024).
- Against grants released during FY 2022-23 and FY 2023-24, UCs amounting to ₹15.33 crore and ₹216.51 crore are respectively outstanding.
- Total UCs amounting to ₹366.99 crore are pending (as on 30.06.2024) against cumulative grants-in-aid of more than ₹17,000 crore released by the NMCG since FY 2011-12.

2.4.4 Improving Internal Control & Financial Discipline

A series of measures were taken in FY 2022-23 to improve financial discipline and internal control. These measures were further strengthened during FY 2023-24, as summed up below:

- 10 more grantee organizations were on-boarded on TSA, taking total number of grantees on TSA to 30.
- Regular quarterly meetings of Audit Review Committee and Budget Review Committees were held. The Committees have met every quarter in FY 2022-23 and FY 2023-24 (8 times), and 23 times since 2016.
- Regular Internal Audits have been conducted for both NMCG and SMCGs. Internal Audits for NMCG and all SMCGs have been completed up to Q-3 of FY 2023-24. Q-4 Audit will be completed in June 2024.
- Observations of Internal Audit regularly reported to the Audit Review Committee.
- Sole audit jurisdiction of SMCGs entrusted to respective State Accountant Generals.
- In order to ensure better coordination with SMCGs, structured minuted monthly reviews with the Finance Teams of SMCG was institutionalized in FY 2022-23. This was continued in FY 2023-24 with 12 such reviews during the year.

2.5 World Bank assistance for Namami Gange Mission

The second phase of the World Bank assisted Namami Gange Programme, for which the loan agreement was signed on 7th July, 2020, was declared effective from 21.07.2020. The IBRD loan of USD 381 million consists of the following components:

Table 6. IBRD loan details

Infrastructure Investment	USD 345 million
Institutional development	USD 20 Million
Program communication and management	USD 16 Million

Apart from the above, there is a provision of innovative financing by way of IBRD guarantee for 3 HAM investments at Agra, Meerut and Saharanpur. Substantial progress has been made towards finalization of guarantee arrangements.

An amount of USD 148.48 million (INR 1211.47 crores approx.) was disbursed under the SNGRBP, of which USD 77.95 million was disbursed during FY 2023-24.

During Mid-term review, held from 8th to 23rd February 2024, NMCG confirmed the reduction in the requirement for the guaranteed LC, and thus the guarantee from USD 19 million to USD 9 million due to design elements of the projects that improved operational efficiencies, such as use of energy efficient equipment and solar panels to bring down the consumption and cost of power.

2.6 Clean Ganga Fund (CGF)

Key Highlights of FY 2023-24

- ₹107.45 crore contributions, second highest contribution ever:
 - ✓ ₹54.48 crore from PSUs
 - ✓ ₹40.36 crore from private companies
 - ✓ ₹11.17 crore through e-auction of gifts and mementos received by the Hon'ble Prime Minister
 - ✓ ₹1.44 crore from resident Indians
- CGF corpus appreciated by ₹143.15 crore, including ₹35.70 crore interests; highest ever appreciation in one year
- Total corpus: ₹876.41 crore (as on 31.03.2024)
 - ✓ ₹466.07 crore from PSUs
 - ✓ ₹195.46 crore from private companies
 - ✓ ₹54.90 crore through e-auction of gifts and mementos received by the Hon'ble Prime Minister
 - ✓ ₹146.28 crore as interest accrued
 - ✓ ₹9.68 crore from resident Indians
- Two projects completed in FY 2023-24:
 - ✓ Ghat and Crematoria at Simariya, Barauni, Bihar
 - ✓ Bhagaon Crematoria & Fatah Ghat, Mirzapur, Uttar Pradesh.

2.6.1 Clean Ganga Fund

In pursuance of Hon'ble Finance Minister's Budget announcement to set up a Fund for conservation of River Ganga, the Union Cabinet on 24th September 2014 approved setting up of Clean Ganga Fund (CGF). The CGF was established in 2015 under the Indian Trusts Act, 1882 to enable Resident Indians, Domestic and Overseas Corporates/ Trusts, and NRIs / PIOs to contribute towards the conservation efforts of River Ganga. It is a unique platform to facilitate public partnership in Government's efforts to rejuvenate the holy river; providing an opportunity to all stakeholders to contribute to the restoration of the river to its pristine past.

CGF is administered by a Board of Trustees (BoT) consisting of not less than 4 and not more than 9 Members nominated by the Government of India. The Trust is chaired by the Hon'ble Finance Minister and at present consists of 7 more members, namely, Secretary (Economic Affairs), Secretary (CPV & OIA, Ministry of External Affairs), Secretary (Environment, Forests & Climate Change), Secretary (Water Resources, River Development and Ganga Rejuvenation), Director General, National Mission for Clean Ganga (NMCG) and Chief Secretaries of two Ganga Basin States by rotation. Currently, Chief Secretaries of Uttar Pradesh and Uttarakhand are members of Board of Trustees. Director General, NMCG is also the Chief Executive Officer (CEO) of the Trust.

Domestic donors to CGF are eligible for 100% Income Tax exemption under Section 80G (1) (i) of the Income Tax Act, 1961. Also, contributions to CGF fall within the purview of CSR activity as defined in Schedule VII to the Companies Act, 2013.

2.6.2 Summary of Fund

Total ₹107.45 crore has been received as contributions in the CGF during FY 2023-24. Break-up of contributions received during the year is given in Table 7.

Table 7 Contributions to CGF F.Y. 2023-24

S. No.	Donor Category	Amount (₹ in Cr.)
1	Hon'ble Prime Minister	11.17
2	Public Sector Units	54.48
3	Private Corporates	40.35
4	Resident Indians	1.45
	Total	107.45

In addition, ₹35.70 crore was credited to the CGF corpus during FY 2023-24 as interests. Thus, the CGF corpus appreciated by ₹143.15 crore in FY 2023-24, which is highest ever annual increase in the size of the fund.

As on 31.03.2024, the CGF corpus was ₹876.41 crore, break-up of which is given in Table 8.

Table 8 Contributions to CGF

Sl. No.	Donor Category	Amount (₹ in Cr.)
1.	Hon'ble Prime Minister	54.90
2.	Public Sector Units (PSUs)	466.07
3.	Private Corporates	195.46
4.	Resident Indians	9.68
5.	NRIs/ PIOs & IDF-OI*	4.02
6.	Interests	146.28
	Total	876.41

* Including contribution from the India Development Foundation of Overseas Indians (IDF-OI) set up by the Government of India in 2008 as a not-for-profit Trust to facilitate Overseas Indian philanthropy into social and development projects in India.

Contributions to CGF

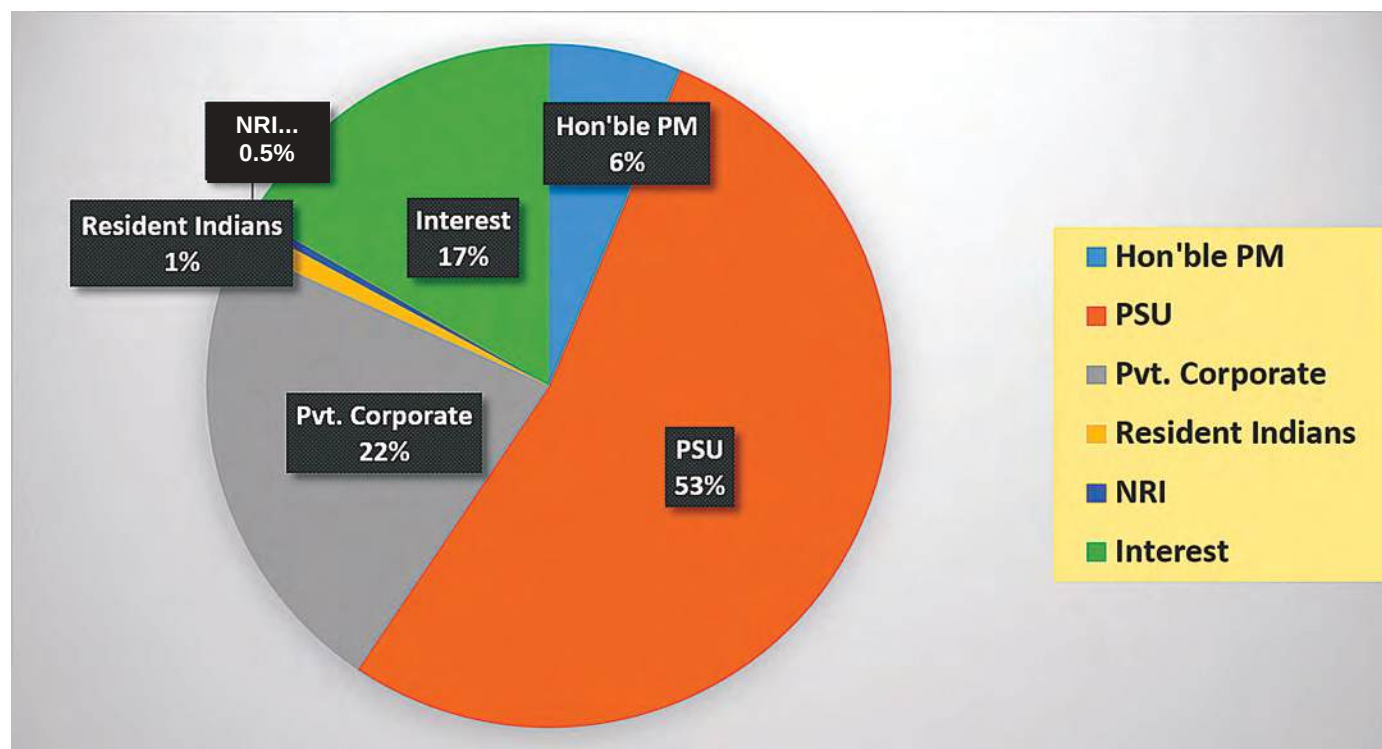


Figure 15 Contribution to CGF

2.6.3 Summary of Projects

32 Projects have been sanctioned so far for funding from the CGF covering three areas:

- (i) Afforestation,
- (ii) Ghat works/ Riverfront Development (RFD), and
- (iii) In-situ Bioremediation

Total release from CGF (for completed and on-going projects together), as on 31.03.2024 is ₹228.46 crore [completed projects (₹187.79 crore) plus release for ongoing projects (₹40.67 crore)]. A summary of projects sanctioned under the CGF as on 31.03.2024 is below (Table 9).

Table 9 Overview of CGF-funded Projects

S No.	Project Category	No of Projects			Sanctioned cost/Releases (₹in crore)		
		Sanctioned	Completed	Ongoing	Completion costs(18 projects)	Sanctioned costs (14 ongoing projects)	Release for ongoing projects (14)
1.	Afforestation	5	5	-	65.08		-
2.	In-situ Bioremediation	2	2	-	1.96		-
3.	Ghat Works/ Crematoria/ RFD	25	11	14	120.75	197.35	40.67
	Total	32	18	14	187.79	197.35	40.67

2.6.4 How to Contribute to CGF

A saving account is being operated by the CGF with State Bank of India (SBI), New Delhi Main Branch for receiving donations. Contributions to the CGF can be made in following five modes:

1. Cheque / DD drawn in favour of “Clean Ganga Fund”,
2. CGF’s Saving Account No. 41680241128 with the New Delhi Main Branch of State Bank of India (IFSC Code: SBIN0000691, Swift Code: SBININBB104).
3. Payment gateway (SBI e-pay/SBI Collect also) provided in the portal of CGF NMCG website (<https://nmcg.nic.in> → Clean Ganga Fund → Contribute Now).
4. BHIM / UPI Mobile application.
5. A link for online payment has also been provided on the website of NMCG (<https://nmcg.nic.in> → Clean Ganga Fund → Contribute Now).

Sewerage Infrastructure

The approach towards sewage management – ***the single biggest cause of pollution*** – has been to first map the cities and towns comprehensively along Ganga, analyse the existing gaps in sewage treatment capacity through condition assessment of existing Sewage Treatment Plants (STPs) and then plan for need-based rehabilitation or up-gradation of the existing STPs and capacity creation for deficit infrastructure with the design period of 15 years (projected population in the year 2035).

Sewage from the habitations along the entire length of Ganga accounts for **70% of the pollution** flowing in the river. Hence, to achieve Nirmal Dhara, top priority has been accorded to creating sewage treating capacity along *towns and cities* along the main stem of the river Ganga and its many tributaries after carrying out a comprehensive feasibility assessment exercise. Details of progress made during the period are discussed in this chapter.

3.1 Sewage Treatment

Sewage treatment is being planned through a suite of solutions which include conventional as well as emerging technologies.

Table 10: Status of STP & network development works under NMCG

S. No.	States	No. of Projects	Sanction Cost	Potential STP Capacity (in MLD)	Rehabilitation of old STP (in MLD)	Sewer Network to be laid	Completed Projects
1	Uttarakhand	42	1,716.86	244.14	0	207.98	36
2	Uttar Pradesh	69	14,097.18	2,068.61	277.95	1,894.62	39
3	Bihar	38	6,255.6	756.6	0	1,792.59	14
4	Jharkhand	5	1,310.3	261.5	0	151.36	2
5	West Bengal	29	4,838.46	712.2	187.04	982.18	14
6	Haryana	2	217.87	70	75	41	2
7	Delhi	9	1,951.03	882	386	37.32	8
8	Himachal Pradesh	1	11.57	1.72	0	0	1
9	Rajasthan	1	258.48	36.00	0	146.00	0
10	Madhya Pradesh	3	669.92	237.38	0	29.37	0
Grand Total		199	31,327.27	5,270.15	925.99	5,282.39	116

Under Municipal Sewage management component, a total of **199 projects** have been sanctioned till 31st March 2024 at a cumulative cost of **₹31327.27 Crore** creating a total STP capacity of **6196.14 MLD** (5270.15 MLD (New) + 925.99 MLD (Rehabilitation)) and **5282.39 Km of Sewerage network**. The projects are spread across 10 States – Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Delhi, Haryana, Himachal Pradesh, Rajasthan and Madhya Pradesh. Additionally one project of **Modular STPs Decentralized Treatment** of **₹410 Crore** was also sanctioned.

3.1.1 Glimpses of completed Sewerage Infrastructure Projects during 2023-24



130 MLD Sewage Treatment Plant at Jajmau, UP



30 MLD Sewage Treatment Plant at Pankha, UP



54.5 STP at Muzaffarnagar



20 MLD CETP for Tannery Cluster at Jajmau



14 MLD I& D and STP at Baghpat



20 MLD STP at Masani



58 MLD STP at Moradabad



15 MLD I&D of Drains & Sewage Treatment works at
Unnao, UP



32 MLD STP at Chhapra

Figure 16. Glimpses of completed Sewerage Infrastructure Projects

3.1.2 Decentralized STP

With the country hurtling towards a water crisis and treated wastewater a possible alternative, using models that are different from the centralised approach, is a sustainable and cost-effective solutions. Decentralized Sewage Treatment Systems convey, treat, and dispose wastewater from small communities, dwellings in remote areas in relatively close vicinity to its source of generation.

NMCG has sanctioned Decentralized Sewage Treatment Plants and onsite treatment in the following towns:

- i. Nandprayag
- ii. Karanprayag
- iii. Devprayag
- iv. Kirtinagar
- v. Chamoli – Gopeshwar
- vi. Bithoor

3.1.3 Septage Management

A major part of Urban India is yet to be provided with sewerage system and the people are mainly dependent on conventional individual septic tanks. Census of India 2011 results shows 30 million urban households (38 percent of urban households) have septic tanks. The National Urban Sanitation Policy emphasized the need for proper collection, treatment, and disposal of sludge (called as septage) from on-site installations, namely septic tanks, and pit latrines. “Septage” is the settled solid matter in semi-solid condition usually a mixture of solids and liquid settled at the bottom of septic tank & pit- latrines. It has an offensive odour, appearance and is high in organics and pathogenic microorganisms.

Septage Management Plan covers the entire service chain starting from design of septic tank, collection, conveyance, safe treatment and reuse or safe disposal of septage.

NMCG has sanctioned project for Faecal Sludge Management at Chunar and Bijnor in Uttar Pradesh, Co-treatment of sewage and septage at Bhagalpur in Bihar and Howrah in Uttar Pradesh.

3.2 Innovations in waste-water sector under Namami Gange Programme

Namami Gange is the first of its kind integrated program for rejuvenation of river in India and has set several milestones in this field. Two of these innovations are noteworthy.

3.2.1 Hybrid Annuity based PPP Mode (HAM) of Development for Namami Gange

The major challenges faced in the previous efforts to clean the river Ganga were lack of ownership, lesser support for sustainability of infrastructure, and sub-optimal performance of the treatment infrastructure created. Government of India, taking cognizance of these facts, has approved for the development of Sewage Treatment Plants (STPs) under Namami Gange Programme through Hybrid Annuity based Public Private Partnership (PPP) Mode (HAM), with 100% central government funding for development and Operation & Maintenance (O&M) for 15 years. Unlike conventional DBOT / EPC mode, HAM offers various advantages such as assured & continued performance, distinct accountability, and ownership for performance over the project period. Under Hybrid Annuity based PPP model, a suitable Concessionaire for the development & operation of STPs will be procured through competitive process in line with the PPP procurement process of Government of India in other infrastructure segments.

The procurement is based on lowest bid project cost quoted by the selected bidder for developing and operating the treatment infrastructure for a period of 15 years. 40% of the Capital Cost is paid during construction and the balance 60% of the cost will be paid over a period of 15 years as annuities with interest on outstanding balance along with Operation & Maintenance (O&M) expenses.

Efforts are being made to integrate these new STPs with the existing / brown field sewerage infrastructure in these towns. It is expected that integration of the existing/ brown field and new/ green field treatment infrastructure would enhance the accountability, ownership, and long-term performance of these assets, thereby facilitating better control over preventing the flow of untreated sewage into the river from these towns/ cities.

3.2.2 One City One Operator

In addition to the HAM initiative, NMCG has also introduced the concept of ‘One City One Operator’ for major cities to improve governance and accountability in wastewater management with citywide approach. Under this, one operator takes over the O&M of existing assets, rehabilitates them as per need and constructs the required new assets. The aim was to integrate the development of new STPs with the existing treatment infrastructure in the city / town under HAM, with an aim of achieving “no untreated sewage shall enter into the river Ganga”.

Existing STPs in towns such as Kanpur, Prayagraj, Mathura, Patna, Kolkata, Howrah – Bally – Kamarhati – Baranagar, Bhagalpur, Farrukhabad, Mirzapur, Ghazipur, Agra, Bareilly, Burdwan, Durgapur, Asansol are being integrated with newly sanctioned projects in these towns under Hybrid Annuity based PPP mode.

3.3 Sewerage Infrastructure related Activities carried out during 2023-24

1. On 26th April, 2023, NMCG officials, along with Hungary delegates and UP Jal Nigam, visited 140 MLD STP at Dinapur. On the Dinapur STP campus, the team also visited the laboratory to see the SCADA room. During the visit the delegates were briefed about Namami Gange activities taken up in Varanasi and the Ganga River Basin.
2. On June 7, 2023, a review meeting was held under the chairmanship of the Secretary, DoWR, RD&GR, Ministry of Jal Shakti to discuss critical projects related to Namami Gange and National River Conservation Directorate (NRCD). During the meeting, detailed discussions were held regarding the implementation, challenges, and achievements of various ongoing initiatives, with the objective to ensure effective planning and timely completion of projects.

3. On 28th June, 2023, DG, NMCG visited Pune to witness an innovative sewage treatment technology developed by Liam Ryan in Belfast and introduced to India by c-Ganga, IIT Kanpur.
4. On 10th June, 2023, Executive Director (Technical), NMCG along with delegates from the German Embassy, World Bank, Delhi Jal Board and GIZ visited to Okhla 564 MLD capacity STP.
5. On 24th July 2023, Hon'ble Minister of State for Jal Shakti visited 6.25 MLD CETP, Mathura and Trans-Yamuna STPs and reviewed the progress status of NMCG projects.
6. On 5th September 2023, a meeting was held under the chairmanship of the DG, NMCG with the World Bank officials. During the meeting, presentation was made on the topics regarding Life Cycle Cost (LCC) in HAM-PPP (Hybrid Annuity Mode – Public Private Partnership) and RTWQM (Real-Time Water Quality Monitoring) stations.
7. On 5th September 2023, a concession agreement was signed between Uttar Pradesh Jal Nigam (Rural), National Mission for Clean Ganga, and M/s Meerut STP Private Limited for the development of a 220 MLD Sewage Treatment Plant at a cost of ₹369.74 crore under the Hybrid Annuity Mode of Public-Private Partnership in Meerut, Uttar Pradesh.
8. On 3rd October 2023, a tripartite Supplementary Agreement was signed between NMCG, Kolkata Metropolitan Development Authority, and M/s. Khilari Infrastructure Pvt. Ltd and a quadripartite Escrow Agreement was signed among NMCG, Kolkata Metropolitan Development Authority, M/s. Khilari Infrastructure Pvt. Ltd., and The Union Bank of India to develop Sewage Treatment Plants (STPs) with a total capacity of 38 MLD, along with associated works such as the development of Interception & Diversion (I&D) structures, I&D network laying, Sewage Pumping Stations, and the operation and maintenance of these facilities for 15 years in North Barrackpore, under the Hybrid Annuity PPP mode.
9. On 12th December 2023, a tripartite Concession Agreement was signed between the National Mission for Clean Ganga (NMCG), Uttar Pradesh Jal Nigam, and M/s. EIEL Mathura Infra Engineers Pvt. Ltd in collaboration with M/s. Micro Transmission Systems for development of a 60 MLD Sewage Treatment Plant (STP) for Gokul Barrage in Mathura, with a project cost of ₹240.01 crore under the Hybrid Annuity Mode (HAM).
10. On 21st January, 2024, DG, NMCG, along with other senior UP Jal Nigam officials, visited Ayodhya to inspect the construction of the 33 MLD, Sewage Treatment Plant (STP) and Interception & Diversion(I&D) work. During the inspection, UP Jal Nigam provided information on the sewage infrastructure works undertaken in Ayodhya, Uttar Pradesh, for the Pollution Abatement of River Saryu/Ghaghara.

3.4 Performance evaluation of Sewage Treatment Plants (STPs) by CPCB

CPCB carries out tri-annual monitoring of 146 commissioned STPs (123 operational, 23 non-operational) and additional 31 under-construction/under-trial STPs located in Ganga front towns, under the Pollution Inventorization, Assessment and Surveillance (PIAS) project.

A total of 456 monitoring of commissioned and under-construction STPs were carried out during April 2023 to March 2024. The latest status of STPs monitored is given as follows:

Table 11 Status of Sewage Treatment Plants in Ganga front towns

State	Approx. Sewage Generation in Ganga front towns (MLD) (2017-18)	Towns covered by STPs	Total STPs monitored	Installed capacity of monitored STP (MLD)	Operational	Complying	Non-complying	Operational Capacity (MLD)	Utilized Capacity (MLD)	Non-operational	Non-operational Capacity (MLD)
			(A) (A=B+C)	(of A)	(B) (B=D+E)	(D)	(E)	(of B)	(of B)	(C)	(of C)
Uttarakhand	239.8	18	53	343.8	48	12	36	343.6	273.4	5	0.1
Uttar Pradesh	1,255.2	14	40	1,303.0	35	18	17	1,286.12	1,047.2	5	16.84
Bihar	480.0	5	8	233.5	7	0	07	224.5	110.6	1	9.0
Jharkhand	12.0	2	3	15.5	3	03	0	15.5	9.5	0	0.0
West Bengal	1,571.5	29	42	693.6	30	13	17	456.0	247.5	12	237.6
TOTAL	3,558.5	68	146	2,589.34	123	46	77	2,325.73	1,688.12	23	263.55

Note: Status based on Monitoring carried out till August-November 2023 and compliance status of STPs based on standards notified by MoEF&CC vide notification dated 13.10.2017.

- Operational STPs- 123
- Operational capacity – 2325.73 MLD
- Utilized Capacity (of operational) – 1688.12 MLD

Compliance Status	Complying	Non-Complying*
Based on MoEF&CC notification dated 13.10.2017	46 (Uttarakhand –12, Uttar Pradesh – 18, Bihar -0, Jharkhand – 3, West Bengal – 13)	77 (Uttarakhand – 36, Uttar Pradesh – 17, Bihar – 7, Jharkhand – 0, West Bengal – 17)
Based on Hon'ble NGT order dated 30.04.2019	26 (Uttarakhand –8, Uttar Pradesh – 13, Bihar -0, Jharkhand – 0, West Bengal – 5)	97 (Uttarakhand – 40, Uttar Pradesh – 22, Bihar – 7, Jharkhand – 3, West Bengal – 25)

- o Non-operational STPs – 23 (Uttarakhand- 05, Uttar Pradesh- 05, Bihar- 01, West Bengal – 12) with total non-operational capacity of 263.5 MLD.
- o As per record, 55 STPs have OCEMS installed at their outlet.

*Majority on account of FC parameter.

3.4.1 Action taken by CPCB

- Operational and compliance status of April-July, 23 communicated to State Government agencies of 5 Ganga states vide DO letter dated **09.11.2023** for needful action.
- Operational and compliance status of August-November, 2023 communicated to State government agencies of 5 Ganga states vide DO letter dated **06.03.2024** for needful action.

- Letters issued to STP operating agencies of Tekla Biodigester (Uttarkashi), Brijghat-Garhmukteshwar STPs, Pokhri & Marwari STP (Joshimath) and 0.26 MLD Bamni STP (Badrinath) for needful action for improvement in performance and operational & maintenance.
- Status of previous rounds of monitoring are published on CPCB website.

3.4.2 Pollution Assessment of major drains falling into the river Ganga

A total of 1514 monitoring were conducted during 2023-24 (in addition to the target, inspections were also carried out under PMO direction on weekly basis). Monitoring of pre-monsoon 2023, has been completed and monitoring of post-monsoon 2023 is on-going and compilation of drain data for pre-monsoon 2023 is under process.

During Post-monsoon (2022), CPCB has monitored total 672 drains discharging directly into river Ganga and its tributaries/sub-Tributaries (Banganga, Suswa-Song, Kailash, Shukhi, Ramganga Dhela, Pilakhar, Gaula, Kosi, Kali-East, Pandu, Yamuna, Varuna, Moorva, Jargo, Ozla, Gangi, Sone, Punpun, Burhi Gandak, Kiul, Daha, Adari, Gandak and Pachane etc.) and 209 drains were found tapped.

The state-wise brief status is as follows:

Table 12 State-wise monitored Drains (Post-monsoon, 2022)

States on Ganga main stem	No. of Drains discharging into River Ganga and Its tributaries	
	Total Monitored Drains	Tapped Drains
Uttarakhand	123	101
Uttar Pradesh	183	59
Bihar	68	05
Jharkhand	06	06
West Bengal	104	11
Total- A	484	182
States on tributaries		
Uttarakhand (Banganga, Suswa-Song, Kailash & Sukhi)	07	-
Uttarakhand (Ramganga-Dhela, Pilakhar, Gaula, , Kosi)	17	-
Uttar Pradesh (Ramganga & Kosi)	25	03
Uttar Pradesh (Kali East)	27	04
Uttar Pradesh (Pandu)	9	05
Uttar Pradesh (Yamuna)	21	09
Uttar Pradesh (Varuna, Moorwa)	21	05
Uttar Pradesh (Jargo, Ojhala)	9	-
Uttar Pradesh (Manshita, Duar)	13	-

Bihar (Gangi, Sone, Punpun, Burhi Gandak, Kiul, Daha, Adari, Gandak and Pachane)	39	01
Total- B	188	27
Grand Total (A+B)	672	209

3.5 The Occupational Safety, Health And Administration Trainings (OSHA)

The Occupational Safety, Health and Working Conditions Code (OSHA) is enacted vide the Gazette of India, notification 37 dated 29-09-2020 to regulate the safety, health and working conditions of the people employed as workers, staff, contractors, masons, etc. at a project site.

The code was introduced because of a tragic incident that took place on 19 July 2023 at an STP site in Chamoli district in Uttarakhand, where due to electrocution certain workers lost their lives. Subsequently, a team from NMCG visited the site in Chamoli to ascertain the ground-level situation and analysed the tremendous damage and grieving situation caused due to oversight/ negligence of safety measures. Since then, the NMCG has conducted its first series of online training workshops on OSHA guidelines which happened from July 2023 to March 2024 to spread awareness about the safety guidelines, need and necessity for safety kits and advantages and disadvantages of following the safety guidelines at an STP site. Currently, NMCG is in process of conducting its second series of five online training workshops on OSHA.

3.5.1 Training on Occupational Health & Safety Audit

On 20th July 2023, NMCG organized a virtual safety training program on “Occupational Health and Safety Audit (OHSA)” under the chairmanship of DG, NMCG to ensure workplace safety and compliance.

Industrial Pollution Surveillance & Abatement

Prevention of water pollution of river Ganga and monitoring of the water quality is one of the foremost responsibilities of NMCG. The Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) are the principal agencies for implementing the provisions of Environment (Protection) Act 1986 and assist NMCG in this regard.

The CPCB and SPCBs are required to enforce discharge standards on the industries and take necessary action against the defaulting industries under powers delegated to them by the Central Government under relevant provisions of Water (Prevention & Control of Pollution) Act, 1974 and Environment (Protection) Act, 1986. The Authority Order dated 7th October'2016 empowers NMCG and State Ganga Committees to assume powers under the provisions of Rule 5 of The Environment Protection Act, 1986.

4.1 Compliance verification of Grossly Polluting Industries (GPIs)

Principle Committee constituted by Hon'ble NGT, has identified 33 water polluting industrial sectors as Seriously Polluting Industries (SPIs). Inspection of GPIs through Third Party Technical Institutes (TPIs) is being carried out every year since 2017. Sixth round of inspections of 3186 GPIs commenced carried out and inspections were carried out by 17 reputed technical institutes (TPIs). Actions were taken by seven respective SPCBs/PCC i.e., Uttarakhand, Uttar Pradesh, Haryana, Delhi, Jharkhand, Bihar & West Bengal. All the inspections got completed in 2023 and actions by concerned SPCBs/PCC also completed in September 2023. During inspections, 2002 GPIs were found complying, 545 temporary closed, 140 permanent closed and 499 non-complying GPIs. Out of 499 non complying GPIs, 439 were issued show-cause notices (SCN) and 60 were issued closure directions. Compliance status of GPIs inspected during 2023 is as below:

Table 13 State wise Compliance Status of GPIs in 2023 (As on date of inspection)

State	Total no. of GPIs	Operational	Complied	Non-Complied		Self-Closed	
				SCN	Closure	Temporary Closed	Permanent Closed
Bihar	78	59	37	22	0	17	2
Delhi	196	157	107	48	2	13	26
Haryana	1,140	940	751	185	4	131	69
Jharkhand	5	5	2	3	0	0	0
Uttar Pradesh	1,644	1,234	1,013	167	54	367	43
Uttarakhand	67	58	48	10	0	9	0
West Bengal	56	48	44	4	0	8	0
Total	3,186	2,501	2,002	439	60	545	140

During 2024 (7th round of annual inspection of GPIs), an inventory of 4246 GPIs including 38 common effluent treatment plants (CETPs) operating in river Ganga & Yamuna main stem states has been updated in consultation with concerned State Pollution Control Board (SPCBs)/Pollution Control Committee (PCC). State- & Sector-wise GPIs (4246 nos.) in river Ganga and Yamuna basin inventoried during 2023-24 is as below:

Table 14 State & Sector-wise 4246 GPIs in river Ganga and Yamuna basin inventoried during 2024

Sector	Bihar	Delhi	Haryana	Jharkhand	Uttar Pradesh	Uttarakhand	West Bengal	Total
CETP	0	13	15	0	7	3	0	38
Chemical	0	0	62	2	48	4	2	118
Distillery	19	0	12	1	84	5	5	126
Fertilizer	1	0	4	1	26	0	1	33
Food & Beverages	42	3	167	2	231	18	11	474
Oil & Refinery	1	0	5	0	10	0	1	17
Others	10	132	528	11	284	6	11	982
Pesticide	0	0	8	0	4	0	1	13
Petrochemical	0	0	2	0	4	0	3	9
Pharmaceutical	0	0	26	0	29	3	2	60
Pulp & Paper	7	0	5	3	103	34	22	174
Slaughter House	8	1	16	0	65	9	0	99
Sugar	11	0	8	0	127	8	1	155
Tannery	2	0	22	0	391	0	0	415
Textile	4	40	688	0	793	3	5	1,533
Total	105	189	1,568	20	2,206	93	65	4,246

4.2 Charter Implementation

In order to facilitate the industries, a participatory approach in the form of Charter has been developed and implemented for five major industrial sectors i.e., pulp & paper (2015), sugar (2018), distillery (2018), textile (2019) and tannery (2022) for adoption of cleaner technology, upgradation of process technology and ETP system resulting in reduction in fresh water consumption, waste water discharge & pollution load and improvement in compliance.

The Charter includes the followings:

- Norms for specific fresh water consumption and effluent generation
- Technology upgradation and waste minimization practices
- Augmentation & upgradation of ETPs up to tertiary treatment
- Self-monitoring and reporting
- Strict metering, maintenance of logbook

- Third Party Monitoring
- Engagement of State Departments
- Water audit and ETP adequacy assessment

Central Pollution Control Board (CPCB) has formulated various charters in consultation with industry specific experts from technical institutes along with industrial associations

One of the important objective of charter is to setup a bench mark for water consumption & optimize the use of water & chemicals in processing.

During 2023, for implementation of charter, various workshops/meetings were organized with the industry representatives from concerned sectors along with the sector specific associations and concerned State Pollution Control Boards (SPCBs) and knowledge partners like IITs, NSI, VSI and other expert technical institutes. Dialogue with industrial representatives at various workshops organized for implementation of Charters (Jan, 2023 to Dec, 2023) is as follows:

- **Textile:** 30.01.2023 at Ghaziabad, 14.06.2023 at Mathura, 07.08.2023 to 09.08.2023 at Panipat, 10.08.2023 at Sonipat and 11.08.2023 at Gurugram
- **Pulp & Paper:** 23.01.2023 at IIT Delhi
- **Distillery & Sugar:** 11.03.2023 through video conferencing and 21.01.2023 at Lucknow
- **Tannery:** 07.02.2023, 08.02.2023, 18.05.2023 & 19.05.2023 at Kanpur and 25.07.2023 at CPCB, Delhi



Figure 17 Glimpses of various workshops conducted at different locations

4.3 Sector-specific Initiatives

Implementation of pollution abatement and water conservation measures in five key industrial sectors namely Pulp & Paper, Distillery, Sugar, Textile and Tannery located in 5 Ganga States have been initiated.

4.3.1 Pulp & Paper

- As per the inspection of GPIs in 2023, number of pulp and paper industries was 161 (Ganga basin – 95, operational – 78 and Yamuna basin – 66, operational – 52).
- Estimated reduction in specific freshwater consumption and specific effluent discharge in 2022 – 23 was about 42 % as compared to estimates in 2017, through upgradation of process technology, ETP system, increased recycling/reuse of effluent and adoption of waste minimisation process.
- BOD load in river Ganga main stem states reduced from 11.65 TPD (in year 2017) to 1.65 TPD (in year 2022-23) i.e. around 86 % reduction.



DAF Units



Spray Filter



Sediment Cell

Figure 18 Fibre Recovery Units Installed by Pulp and Paper Industries in River Ganga Basin

4.3.2 Distillery

- As per the inventorization of GPIs in 2023, number of distillery industries in Ganga and Yamuna basin are 78 and 26 (Total 104), respectively.
- Installation of Condensate Polishing Unit (CPU) has led to reutilization of treated water in process and non-process activities causing reduction in freshwater consumption.
- Standard Operating Procedure for Bio-composting operations for molasses-based distilleries have been uploaded on CPCB website.
- A Charter for Zero Liquid Discharge (ZLD) in molasses-based distilleries has been implemented for upgradation of manufacturing process technology, ZLD system as well as adoption of best practices for implementation of the ZLD; the same is being implemented in the distillery sector.
- CPCB has also directed respective manufacturing distillery units to develop Environment Management cell in them to ensure key regulation and compliance to ZLD norms.



Figure 19 (Top-Left) RO based Condensate Polishing Unit; (Top-Right) Multi Effect Evaporator

4.3.3 Sugar

- As per the inventorization of GPIs in 2023, number of sugar industries in Ganga and Yamuna basin are 120 and 29 (Total 149), respectively.
- During 2023, out of 149 sugar industries in Ganga and Yamuna basin states, 119 were operational with total cane crushing capacity of 646447.8 tonne per day (TPD). Cleaner Technology Initiative (CTI) has been adopted because of which specific freshwater consumption has been reduced by 73.38%; BOD load has been reduced by 79.64%; and reduction in specific wastewater discharge by 31% in 2023 w.r.t. 2017.
- Effluent generation has been reduced from 216 to 140 litres per tonne of cane crushed in 2023 w.r.t. 2017 with upgradation of process technology and adoption of waste minimization process.



Figure 20 (L) Aerial View of ETP System at Sugar Mill and (R) Condensate Treatment Plant 4 Stage RO Unit



Figure 21 (L) Conveyor for cutting of Sugarcane and (R) Sugarcane unloading during Visit

4.3.4 Textile

As informed by Central Pollution Control Board (CPCB), total 1165 textile units (187- Ganga, 978- Yamuna) are being inspected by TPIs during 2023.

There are 5 textile clusters on the main stem of river Ganga & its tributaries namely Bhadohi, Pilkhuwa, Rooma, Farrukhabad and Mathura. Out of these, two clusters, namely Mathura, and Rooma have CETPs which are non-compliant with stipulated discharge norms. Non-compliance is observed due to varying reason including sub-design operation/ new CETP norms.

In pursuance to the recommendation made by High Level Task Force (HLTF), NMCG has got prepared Detailed Project Report (DPR) of ZLD based CETP for Pilkhuwa, Rooma, Farrukhabad and Mathura. It was decided in stakeholder meeting & as per feasibility Report, the implementation of CETP at Bhadohi is not feasible. Accordingly, NMCG requested CPCB to issue directions to the Bhadohi industries to install ETPs to comply with stipulated norms. Close monitoring by SPCBs was also agreed for Bhadohi cluster.

The present status of the developments is as below: -

- i. **Mathura:** NMCG has sanctioned the project in 16th EC meeting for up-gradation of existing 6.25 MLD CETP at Mathura Textile cluster worth ₹13.87 crores, with a condition that NMCG & SPV shares of 75%: 25% i.e., ₹10.40 crore & ₹3.47 crore respectively. This CEPT is now functional.
- ii. **Farrukhabad:** A new Textile Park is proposed in Farrukhabad, for which 1.5 MLD CETP is required for effluent treatment. For this purpose, CETP with ZLD based system has been accepted by textile cluster association with 25 % funding of the total capital cost (₹36.20 Crore) & 100 % O& M cost will be borne by the SPV of Textile Park.
- iii. **Rooma:** Rooma industrial area has a 1.55 MLD CETP, which was non-operational till September 2017. Upgradation will be considered by SPV after stabilization of the CETP and after connections are completed. As per latest inspection dated 11.10.2023, the CETP was found non-complying.
- iv. **Pilkhuwa:** Pilkhuwa Industrial Park has been developed by Hapur-Pilkhuwa Development Authority (HPDA) having 2.10 MLD CETP and the CETP is operational with 25 units contributing 1.6 MLD influents, whereas the industrial park is designed for 179 units. After the involvement of NMCG, due to its regular non-compliance, upgradation work has now been completed by SPV and based on the recent joint surveillance, the CETP is complying as per the stipulated discharge norms as per latest inspection dated 16.11.2023.

- v. **Gorakhpur:** NMCG has sanctioned the project for construction of Industrial Effluent/Sewer Piped Network & Setting up Common Effluent Treatment Plant (CETP) of 7.5 MLD capacity in GIDA at Gorakhpur – UP Tannery:

As informed by CPCB, there are 03 tannery clusters on the main stem of river Ganga namely Jajmau, Banthar & Unnao; having total 381 units as member tanneries, 325 connected to CETP Jajmau Kanpur, 27 connected to Leather Technology Park (LTP) Banthar and 15 connected to Site-II Unnao respectively. Also, there are 14 individual tannery units (Unnao: 10, Kanpur: 02 and Banthar: 02) having their own Effluent Treatment Plants (ETPs). 2 CETPs (Jajmau and Banthar) are found non-complying w.r.t. the notified effluent discharge standards and 1 CETP (Unnao) was found non-operational.

4.4 Pollution, Inventorization, Assessment & Surveillance on river Ganga by CPCB

An effective pollution Inventorization, assessment and surveillance are an imperative prerequisite to restore and maintain the water quality of river Ganga. For this purpose, a project on Pollution, Inventorization Assessment and Surveillance on river Ganga is being executed.

4.4.1 Performance evaluation

a. Online Continuous Effluent Monitoring System (OCEMS)

CPCB has issued directions to all Grossly Polluting Industries (GPIs) to install Online Continuous Effluent Monitoring System (OCEMS) at their outlet of ETP for parameters pH, BOD, COD, TSS and flow to assess the compliance of effluent discharge w.r.t to notified standards. Those GPIs which operate on Zero Liquid Discharge (ZLD) or are Members of CETP are required to install flowmeter and web camera.

OCEMS connectivity of GPIs to CPCB server is 955 out of 1229 GPIs in river Ganga and 543 GPIs (out of 1957 GPIs) in river Yamuna basin.

b. Adequacy Assessment of Common Effluent Treatment Plants (CETPs)

There are 8 Common Effluent Treatment Plants (CETPs) located on the main stem of river Ganga. The list of CETPs is given as follows:

- i. CETP at UEM-SIDCUL, Haridwar, Uttarakhand
- ii. CETP Leather Technology Park, Banthar, Unnao
- iii. CETP at UPSIDC Industrial Area, Site – II, Unnao, Uttar Pradesh
- iv. CETP at Jajmau, Kanpur, Uttar Pradesh
- v. CETP Sitarganj, Udham Singh Nagar, Uttarakhand
- vi. IIE SIDCUL CETP, Pantnagar, Uttarakhand
- vii. CETP at Rooma Industrial Area, Kanpur
- viii. CETP at Textile Center, Pilkhuwa, Uttar Pradesh

A total of 17 visits were conducted during April, 2023- December, 2023. As per the latest information, 01 CETP was found complying and 01 CETP was found non-operation during visit while 06 CETPs were found non-complying.

4.5 Capacity Building and Strengthening of Infrastructure for monitoring of Pollution in Ganga States

Considering the mandate of National Mission for Clean Ganga (NMCG), the strengthening of laboratories of State Pollution Control Boards (SPCBs) is required to be carried out for the monitoring activities related to pollution assessment and water quality monitoring of river Ganga. The participating laboratories for this purpose are being equipped with required infrastructure and instrumentation. This includes **(a) Procurement of instruments; (b) Laboratory development; (c) Procurement of Chemicals and Glassware; (d) Recruitment of staff; (e) I Laboratory operational cost.** Initiatives for skill development are being taken to have well trained scientific personnel.

These strengthened SPCB will also act as Ganga Monitoring Centres (GMCs) and will further strengthen the work of NMCG. For this purpose, a project “Strengthening of Laboratories of State Pollution Control Board (SPCBs)” has been sanctioned in 2018 to the 5 Ganga main stem states viz. Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal with total project cost of ₹85.97 crores for a period of 5 years. Notice for in principle extension towards continuation of project was issued by NMCG to the concerned State Implementation / Execution Authorities on 27.07.2023.

The project status of the 5 SPCBs is given as below:

1. Uttarakhand Pollution Control Board (UKPCB)

NMCG has sanctioned the administrative approval for the establishment of laboratory infrastructure at Dehradun, Kashipur and Roorkee of UKPCB with the financial assistance of ₹16.21 crores. The development of laboratory infrastructure for Central Laboratory Dehradun and the Civil work of Roorkee and Kashipur laboratories have been completed. The central laboratory is fully developed with facility of performing analysis of 25 general and core parameters, 3 microbiological parameters, 15 heavy metals, TOC and AOX.

2. Uttar Pradesh Pollution Control Board (UPPCB)

NMCG has sanctioned the administrative approval for establishment of laboratory infrastructure at Lucknow, Bijnore, Bulandshahar, Ghaziabad, Kanpur, Raebareli, Prayagraj & Varanasi of UPPCB with a financial assistance of ₹36.08 crores. Recruitment against sanctioned posts has been completed. 32 Research fellows and 72 other laboratory staff (24 JLA, 16 FA, 24 LA and 8 MTS) have been recruited and all staff is working at their concerned Regional Offices and Central laboratory. Laboratory development for Regional Offices at Ghaziabad, Bijnor, Raebareli, Kanpur, Prayagraj, Varanasi and Bulandshahar is completed.

Under the Strengthening of laboratories scheme, the State PCB has completed the programme ‘Development of Control Room for Monitoring Polluted River Stretches in State of Uttar Pradesh’ in nine regional offices viz Varanasi, Agra, Ghaziabad, Jhansi, Gorakhpur, Moradabad, Meerut, Lucknow and Ayodhya to monitor the surface water quality of 14 polluted stretches viz. Ganga & Varuna, Yamuna, Hindon, Betwa, Ghaghra, Rapti & Ami, Ramganga, Kali, Gomti & Sai, Tamsa & Saryu.

The strengthening of laboratories facilitates the Board to carry out regular monitoring of 20 Rivers and sampling on weekly basis of 326 drains. The State PCB inspects 123 STPs & 07 CETPs weekly.

As a state regulatory body, the State PCB takes an active involvement in industrial, STP and CETP inspection as per the requirement with the existing laboratory strengthened facility.

3. Bihar State Pollution Control Board (BSPCB)

NMCG has sanctioned the administrative approval for establishment of laboratory infrastructure at Patna and Barauni of BSPCB with the financial assistance of ₹10.91 crores. Recruitment of 7 Junior Research Fellows (JRFs), 6 Lab Attendants, 5 Junior Laboratory Assistants (JLAs) and 2 Multi-Tasking Staff (MTS) has been completed. At present 19 project staff are working which include 5 JRF and other human resource support. Development for Central laboratory of Patna is completed including the microbiology laboratory. Due to strengthening of laboratories, the Board is regularly monitoring water quality of river Ganga at 34 different locations in addition with its tributaries at 64 locations, ponds & lakes at 05 locations in the State of Bihar. Unlike earlier, water quality monitoring frequency has been increased from monthly to fortnightly since 2020. Infrastructure strengthening has enabled the Board to start the monitoring of Faecal Streptococci and E-coli in addition to Total Coliform and Faecal Coliform as per the requirement under micro biological parameters since September, 2020 onwards in Ganga water samples. Recently the Board has also started testing of water samples for Heavy Metals. Procurement of chemical and glassware is being carried out as per the requirement.

4. Jharkhand State Pollution Control Board (JSPCB)

NMCG has sanctioned the administrative approval for establishment of laboratory infrastructure at Ranchi and Dumka of JSPCB with the financial assistance of ₹9.83 crores. At present 20 project staff are working which include 7 JRF and other human resource support.

Infrastructure development work for regional laboratories of Ranchi and Dumka is in progress. Procurement of chemicals and glassware is in progress. Procurement process of 37 laboratory instruments for analytical works for different laboratories of JSPCB is in progress. Technical bids submitted and opened, and technical evaluation of bids is under progress.



Figure 22 Glimpse of JSPCB Regional Lab

JSPCB issued LoA for 5 types of advanced scientific instruments (Atomic Absorption Spectrometer, Microwave digester, UV-VIS Spectrophotometer, TOC Analyser, RO based water purification system) under International Competitive Bidding to strengthen Regional Office laboratories and installation is in progress. Retendering of remaining 5 type of advanced scientific instruments (Ion Chromatograph, Gas Chromatograph, Specific ion meter, TKN Analyser, HPLC) will be considered for further action.

5. West Bengal Pollution Control Board (WBPCB)

NMCG has sanctioned the administrative approval for establishment of laboratory infrastructure at Kolkata, Barrackpore and Hooghly of WBPCB with the financial assistance of ₹12.93 crores.

As per the sanction, the three laboratories of the WBPCB namely the Central Laboratory, Regional Laboratories of Barrackpore and Malda/ Bahrampur will be upgraded with infrastructure and analytical instruments to execute the project activities. Based on the request with justification from WBPCB, the NMCG has accorded sanction for change of laboratory from Malda/Bahrampur Regional Laboratory to Hooghly Regional Laboratory. WBPCB on its part has started procurement of utility and analytical instruments. 11 Junior Research Fellows (JRFs) have been recruited for the Central Laboratory, and Barrackpore Regional Laboratory and Hooghly Regional Laboratory. Besides, 9 Junior Laboratory Assistants, 8 Attendants, 6 Laboratory Attendants and 3 Multi-Tasking Staff (MTS) have also been recruited for the Central Laboratory, Barrackpore Regional Laboratory and Hooghly Regional Laboratory. At present all project staffs are working at the Central Laboratory, Barrackpore Regional Laboratory and Hooghly Regional Laboratory.

Water Quality Monitoring of River Ganga

Water quality monitoring is an imperative prerequisite to assess the nature and extent of pollution control needed in different water bodies or their part. Under the Namami Gange programme, Central Pollution Control Board in collaboration with State Pollution Control Boards has established a Water Quality Monitoring Network with following objectives:

- Rational planning of pollution control strategies and their prioritisation
- Assess nature and extent of pollution control needed in different water bodies or their part
- Evaluate effectiveness of pollution control measures already in existence
- Evaluate water quality trend over a period
- Assess assimilative capacity of a water body thereby reducing cost on pollution control
- Understand the environmental fate of different pollutants
- Assess the fitness of water for different uses.

The ultimate objective of the pollution abatement interventions towards river Ganga rejuvenation is to meet the river bathing water quality criteria notified by the MoEF&CC. Water quality monitoring of River Ganga is carried out through manual as well as sensors based real time system.

5.1 Manual Water Quality Monitoring of River Ganga

Under the Namami Gange Programme, Central Pollution Control Board (CPCB) is carrying out the manual water quality monitoring of River Ganga at **112 locations in five States** viz. Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal in collaboration with State Pollution Control Boards.

The assessment of water quality is based on Standard Operating Procedure (SOP), which stipulates the methods for analysis of parameters and frequency. Water samples are analysed for **07 field parameters, 09 core parameters, 19 general parameters, 09 trace metals and set of pesticides with a frequency of fortnightly and monthly, quarterly & yearly basis for few locations.**

SPCBs are conducting monitoring as per Guidelines for Water Quality Monitoring (GWQM, 2017). State-wise number of manual water quality monitoring stations is as below:

Table 15 State-wise distribution of Water Quality Monitoring Stations

S. No	State	Total No. of Stations
1	Uttarakhand	19
2	Uttar Pradesh	41
3	Bihar	33
4	Jharkhand	4
5	West Bengal	15
Total		112

River water quality is assessed for primary water quality criteria notified for outdoor bathing criteria in terms of pH (6.5-8.5), Dissolved Oxygen (DO) ($\geq 5\text{mg/L}$), Bio-chemical Oxygen Demand (BOD) ($\leq 3\text{mg/L}$), Faecal Coliform (FC) ($\leq 2500\text{ MPN/100ml}$) and Faecal Streptococci (FS) ($\leq 500\text{ MPN/100ml}$). Sampling data was analysed using statistical tool median which is simply a measure of central tendency.

5.1.1 River Ganga Water Quality in 2023

The analysis of data for the year 2023 indicates that the river water is meeting the Primary Water Quality Criteria (PWQC).

- **w.r.t. pH (Median)** at all the locations
- **w.r.t. DO (Median)** at all the locations
- **w.r.t. BOD (Median):** entire stretch of Uttarakhand; in Uttar Pradesh from Madhya Ganga barrage (Bijnor) to Kacchlaghat (Aligarh), river Ganga a/c of river Pandu at Madeveshwar baba temple, Kalakankar (Pratapgarh) to Kadaghat (Kaushambi), Prayagraj (Rasoolabad) to U/s Vindhyachal (Mirzapur) and U/s Varanasi (Vishwa Sundari Bridge); entire stretch of Bihar; entire stretch of Jharkhand and entire stretch of West Bengal.
- **w.r.t. FC (Median):** entire stretch of Uttarakhand; entire stretch of Uttar Pradesh except two stretches namely (i) Nanamau Bridge to Purana Rajapur Kanpur (except Bithoor, Kanpur), (ii) D/s Mirzapur to Tarighat, Ghazipur (except U/s Varanasi, Vishwa Sundari Bridge location); Arrah Chhapra Bridge, U/s Doriganj in Bihar; entire stretch of Jharkhand and Farakka, Murshidabad, Khagra, Behrampore, Nabadip, Ghoshpara near Monipurghat & Tribeni near Burning ghat in west Bengal.
- **w.r.t. FS (Median):** entire stretch of Uttarakhand; in Uttar Pradesh from Madhya Ganga barrage (Bijnor) to U/s Vindhyachal (Mirzapur) & U/s Varanasi (Vishwa Sundari Bridge); entire stretch of Bihar and in West Bengal stretch from river Ganga at Farrakha, Murshidabad to Tribeni near Burning ghat and from Dakshineswar to Patikali Near Durga Chak.

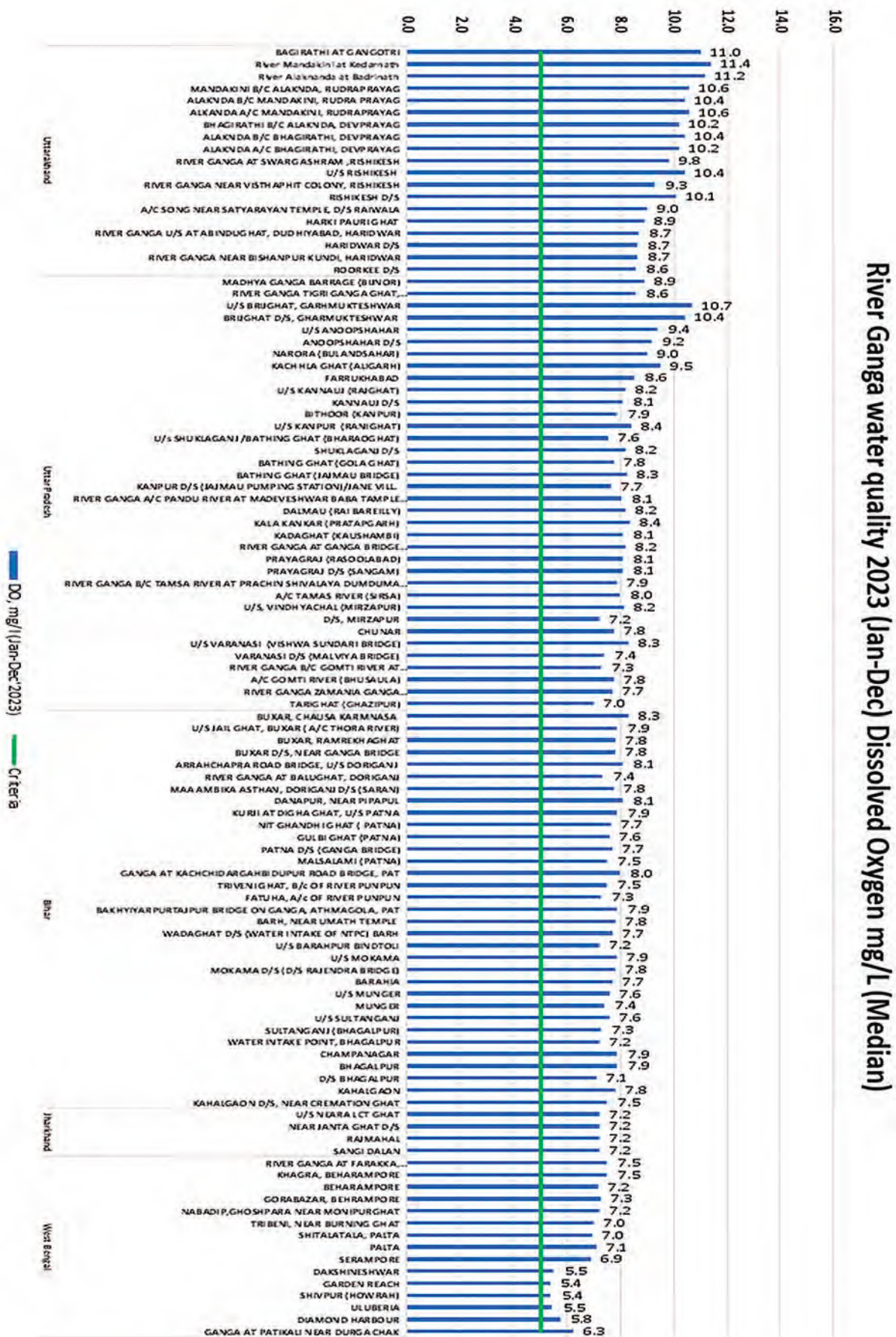


Figure 23 Water quality of River Ganga w.r.t. Dissolved Oxygen (DO) during 2023 (Total locations- 107; Complying- All locations)

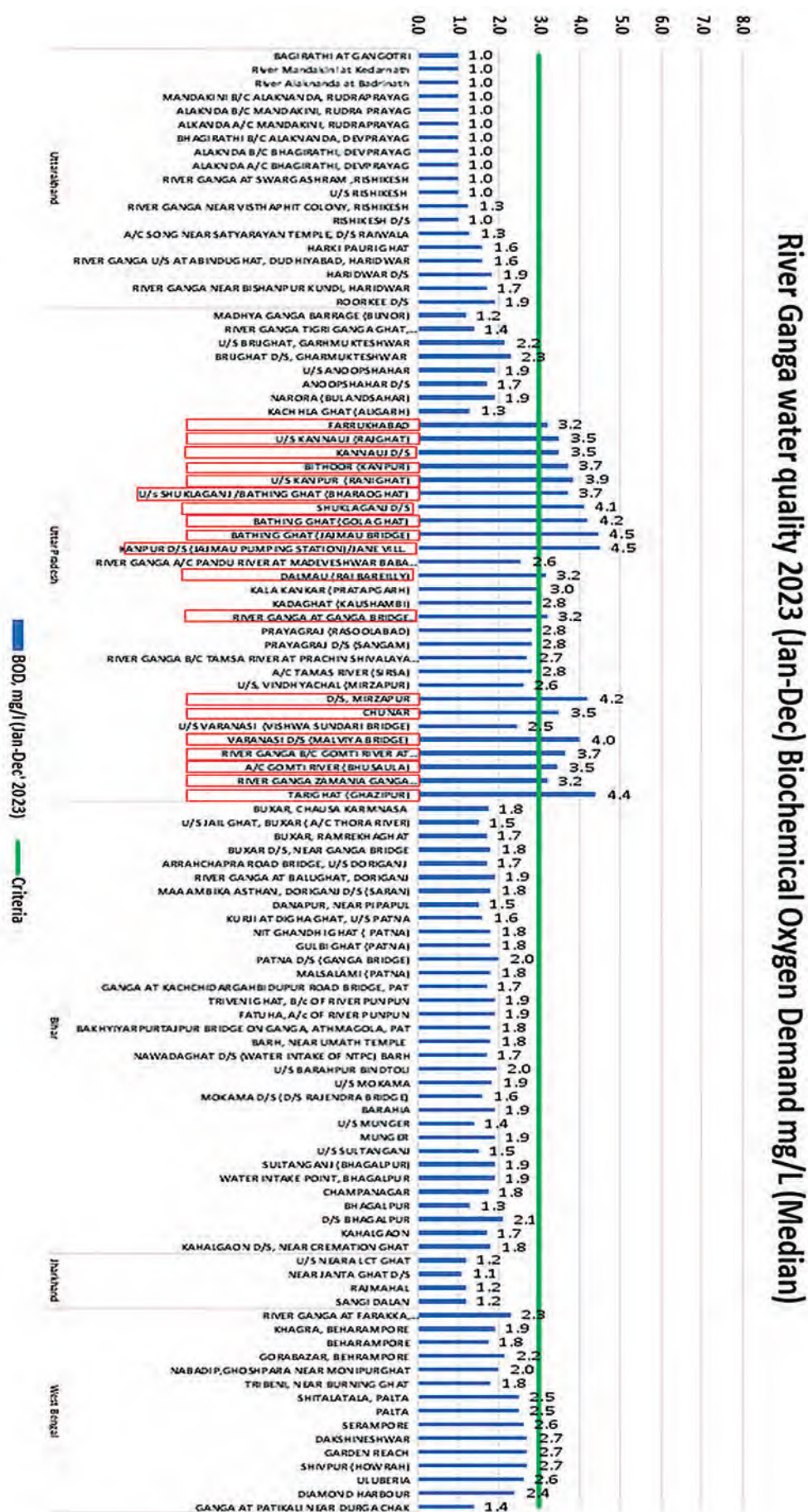


Figure 24 Water quality of River Ganga w.r.t. Biochemical Oxygen Demand (BOD) during 2023 (Total locations- 107; Complying- 88 locations Non-complying- 19 locations)

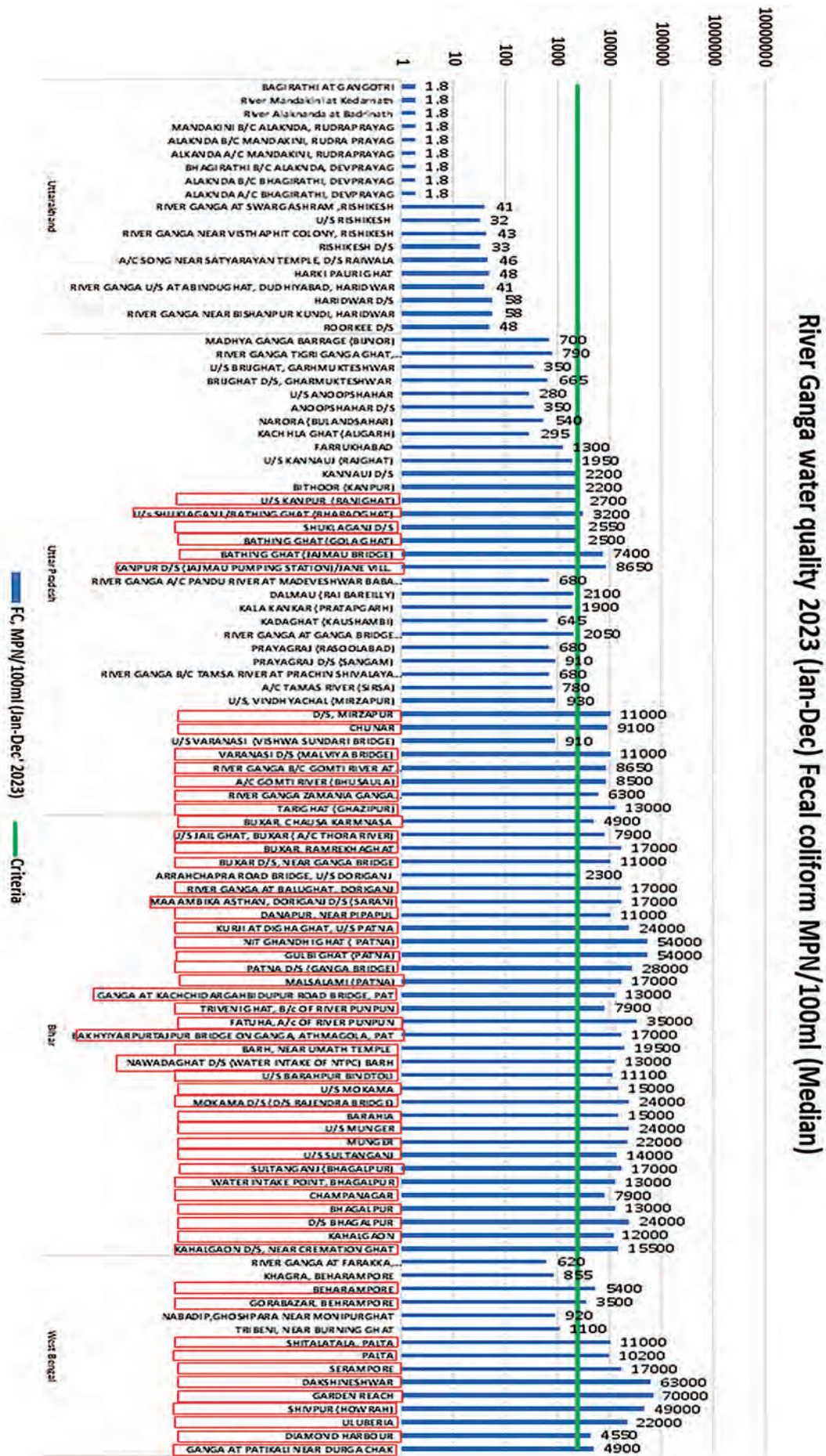


Figure 25 Water quality of River Ganga w.r.t. Faecal Coliform (FC) during 2023 (Total locations- 103; Complying- 48 locations; Non-complying- 55 locations)

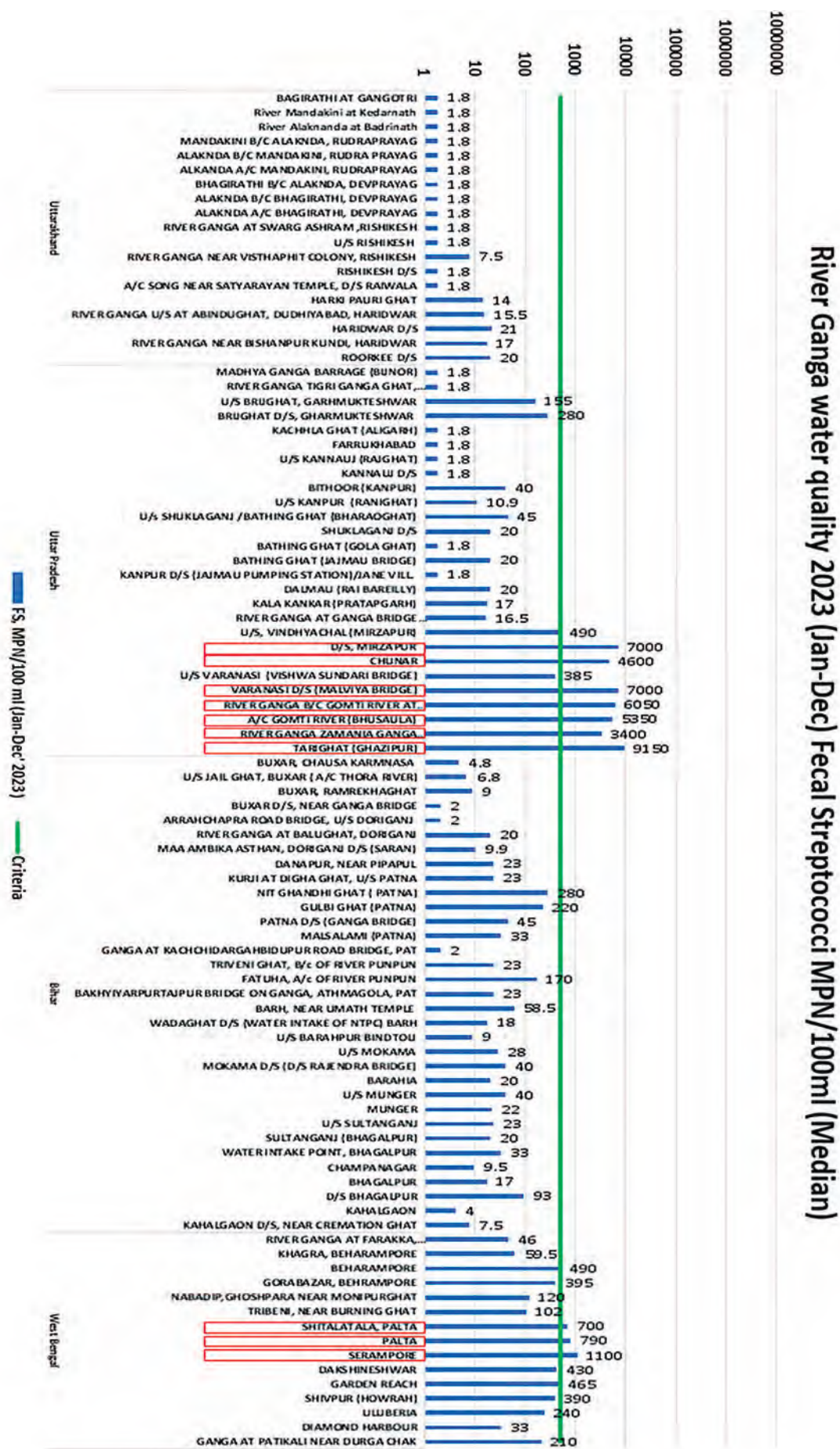


Figure 26 Water quality of River Ganga w.r.t. Faecal Streptococci (FS) during 2023 (Total locations- 94; Complying- 84 locations; Non-complying- 10 locations)

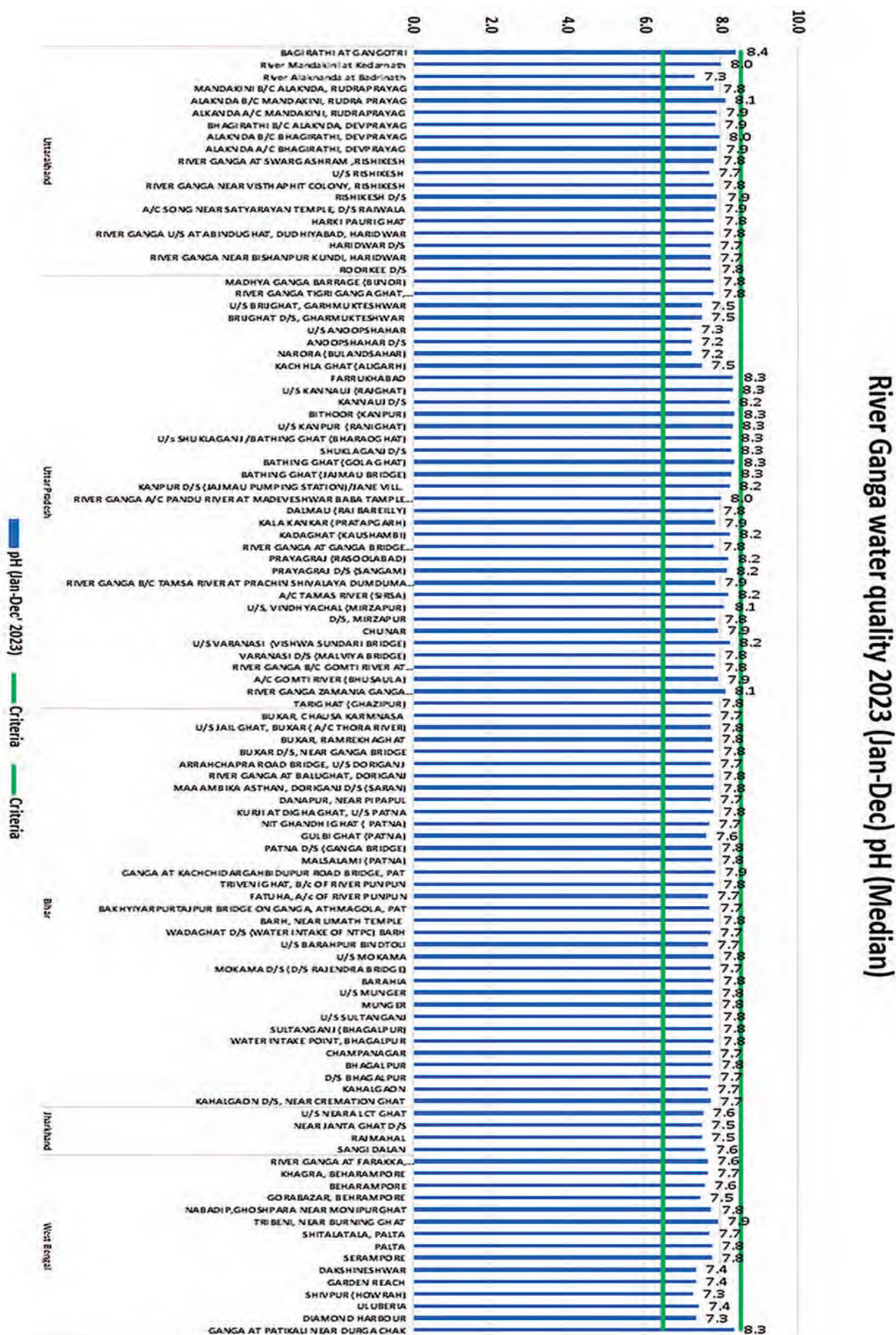


Figure 27 Water quality of River Ganga w.r.t. pH during 2023 (Total locations- 107; Complying- All location)

5.2 Status of water quality of River Ganga during 2014 vs 2023

For assessment of river water quality during 2014 vs 2023 (Jan-Dec), median values which is simply a measure of central tendency of parameters such as pH, Dissolved Oxygen (DO) and Biochemical Oxygen Demand (BOD) of year 2014 and 2023 are compared and following observations have been made:

- pH (Median) has been observed to be meeting water quality criteria for bathing at all the compared locations during 2014 & 2023 (53 locations compared)
- DO (Median) has been observed to be meeting water quality criteria for bathing at all the compared locations during 2014 & 2023 (53 locations compared)
- BOD (Median) has been improved at 44 locations (53 locations compared)

A. Dissolved Oxygen (Improvement observed in 2023 as compared to 2014)

- Mandakini B/c Alaknanda, Rudraprayag to Roorkee D/s in Uttarakhand
- Brijghat D/s, Garhmukteshwar to Kalakankar (Pratapgarh) in Uttar Pradesh
- NIT Gandhighat to Patna D/s; Mokama D/s and Bhagalpur to Kahalgaon in Bihar
- Behrampore to Serampore in West Bengal

B. Bio-chemical Oxygen Demand (Improvement observed in 2023 as compared to 2014)

- Alaknanda A/c Mandakini, Rudraprayag; stretch from Alaknanda B/c Bhagirathi, Devprayag to Roorkee D/s in Uttarakhand
- stretch from Brijghat D/s, Gharmukteshwar to Kacchlaghat (Aligarh); Kannauj D/s; Kanpur D/s to (Jajmau Pumping Station) to Prayagraj D/s (Sangam); U/s Varanasi (U/s Vishwa Sundari Bridge) to Varanasi D/s (Malviya Bridge) in Uttar Pradesh
- entire stretch of Bihar from Buxar, Chausa Karmnasa to Kahalgaon
- entire stretch of West Bengal from Behrampore to Diamond Harbour

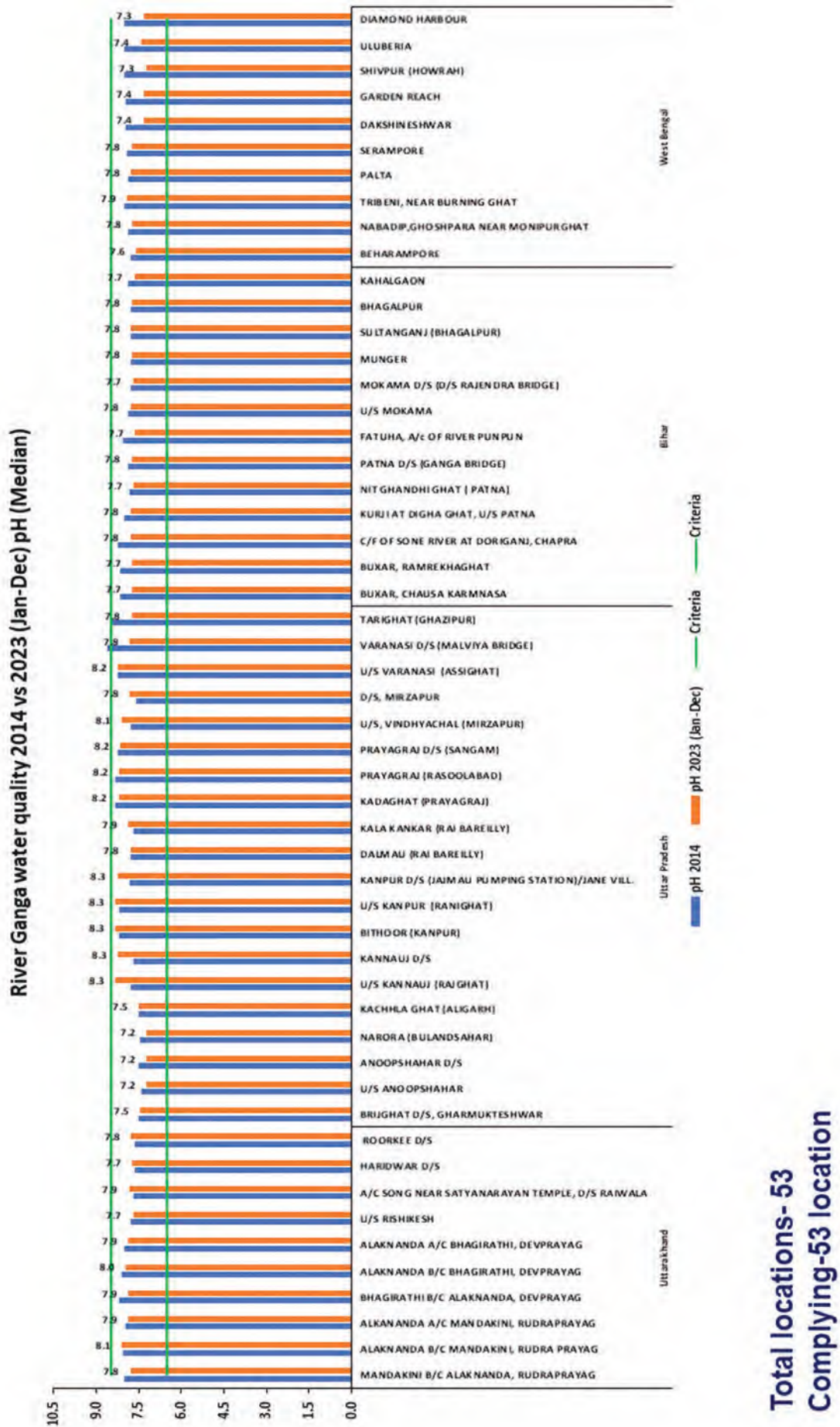
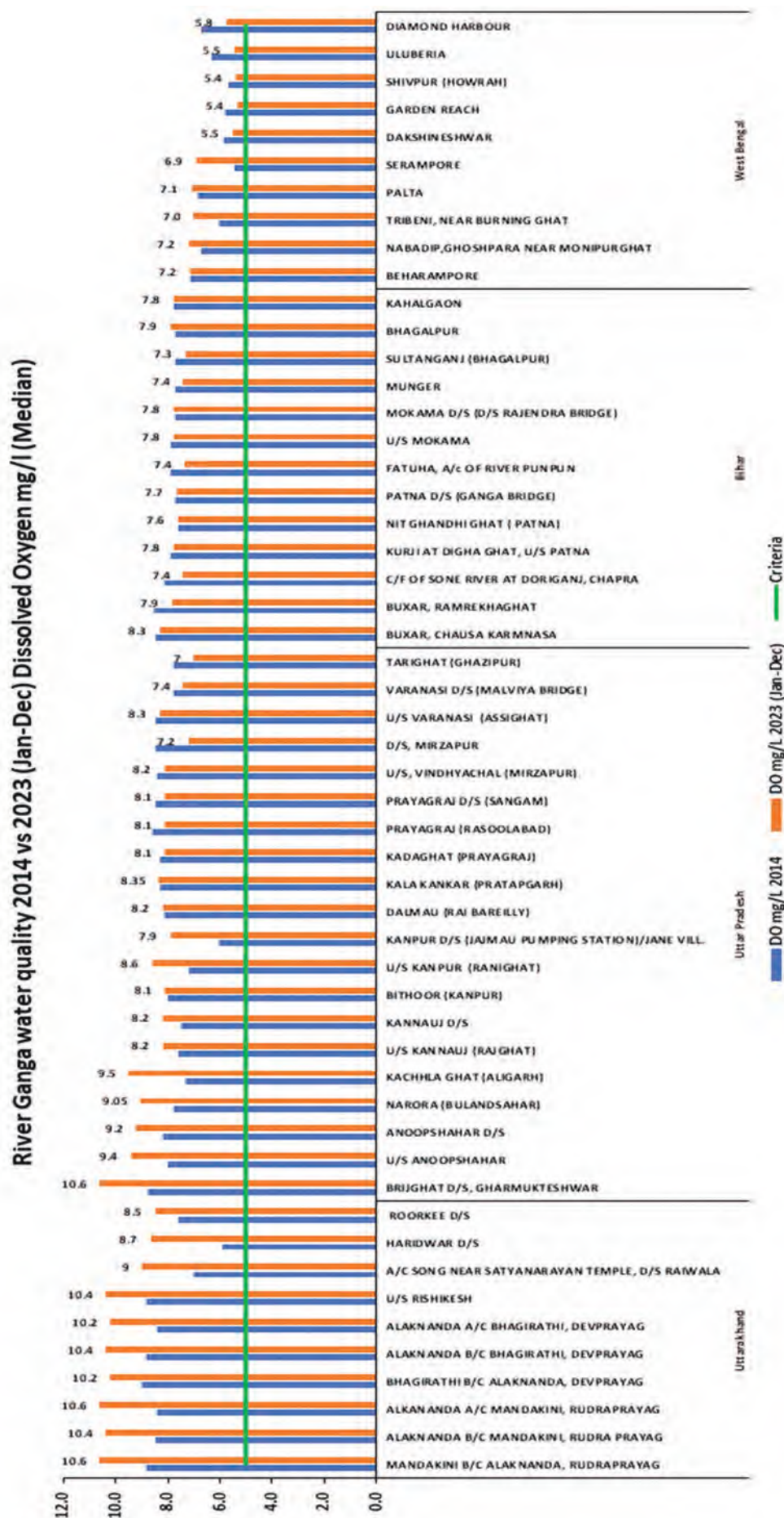
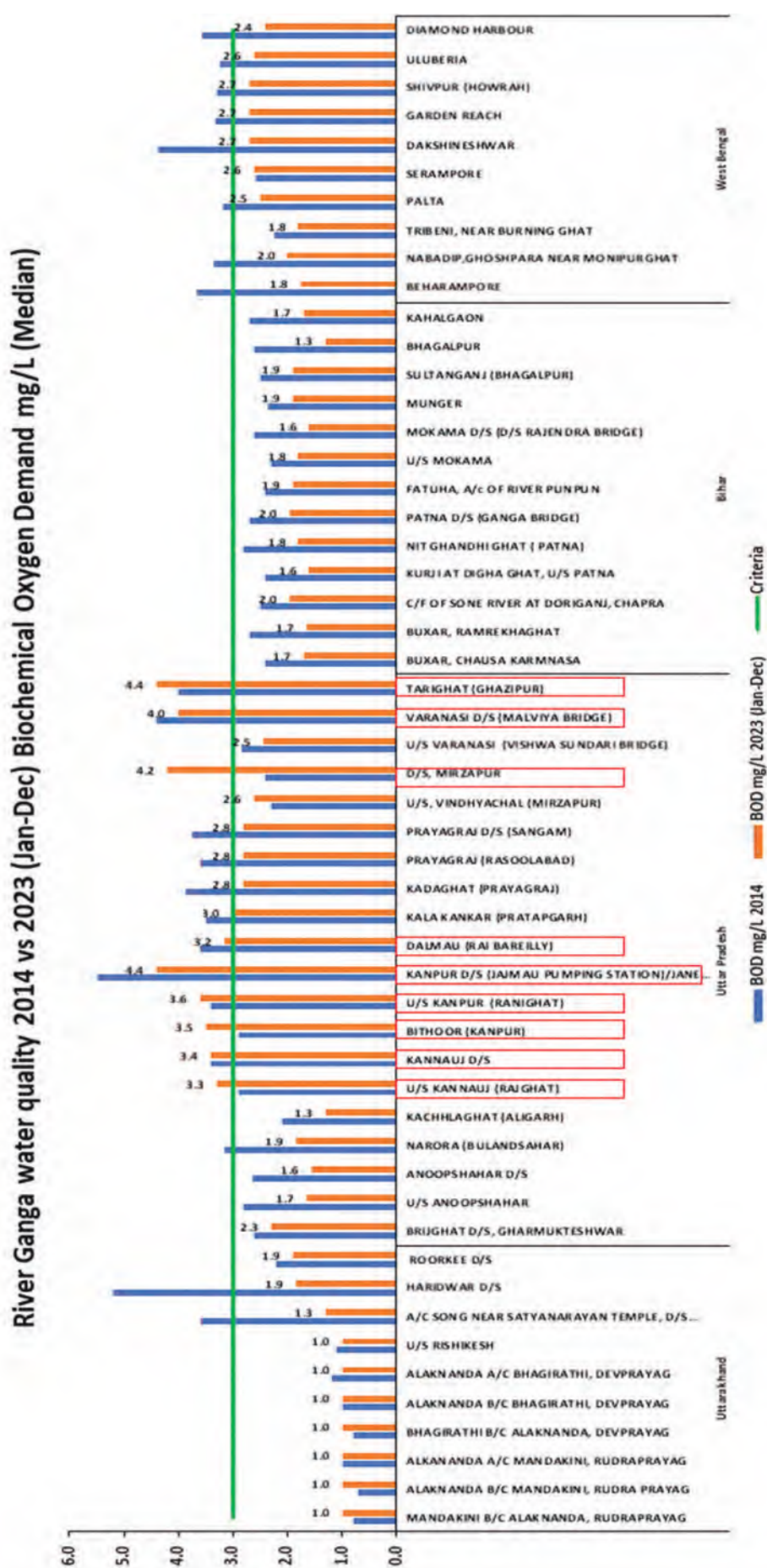


Figure 28 River Ganga water quality 2014 vs 2023 (Jan-Dec) w.r.t pH (mg/l)



Total locations- 53
Complying- 53 locations
Improvements- 32 locations

Figure 29 River Ganga water quality 2014 vs 2023 (Jan-Dec) w.r.t Dissolved Oxygen (DO) (mg/l)



Total locations- 53
Complying- 44 locations
Improvements- 44 locations

Figure 30 River Ganga water quality 2014 vs 2023 (Jan-Dec) w.r.t Biochemical Oxygen Demand (BOD) (mg/l)

5.3 Biomonitoring

Biomonitoring of river Ganga and its tributaries is being carried out in the stretch from Haridwar (Uttarakhand) to Varanasi (Uttar Pradesh) at 28 locations in the states of Uttarakhand (03) and Uttar Pradesh (25) to assess the biological water quality using benthic macro-invertebrates. Out of 28 locations, 21 locations are on the main stream of river Ganga and 07 locations are on the tributaries. Biomonitoring at 16 locations of river Ganga in Bihar and West Bengal stretch is being carried out by Regional Directorate, Kolkata.

The biological water quality monitoring conducted during Pre-monsoon period of 2023-24 (April-June, 2023), shows that in the stretch from Haridwar to Varanasi, 52% (11 out of 21) locations are in Good biological water quality class and remaining, 48% (10 out of 21) are in Moderate biological water quality class. None of the locations shows poor or severe biological water quality. The observed diversity of benthic macro-invertebrates in the studied stretch reveals potential of the river water to support life

In case of tributaries, biological water quality at 33% (02 out of 06) locations indicated Good class while Moderate class at 67% (04 out of 06) locations. During study period, biological water quality could not be assessed at river Pandu as sufficient number of macroinvertebrates were not observed due to high water flow.

Sample collection for post-monsoon period; 2023-24 of biomonitoring has been completed at 25 locations (Bijnore to Varanasi). Sample collection at Haridwar stretch and sample analysis is under process.

5.3.1 Findings on Biological Water quality in Mainstream of river Ganga (Pre-monsoon 2023-24)

- The saprobic scores of 21 locations of river Ganga are given in Fig. 33. The biological water quality map of the river Ganga during the studied period is displayed in Fig. 34. Out of 21 locations in main stream of river Ganga, Good biological water quality class was observed at 11 locations, while Moderate class was observed at 10 locations. None of the locations showed poor or severely polluted biological water quality class.
- In Uttarakhand state, observed saprobic score value at Haridwar barrage was 5 with Good class while at Jagjeetpur U/S & D/S were 4.9 and 4.1, respectively with Moderate class at both the locations. At Haridwar barrage, Good biological water quality class is indicated by abundance of pollution-sensitive family Heptageniidae (BMWP Score- 10) while Moderate class at Jagjeetpur U/S and D/S is correlated with abundance of intermediately tolerant families (BMWP Score 3-7).
- In Uttar Pradesh state, river stretch from Madhya Ganga barrage to Kacchla Ghat Badaun, showed Good biological water quality except Narora Barrage which was observed in Moderate class correlated with occurrence of pollution tolerant family Naididae (BMWP score 1). Both the locations in Kannauj stretch (Panchal Ghat and Kannauj D/S) were observed in Moderate class. In Kanpur stretch, out of 05 locations, 02 upstream locations viz., Bithoor and Ganga Barrage Kanpur were observed in Good class while remaining 03 downstream locations (Shuklaganj, Jajmau and Deori ghat) were observed in Moderate class. Pollution tolerant families viz., Chironomidae (BMWP score 2) and Naididae (BMWP score 1) were observed at 03 locations viz. Kannauj D/S (25%), Jajmau (15%) and Deori Ghat (35%). This indicated some waste water discharges from the cities into the stream. In Prayagraj stretch, out of 04 locations, 02 (Asni village Fatehpur and Prayagraj D/S) were observed in Good class and remaining 02 viz., Bridge on GT Road, Prayagraj and Sirsa Tamas D/S

were observed in Moderate class. All 03 locations in Varanasi stretch (Varanasi U/S, Varanasi D/S and Rajwari A/C Gomti) were observed in Good class.

- Comparing with the previous Pre-monsoon season (2022-23), saprobic score values increased at 11 locations, however, biological water quality improved from Moderate to Good at 06 locations (Madhya Ganga Barrage, Anupshahr, Bithoor, Prayagraj D/S, Varanasi U/S and Rajwari A/C Gomti), while, deteriorated from Good to Moderate class at 03 locations (Jagjeetpur U/S, Panchal Ghat and Sirsa Tamas D/S).
- A wide range of benthic macro-invertebrates were observed from all the locations in the studied stretch from Haridwar Barrage (Uttarakhand) to Varanasi (Uttar Pradesh).

5.3.2 Findings on Biological Water quality in Tributaries of river Ganga (Pre-monsoon 2023-24)

- Out of 06 locations, Good biological water quality class was observed at 02 locations, while Moderate class was observed at 04 locations. The biological water quality of river Saloni (Shukratal Ghat) at Muzaffarnagar was observed in Moderate class with Saprobic Score of 4.8. River Kali at Khudaganj was observed in Good class. Both the studied locations (Moradabad D/S and Farrukhabad) of River Ramganga showed Moderate class with respective Saprobic Score of 4.4 and 4.6. The biological water quality of River Varuna was in Good class. The River Gomti in Varanasi before confluence with river Ganga was observed in Moderate class with Saprobic Score 4.2.
- Comparing with the previous pre-monsoon season 2022-23, saprobic score values increased in 02 tributaries with improvement in biological water quality class from Moderate to Good (River Kali at Khudaganj and River Varuna Varanasi) and decreased from Good to Moderate at 04 locations.
- The Diversity Score ranged from 0.5 (River Saloni, Shukratal Ghat, Muzaffarnagar and River Gomti, Varanasi) to 0.8 (River Varuna, Varanasi). Total 38 no. of macroinvertebrate families belonging to the 10 taxonomic orders were identified from tributaries of river Ganga.



HARIDWAR BARRAGE



RIVER RAMGANGA (MORADABAD)



JAGJEETPUR D/S



MADHYA GANGA BARRAGE



ASNI VILLAGE, FATEHPUR

Figure 31 FEW SAMPLING LOCATIONS OF MAIN STREAM & TRIBUTARIES OF RIVER GANGA

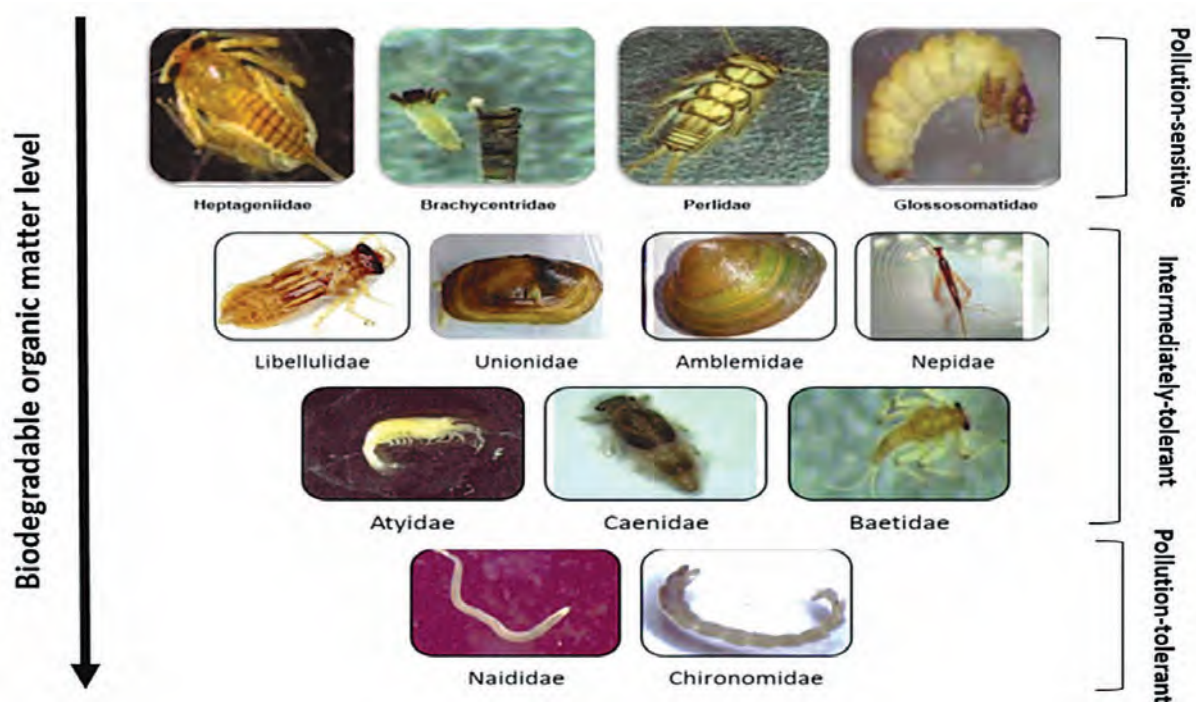


Figure 32 Macroinvertebrate Families of river Ganga & Tributaries

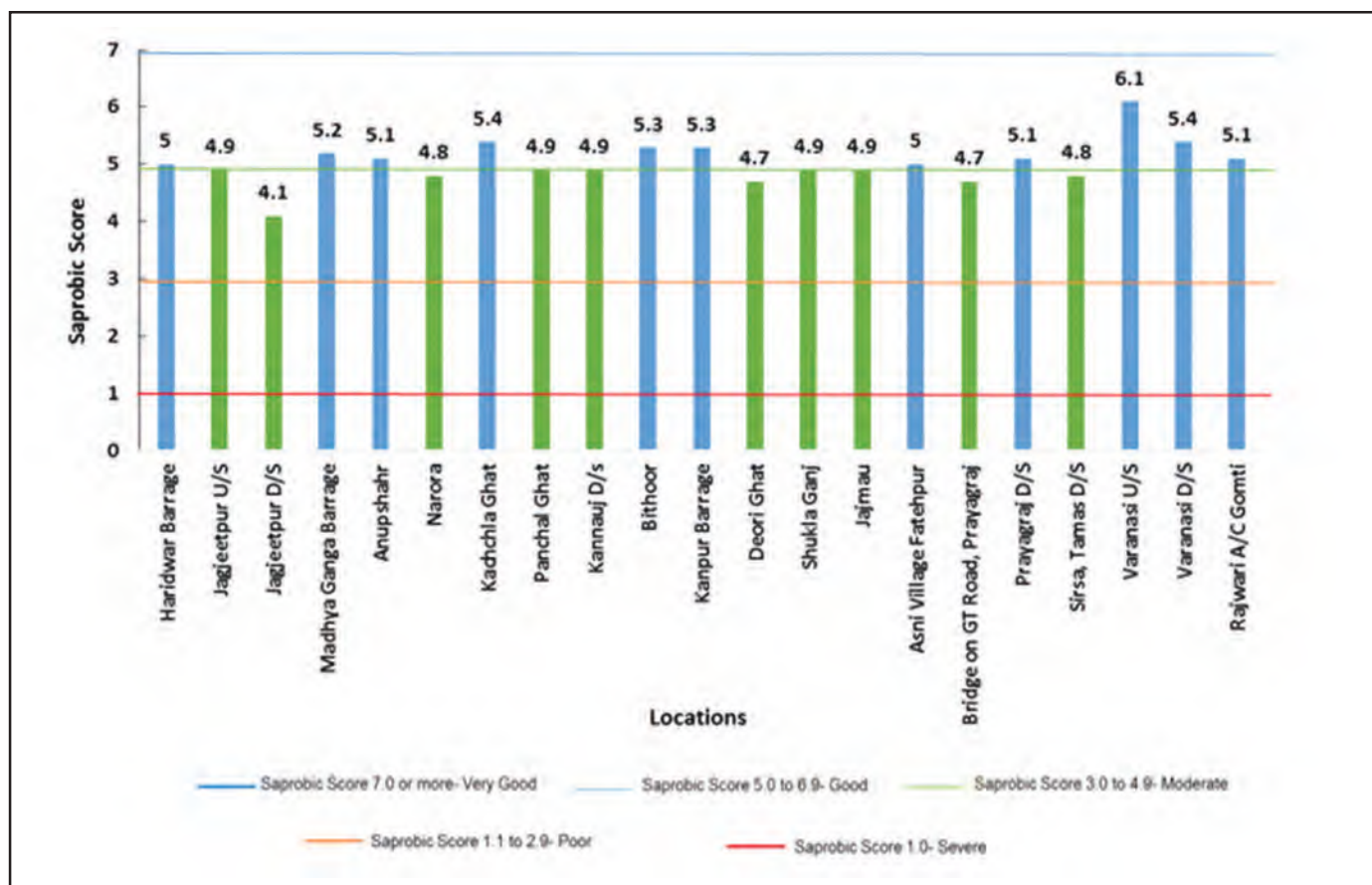


Figure 33 Location wise Saprobic Score of River Ganga (Pre-monsoon 2023-24)

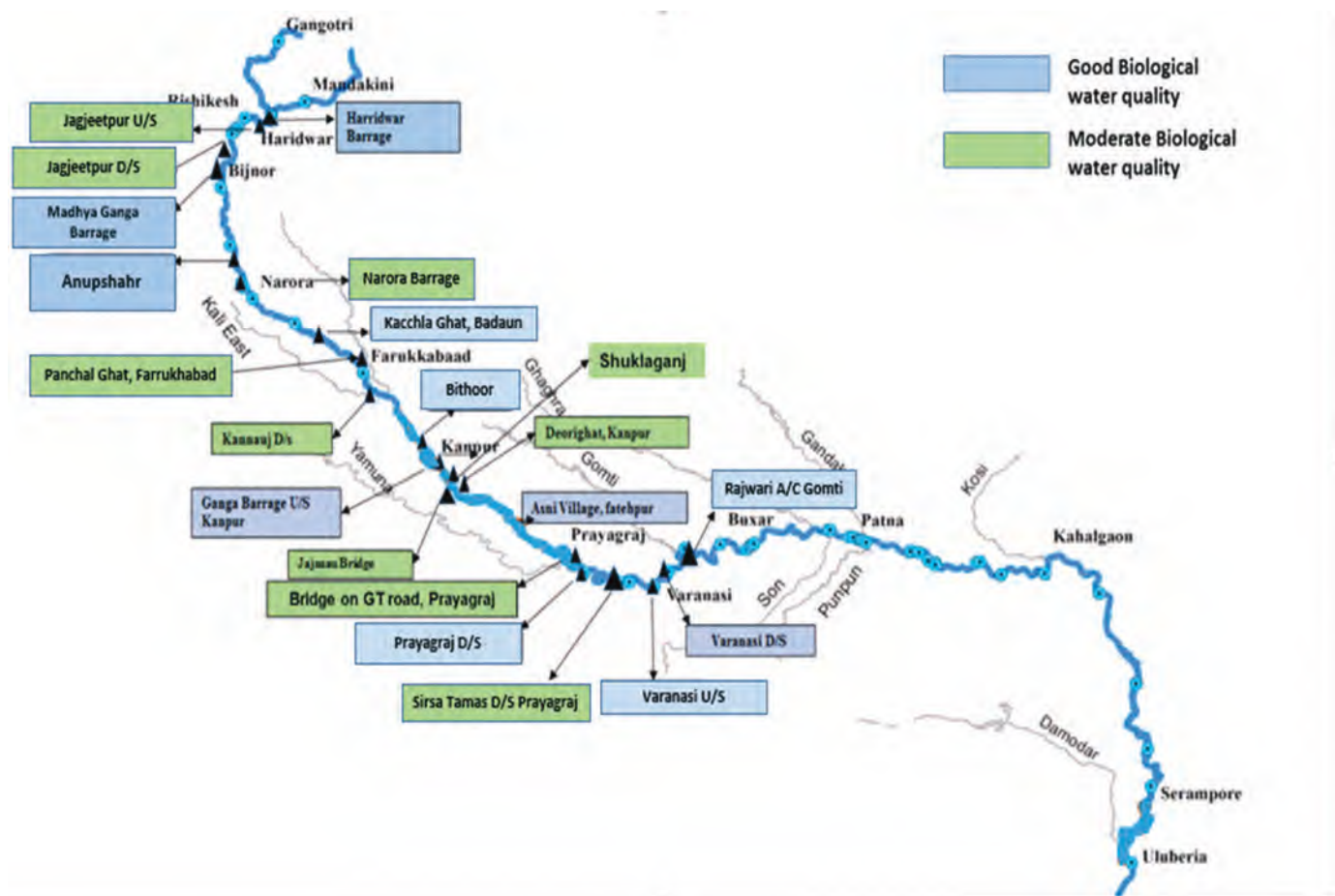


Figure 34 Bio- Map of River Ganga (Pre-monsoon, 2023-24)

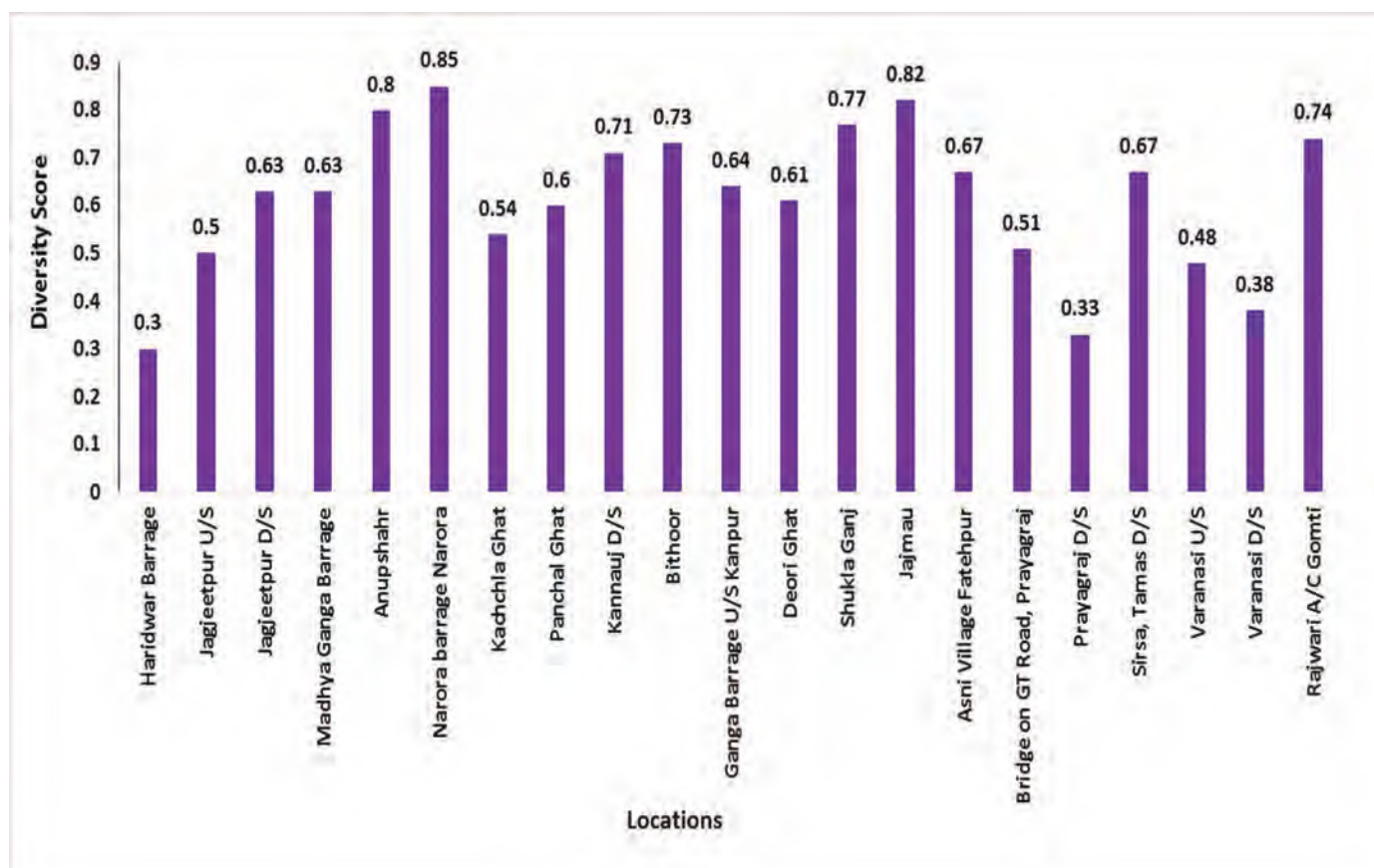
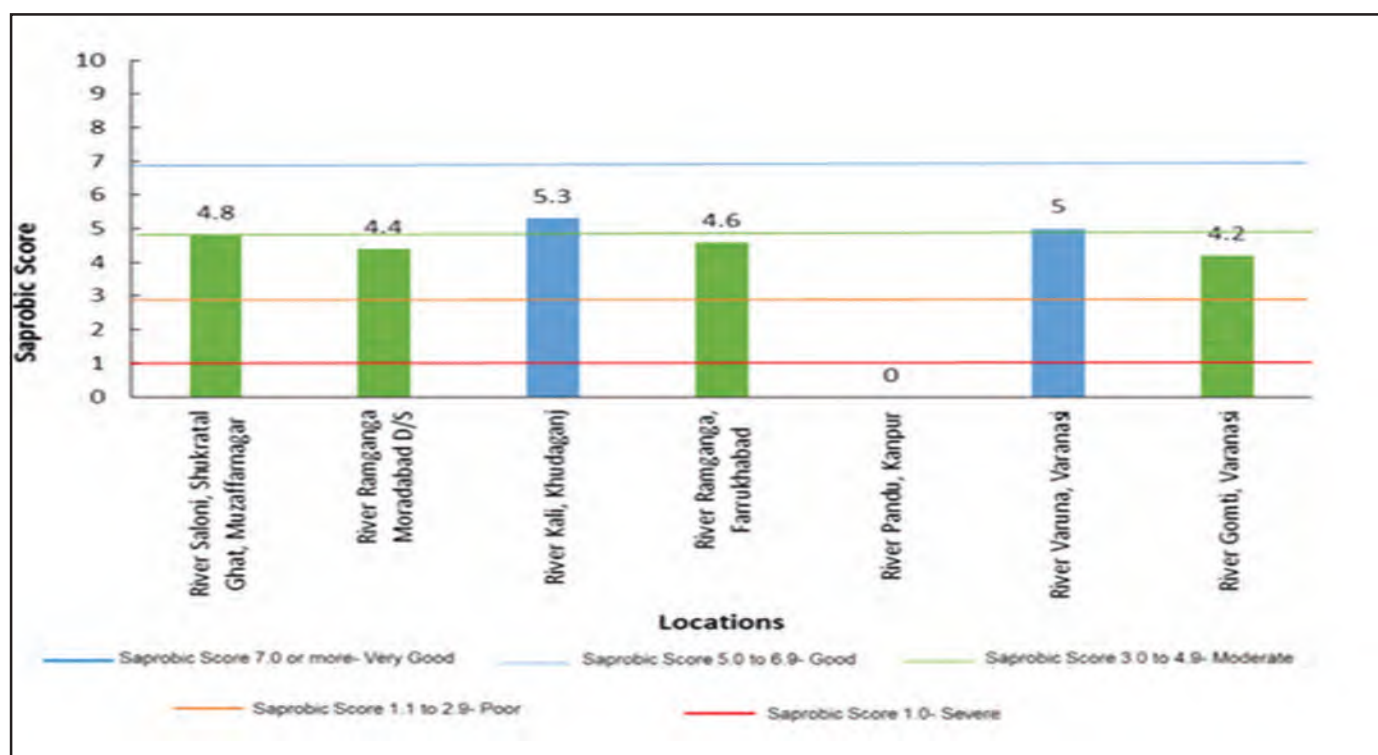


Figure 35 Location wise Diversity Score of River Ganga (Pre-monsoon 2023-24)

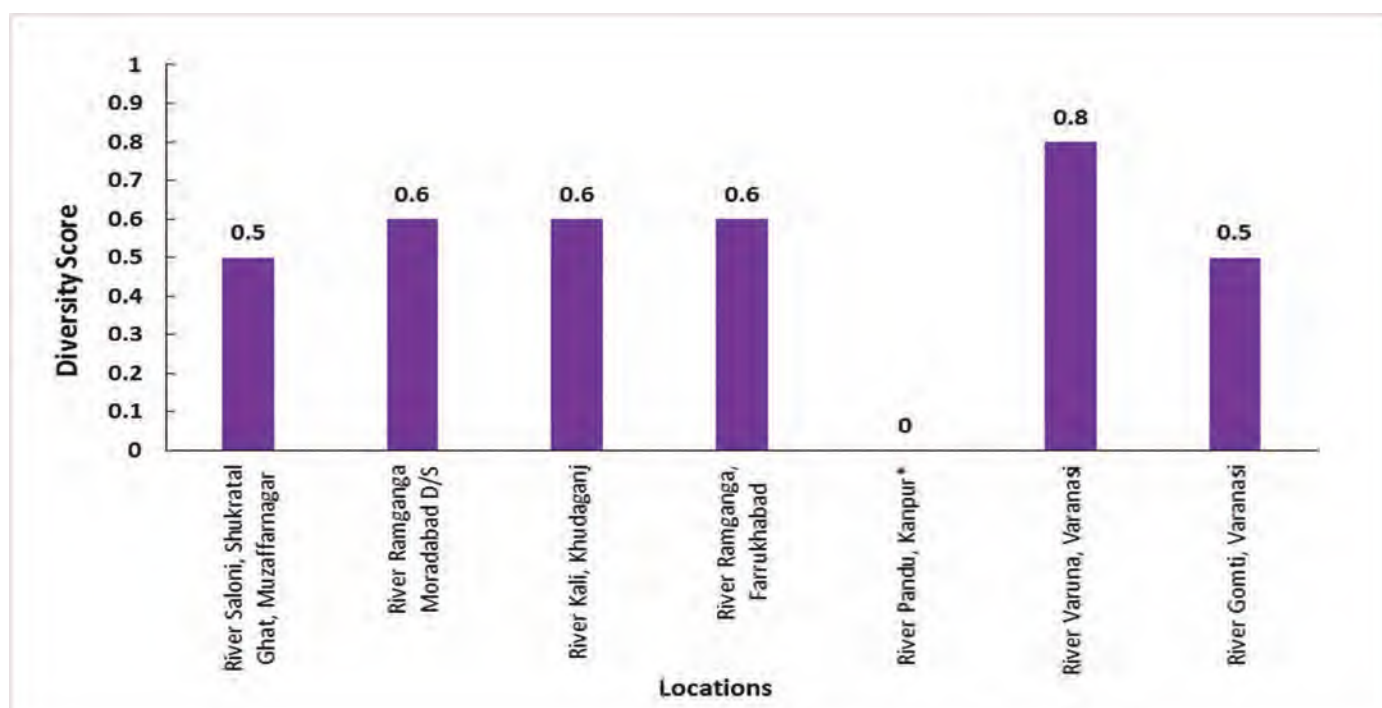


*Insufficient collection of macroinvertebrates at River Pandu (Kanpur)

Figure 36 Location wise saprobic score of Tributaries of River Ganga (Pre-monsoon 2023-24)



Figure 37 Bio-map of Tributaries of river Ganga (Pre-monsoon 2023-24)



*Insufficient collection of macroinvertebrates at River Pandu (Kanpur)

Figure 38 Location-wise Diversity score of Tributaries of River Ganga

Environmental Flow

6.1 The Concept of Environmental Flow

Flows of certain magnitude, timing, frequency, and duration are needed to sustain holistic flow regime for river dependent eco-systems. Also, balancing of requirements of various human usages and environmental needs of the river system is critical in all the river basins, and more so in the Himalayan River basins.

The International Union for Conservation of Nature (IUCN) (2003) defines ecological flows as “***the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated***”.

Thus, ecological/ environmental flows are the acceptable flow regime required to maintain the river in desired environmental condition or predetermined state where there are competing water uses. National Water Policy (2012) stipulates those ecological needs of the river should be determined through scientific study, duly accommodating development needs.

6.1.1 Threats to Ecological flow

The flows of rivers are being modified by impoundments such as dams and weirs for various purposes. In many cases, these modifications have adversely affected the flows and consequently the ecological and hydrological services provided by the systems.

In India, demand for water is ever increasing due to rapid growth of population, urbanization, and industrialization. Rivers being the main source of fresh water, abstractions of water from rivers have considerably increased. Several storage reservoirs as well as diversion structures have been created to regulate and divert the flows to meet various requirements of water. In some cases, this has resulted in significant reduction in flow downstream of such projects.

Even for non-consumptive uses such as hydro power, many a times water is diverted through tunnels affecting significant portion of river stretch. A need has, therefore, been felt to provide certain minimum flows in the rivers to take care of the environmental and other considerations.

6.2 Environmental Flows of River Ganga

River Basin Management Plan – MoEF&CC signed an agreement with IIT Consortium (7 IITs) for preparation of Ganga River Basin Management Plan with an objective of maintenance and restoration of wholesomeness of river Ganga. The IIT consortium developed GRBMP, based on a holistic vision of river Ganga in terms of Aviral Dhara, Nirmal Dhara, Geological entity and Ecological entity.

GRBMP recommended following actionable points for restoring **AVIRALTA – ‘continuous flow’ in river Ganga**:

- Determination of National River Ganga Basin’s (NRGB) hydrological status more accurately and in greater detail.
- Preparation of water resources plan for NRGB with emphasis on wetlands, forests and distributed groundwater and surface water storages rather than large reservoirs storages.
- Increase in anthropogenic water use efficiency through: (i) realistic pricing of fresh water; (ii) incentives, technical assistance, and allocation of water rights and entitlements to consumers; and

(iii) reuse and recycling of water.

- Governmental policy shift to bring NRGB's waters under natural resource management, with emphasis on resource preservation, stakeholder control, expert guidance, and regulation.
- Ensuring longitudinal river connectivity and E-Flows at dams, barrages and other manmade interferences, and adoption of new criteria for approving such projects.
 - Control of water withdrawals in water depleting regions.
 - Assessment and monitoring of sediment resources of the network including the quantity, quality and nutrient value of sediments trapped behind dams.
 - Research to determine ecological limits, thresholds, and interconnections of NRGB's water resources, and river flow health assessments within the framework of ecohydrology.

6.2.1 E-flow Notification

For the first time, E-flow has been notified vide notification dated 9th October 2018 for river Ganga – starting from all the head streams of river Ganga up to Haridwar in Uttarakhand and from Haridwar to Unnao in Uttar Pradesh. This is a landmark policy initiative paving the way for recognizing the right of river on its own water.

The notification specifies minimum environmental flows to be maintained in river Ganga from its origin to Unnao (Uttar Pradesh) specifically at locations downstream of structures or projects meant for diversion of river flows for purposes like irrigation, hydropower, domestic, industrial, and other requirements.

An amendment to the aforesaid notification dated 09th October 2018 was issued in September 2019, wherein exemption provided to existing projects for implementation of notified environmental flow regime was reduced from 3 years to 3 months.

The notification is applicable to all existing, under-construction and future projects. However, mini, and micro projects which do not alter the flow characteristics of the river or stream significantly are exempted from these environmental flows.

6.2.2 Mechanism to monitor E-flow

A mechanism for monitoring of e-flow regime has also been put in place with the help of Central Water Commission, which has been designated as authority and the custodian of the data and responsible for supervision, monitoring, regulation of flows.

Central Water Commission shall inspect individual hydroelectric projects and barrages and submit quarterly reports to NMCG. Accordingly, Central Water Commission has formulated 'Standard Operating Procedures' for implementation of environmental flows in various seasons was approved by National Mission for Clean Ganga (NMCG) on 24.01.2020. The same is implemented for monitoring the e-flow.

Presently, CWC has identified 11 such structures/ projects meant for diversion of river flows for purposes like irrigation, hydropower, domestic and industrial and other requirements, which are monitored on hourly basis for compliance with notified environmental flows regime. The project currently being monitored by CWC are Maneri Bhali Stage –I, Maneri Bhali Stage –II, Singlori Bhatwari, Tehri Dam & Koteswar Dam, Vishnuprayag HEP, Srinagar HEP, Pashulok barrage/ Chilla HEP, Bhimgoda barrage, Bijnor barrage, Narora barrage and Kanpur barrage. The list of structures/ projects to be monitored is to be reviewed after each year.

Project Authorities have been directed to install automatic data acquisition and transmission system for real time monitoring of releases from the project. An online portal is also being developed for the same. CWC submits e-flow monitoring-cum-compliance report on quarterly basis to National Mission for Clean Ganga.

Ecology and Biodiversity Conservation Measures

National Mission for Clean Ganga (NMCG) under the Namami Gange programme has established partnerships with Wildlife Institute of India (WII), Dehradun, Uttar Pradesh State Forest Department (UPSFD), Central Inland Fishery Research Institute (CIFRI), Barrackpore, World Wide Fund for Nature (WWF) India and Turtle Survival Alliance India (TSAI) to restore the viable population of all endemic and endangered species of the river so that they occupy their full historical range and fulfil their role in maintaining the biological integrity of the Ganga River ecosystems.

Following noteworthy achievements were made during the period April 2023 to March 2024 under these projects:

7.1 NMCG-WII Project

- An intensive biodiversity assessment was undertaken in about 1555 km length of the rivers in the Ganga River Basin, which included the river Ghaghra and Ramganga rivers.
- About 976 individuals of freshwater turtles were rescued. A capacity-building workshop was organized for the forest department personnel of the Meerut forest division and M.Sc. Zoology students of Chaudhary Charan Singh University, in which total 487 persons were trained in rescue and rehabilitation techniques.
- Additionally, a vegetation survey was also conducted in about 3653 km along the Ganga, Gomti and Ghaghra rivers between May to December 2023.
- Five spearhead training workshop were conducted at state and national levels, which included participants from veterinary college students, National Cadet Corps (NCC) cadets, NGOs and Police Personnel.
- A total of 12 Ganga Aqualife Knowledge Centers (Bal Ganga Prahari Corner) were set up at Uttarkashi, Uttarakhand, Behral, Himachal Pradesh, Prayagraj, Fatehgarh, Kanpur Uttar Pradesh, and Sahibganj, Jharkhand to educate school children about the Biodiversity of Ganga River Basin.
- The Ganga Prahari cadre has grown to 4751 individuals, of which 3019 are females. These are spread across 11 Ganga basin states and in 105 districts.
- New project on “Master’s Degree in Freshwater Ecology and Conservation” sanctioned for boosting conservation efforts and generating futuristic experts in the field of ecology and conservation.

Progress of activities under NMCG-WII Project:



Performing Vegetation Survey



Water hyacinth- Pontederia crassipes



Aegle marmelos -Bel



Water lettuce- *Pistia stratiotes*



Grey plover recorded from Ghaghra River



Black-faced bunting - *Emberiza spodocephala*

Figure 39 Plants and animal species recording during Ecological profiling of Ganga & its tributaries



Rescue & Rehabilitation of Aquatic Species



Rescue & Rehabilitation of turtles



Hatchling management



Rescue activity by Ganga Prahari Rescue & Rehabilitation of aquatic species

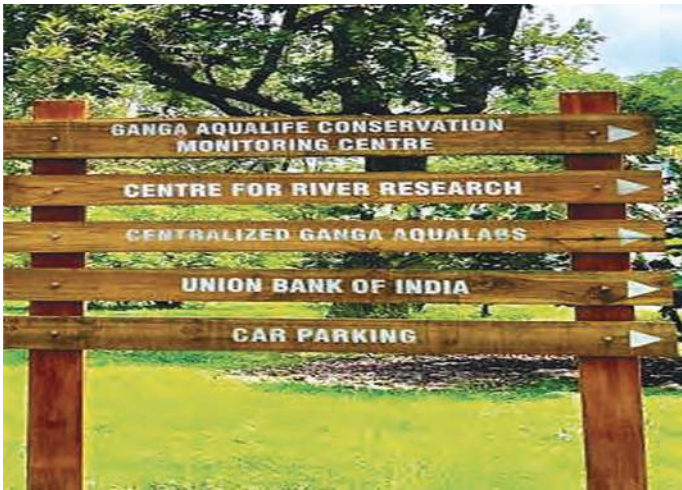


Figure 40 Ganga Aqualife Conservation Monitoring Centre – GACMC



Ganga Aqualife Knowledge Centres: Govt. Sr. Sec. School, Pratapnagar, Haryana



Ganga Aqualife Knowledge Centres: Govt. Abhinav Inter College, Kannauj, U.P.



Ganga Aqualife Knowledge Centres: Rajasthan Inter School, Sahibganj, Jharkhand



National River Dolphin Day



Ganga Prahari giving training to community



Capacity Building for spearhead Prahari

Figure 41 Awareness & capacity building through training & Ganga Aqualife Knowledge Centres



Eco-toxicological sampling, Sahibganj



Macroinvertebrates collection



Gharial at Pali and Nadigaon, Chambal



Eco-toxicological Sampling at Pali Chambal

Figure 42 Ecological & Eco - toxicological survey and sampling in river Chambal & Ganga

7.2 NMCG-CIFRI Project

The activities taken up in collaborating with CIFRI were divided into two parts i.e. from April to September, 2023 given further extension till November 2023 of the remaining leg of CIFRI Phase II project titled

“Fish stock enhancement including hilsa and livelihood improvement for sustainable fisheries and conservation in river Ganga” and from December 2023 to March 2024 for newly sanctioned project in November 2023 to CIFRI as “Fish conservation and stock enhancement of fishery of Ganga river basin (Phase III)” under Namami Gange Mission II.

a. CIFRI Phase II from April to November 2023

- Fish ranching programmes to increase fish production and conserve the native fish population, selected fish species Indian Major Carps (IMCs-Rahu, Catla, Mrigal a& Kalbas) and Mahseer implemented in mainstem Ganga in 5 bank states namely as Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal.
- 28.78 lakh fingerlings of Indian major carps (IMCs) and Mahseer were released in Ganga through 18 different river ranching programmes.
- Further, quarterly field campaigns were conducted to assess the fish community structure which was represented by 183 fish species.
- A total of 23 awareness programmes were conducted in 5 states, including Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal, where a total 1,461 fishers participated.
- For ex-situ conservation of the indigenous fish stock, a total of 77 lakh spawns of IMCs (Rohu 39 lakh, Catla 13 lakh and Mrigal 25 lakh) were produced through the breeding programme.
- A total of 3415 Hilsa brood fish were ranched in upstream of the Farakka barrage to increase the Hilsa (*Tenualosa ilisha*) population.
- Fish cages were installed at Farakka where a total number of 903 adult hilsa were stocked weighing from 17.2g to 350.05g for cage culture.
- A total of 86 awareness programmes were held and 1204 fishermen representing the states of Bihar, Jharkhand and West Bengal were provided scientific knowledge on the life cycle of the Hilsa, its conservation, and the procedure to tagged hilsa.
- On 26 & 27 September 2023 Stakeholders consultation cum consultative workshop held on Hilsa fisheries improvement for sustainable fisheries and conservation in river.

b. CIFRI Phase III from December 2023 to March 2024

- During this period, four river ranching programmes were performed under the Phase III project and 4.06 lakh fingerlings of IMCs along with native Sarana (Sar Puti) and indigenous Gangetic fish (Punti, Tangra, Khalse, Piyali, Chitala, Bata and Prawn) were ranched in the stretch of river Ganga in West Bengal.
- A total of 87 fish species belonging to 63 genera, 27 families and 13 orders were recorded from upper and middle stretches of the river Ganga
- A total of 17,883 adult hilsa weighing from 58.7 - 466.8 g were ranched upstream of Farakka barrage in West Bengal and of which 2 tagged specimen of Hilsa ranched in Taltala Ghat had migrated up to 151 km.
- A total of six awareness programs on dolphin and fish biodiversity conservation where 340 fisher folks and local communities across different rivers of West Bengal were sensitized.

- A launching workshop for the NMCG CIFRI project (Phase III) was held on February 10, 2024 at Farakka Barrage Authority premises.
- A Satellite Symposium on “Riverine Fisheries, Habitat Mapping, and Environmental Health” was also organised at the 13th Inland Fisheries and Aquaculture Forum (IFAF) in Kolkata, West Bengal, on February 25, 2024.

Activities under NMCG-CIFRI Project on Fish stock enhancement & livelihood improvement:



Fish Ranching at Farakka in February 2024



Fish Ranching at Nabadwip in February 2024



Fish Ranching at Varanasi, U.P., April, 2023



Fish Ranching at Barrackpore, W.B., May, 2023



Ranching at Balagarh, W.B., May, 2023



Ranching at Rishikesh, Uttarakhand, June, 2023

Figure 43 Fish Ranching programme for IMC, Mahaseer & Hilsa fishery across river Ganga



Chaca chaca (Squire head catfish)



Anguilla bengalensis (Indian Motled eel)

Figure 44 New Records of fish species in river Ganga



Figure 45 Catch of Different size groups of Hilsa from Farakka, West Bengal, during September 2023



Awareness among stakeholders



Socioeconomic of bank community



Awareness Hilsa fishery Conservation



Awareness for Ganga River Dolphin

Figure 46 Awareness and capacity building programme including trainings for stakeholdersTagging of Hilsa at Farakka
Artificial breeding of HilsaTagged hilsa
Ranchinh Hilsa spawn across Farraka**Figure 47 Fish culture practice for common carp and hilsa including its hilsa tagging**

7.3 NMCG - PORI Project

The project titled “*Scientific exploration of floral diversity near the Ganga river banks for ethnobotanical purposes along with their conservation and economic development of the region via skill development programme*” was sanctioned in February 2023 to Patanjali Organic Research Institute (PORI), Haridwar, Uttarakhand at a cost of ₹4,32,36,107/-, of which the NMCG share is ₹2,41,50,545/- for a period of 18 months, of which 1 year has been completed. The project is in progress.



Boerhavia diffusa L.



Croton bonplandianus L



Polygonum plebelum L

Figure 48 View sampling location & activities taken up for data collection & skill development programme

7.4 Biodiversity Park Projects

NMCG has taken up initiatives for the conservation and restoration of biodiversity of native species of flora & fauna of floodplains for Ganga rejuvenation under Namami Gange Programme in form of the establishment of biodiversity parks. Description of projects taken up under NMCG are given below;

Table 16 Brief description of biodiversity park projects

Sl. No.	Name of Biodiversity Parks	Location	Total area in Ha	Period	Total Cost ₹in crore
1	Mohanpur Biodiversity Park	Mirzapur	180.0	2022-23 to	5.819
2	Biodiversity Park Ramghat	Bulandshahr	40.0	2025-2026	6.182
3	Ujhani Biodiversity Park	Budaun	50.3		6.6385
4	Almghirpur Biodiversity Park	Hapur	51.0		6.3305
	Subtotal (1-4)		321.30		24.97
5	Mahatma Vidur Biodiversity Park	Bijnor	40.0	2023-24 to	6.2851
6	Kamakhya Bhawani Biodiversity Park	Ayodhya	80.0	2025-26	5.4986
	Subtotal (5-6)		120.0		11.7836
7	Chilbila Biodiversity Park	Pratapgarh	25.0	2024-25 to	5.5284
	Total (1-7)		466.30	2025-26	42.282

The activities taken up during the development phase such as greenways, recreational park, floodplain forests, butterfly garden, herbal garden, nature interpretation center (NIC) on elevated land, riparian zones, channel banks river bed, natural bathing sites, aquatic gardens, chain-linked wire fencing, etc.



Bamboo Hut



Chain-linked Fencing

Figure 49 Mahatma Vidur Biodiversity Park, Bijnor



Creating Nursery set up



Round Hut Construction

Figure 50 Mohanpur Biodiversity Park] Mirzapur



Solar pump installation



Developing vermi-compost facility



Herbal garden development



Plantation Native Species

Figure 51 Almghirpur Biodiversity Park, Hapur

Nature Trail Entrance



Bamboo Hut

Figure 52 Kamakhya Bhawani Biodiversity Park, Ayodhya

7.5 Afforestation (Forestry Interventions) Projects

Till date under NGP, 31,494 hectare area in the 5 Ganga bank states has been covered with plantation for which an expenditure of ₹398 crore has been incurred. For year 2023-24, ₹12.2 crore has been sanctioned to respective SFDs for maintenance of previous year's plantations.

In addition, plantation activities have also been undertaken in collaboration with State programmes like Harela (Uttarakhand), Ganga Haritima Abhiyan (Uttar Pradesh), Har Parisar Hara Parisar (Bihar) and Van Mahotsav (Jharkhand & West Bengal) as well as CAMPA and other Central schemes.



Figure 53 Plantation in Natural Landscape



Figure 54 Plantation in Agriculture Landscape –Private land



Figure 55 Eco-Park development

7.6 Wetland Conservation Projects

Wetlands are an important part of the riverine ecosystem and play an important role in maintaining flows in rivers, flood abatement and groundwater recharge.

Under the Namami Gange programme a total 4 projects have been sanctioned to State Forest Departments of Uttar Pradesh, Bihar and Jharkhand at a total cost of ₹12.54 Crores, out of which 1 project at UP had been completed.

- Project costing ₹4.16 crore has completed, which has mapped and assessed 285 wetlands along river Ganga in 27 districts of Uttar Pradesh.
- NMCG has sanctioned as next phase project titled “Conserving and sustainably managing three priority wetlands in Kalewala Jheel, Muzaffarnagar District, Numaiya Dahi Jheel - Kheduva Taal, Prayagraj District and Dahtal Reoti wetland, Ballia District of Uttar Pradesh” in November, 2023 at a cost of ₹5.37 crore under the Namami Gange programme.
- NMCG has also sanctioned a project to the state of Bihar titled “Conserving and sustainably managing Gangetic floodplain wetlands of Bihar” for a period of 18 months for ₹250.51 lakhs.
- In Jharkhand, an integrated Management Plan for conserving and managing the wetlands of Udhwa Lake Bird Sanctuary is being prepared for which a project has been sanctioned for ₹0.50 crore
- NMCG in collaboration with ICAR-Central Inland Fisheries Research Institute (CIFRI) celebrated World Wetland Day 2024 under the theme “Wetlands and Human Wellbeing”, at CIFRI, Barackpore, West Bengal.



Figure 56 Dahtal Reoti Wetland, Ballia : Site Cleaning & Removing weeds



Kalewala Jheel Wetland, Muzaffarnagar: Site cleaning & clearing weeds

Figure 57 View of activities in progress for conservation and restoration of three priority wetlands

Training workshop on Rapid Assessment of Wetland Ecosystem Services (REWAS)



Water quality assessment of identified wetland in Begusari district, Bihar

Wetland Ground truthing training to the frontline staff of the Begusarai district



Brief document and health card preparation of identified wetland in Bihar

Figure 58 View of field activities for conserving & restoring wetlands in Bihar

7.7 Ganga Eco Task Force

The concept of raising the Ganga Task Force (GTF) for conservation and rejuvenation of Ganga was accorded principle approval, modelled on the pattern of Eco Task Force of the Territorial Army and employing the Ex-service men for bank protection, afforestation, and other related works.

The GTF is carrying out multifarious tasks, including the mandate for rejuvenation of the Gangetic Ecosystem, and for this training, personnel were imparted by specialist agencies like the Central Pollution Control Board (CPCB), the Wildlife Institute of India (WII), the State Forest Department, etc.

The Phase-I project was completed on 31st December, 2023. The Phase-II project for the extension of existing GTF (137 CETF Bn deployed at Prayagraj, Varanasi, and Kanpur) and raising of one additional company to existing 137 CETF Bn for Gomti River at an estimated cost of Rs. 134.86 crores (Extension of existing GTF: Rs. 107.7 crore + Raising of additional company for Gomti: Rs. 27.16 crore) for a period up to 31st March, 2026 (1st January, 2024 to 31st March, 2026) has been approved



Vetiver Plantation at Prayagraj



Vetiver Plantation at Varanasi



Vetiver Plantation at Kanpur



Plantation, Dy CM, UP at Prayagraj

Figure 59 Riverbank management in Kanpur, Prayagraj and Varanasi districts by GTF

a. Public Awareness Campaign:

A total of 181 events for the Public Awareness Programme in association with various Army units, NCC Cadets, the UP Police Department, the State Forest Department, other government agencies, the Railway Department, non-government organisations, social service organisations, school/college staff, students and the general public were carried out by this unit in Kanpur (n = 86), Prayagraj (n = 47), and Varanasi (n = 48).



Awareness at Namoo Ghat Varanasi



Awareness & Cleanliness Assi Ghat, Varanasi



Awareness & Cleanliness VIP Ghat, Prayagraj



Awareness & Cleanliness, Atal Ghat, Kanpur



Figure 60 Public Awareness cum Cleanliness drive and trainings by unit ecology

b. Patrolling of Sensitive areas along banks for Bio-Diversity Protection:

Training is regularly carried out with the 'Wildlife Institute of India' (WII) and the Forest Research Institute (FRI) to train unit personnel in the restoration of Gangetic biodiversity and forestry interventions for Ganga.



Foot Patrol at Prayagraj



Patrol at Varanasi



Boat Patrol at Prayagraj



Boat Patrol at Kanpur

Figure 61 Glimpses of Boat Patrol

c. Pollution Monitoring and Control:

The unit collects water samples on a fortnightly basis from the rivers Ganga and Yamuna, as per the laid-down schedule, at pre-decided locations prior to entry of the rivers in Kanpur, Allahabad, Varanasi, Delhi and their exit from the city/suburbs. These water samples are analysed at the unit lab for 19 different parameters to assess the cumulative pollution.

- Water samples from 20 designated spots (Allahabad 11, Kanpur 05, & Varanasi 04) in the rivers Ganga and Yamuna. Among these 5 sampling site at river Ganga and 3 sampling sites at STPs Kanpur were made.
- Mapping of drains flowing directly into the River Ganga in three locations, i.e. Kanpur, Prayagraj, and Varanasi were done with latitude and longitude.



Prayagraj.



Varanasi



Kanpur



Figure 62 Drain mapping in and around of river Ganga

PRAYAG and Ganga Knowledge Centre

Ganga Knowledge Center (GKC) has been conceptualized as an online repository of various studies related to different thematic information, reports, knowledge video, informative link pertaining to river Ganga and associated ecosystem.

8.1 PRAYAG

A Platform for Real-time Monitoring of Yamuna and Ganga (PRAYAG) has been developed under GKC to have real-time data related to STP monitoring through web camera, STP water quality monitoring,



Geo-PRAYAG has been developed under GKC to have geo portals capable with integration of spatial data & non spatial data related to polluted stretches in the river, historical manual water quality data from past to latest available (1986 to 2021) for trend analysis, Bhuvan Ganga geoportal, geo PRAYAG portal & Delhi-Yamuna portal (GIS-based framework for decision making in the present status of water supply, sewage generation, and sewage treatment in space and time for NCT of Delhi), GPI inspection monitoring portal, Real time river water quality data analysis portal.

It also has on-line dashboards for planning and monitoring of project progress through real time feeds, PMT Tool Dashboard, Ganga Districts Performance Monitoring System, etc.

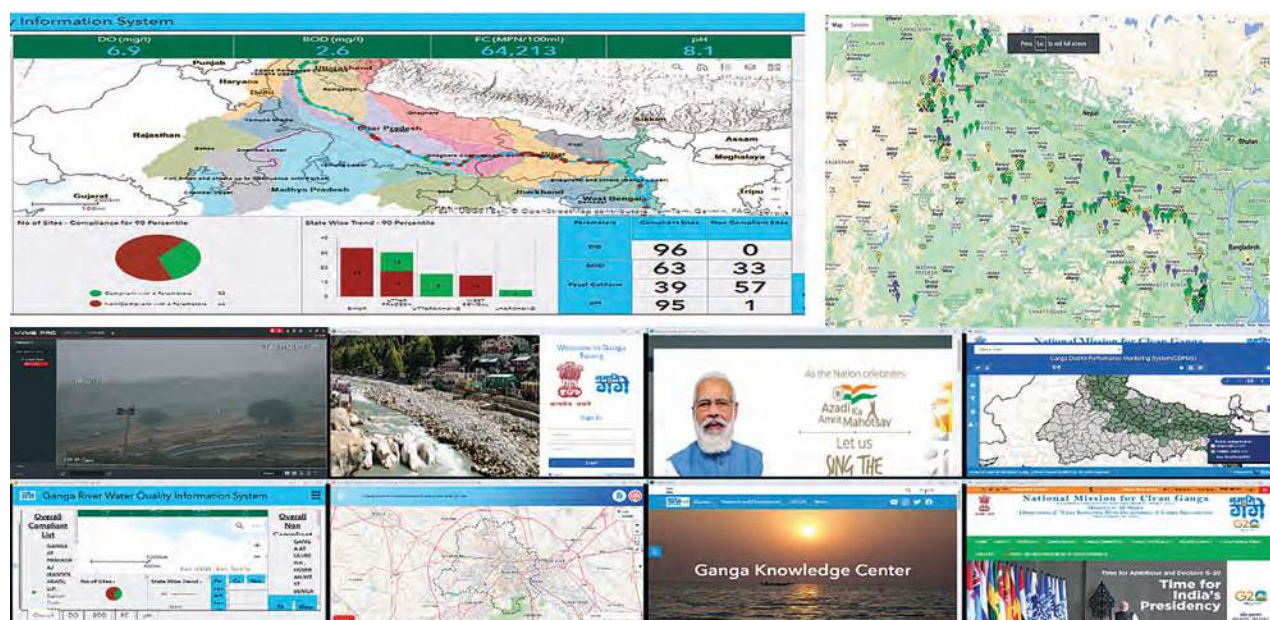


Figure 63 PRAYAG - Dashboard

8.1.1 Ganga Water Quality information system using enterprise GIS

The GIS based Web Centric Water Quality dashboard Visualizes the status of River Ganga Water Quality by means of “**Monitoring Station wise Water quality indicator**” dashboard. It shows the water quality as reported through Monitoring stations at various locations along the river ganga.

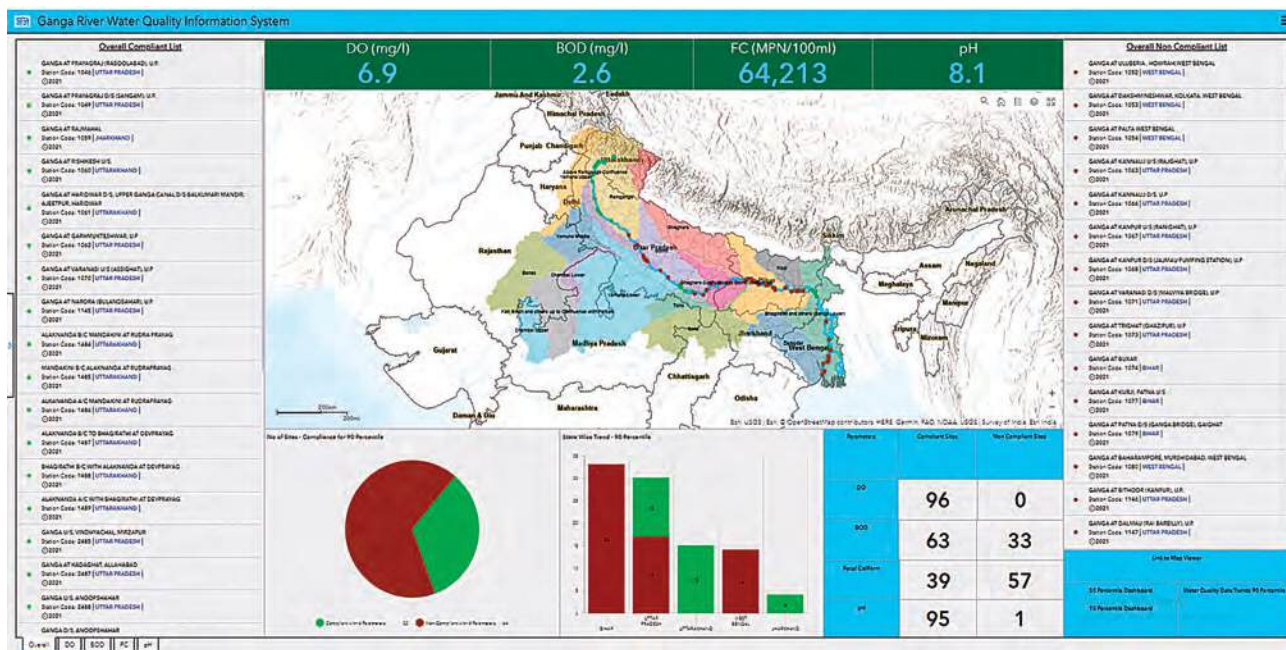


Figure 64 GIS based Web Centric Water Quality dashboard

8.1.2 GIS-based framework for decision making in the present status of water supply, sewage generation, and sewage treatment in space and time for NCT of Delhi

GIS-based framework for decision making in the present status of water supply, sewage generation, and sewage treatment in space and time for NCT of Delhi is created to bring clarity, and transparency and to address the gaps in existing monitoring and reporting systems in Joint collaboration with NMCG & IIT Delhi under implementing the NGT order of **Mailey Se Nirmal Yamuna**.

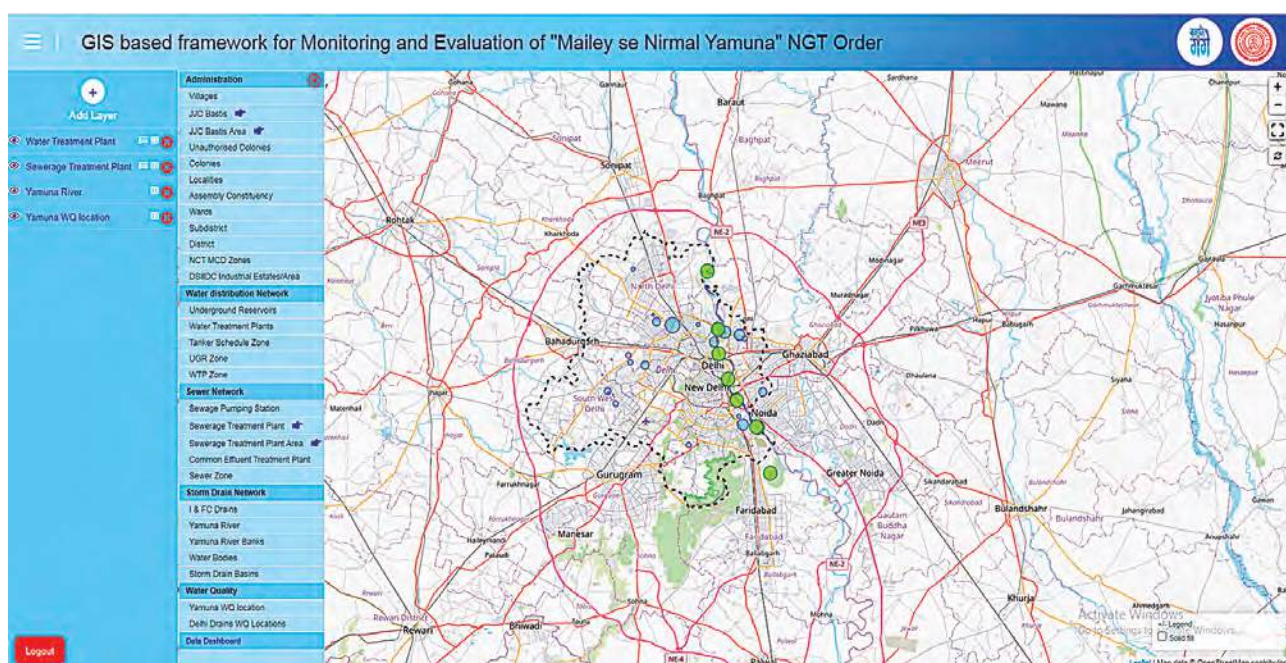


Figure 65 present status of water supply, sewage generation, and sewage treatment

8.2 Research and Development Projects

8.2.1 Bhuvan Ganga-National Remote Sensing Centre, Hyderabad

NMCG has **MoU with NRSC/ISRO for supporting geospatial technology in 2015. Bhuvan Ganga Geoportal** provides platforms to manage, access, visualize, share and analyze geo spatial data, non-spatial data products and services towards spatial mashups to support NMCG objectives of environmental and ecological improvement within the Ganga River basin. Bhuvan Ganga app is widely using by NMCG in **drain monitoring**.

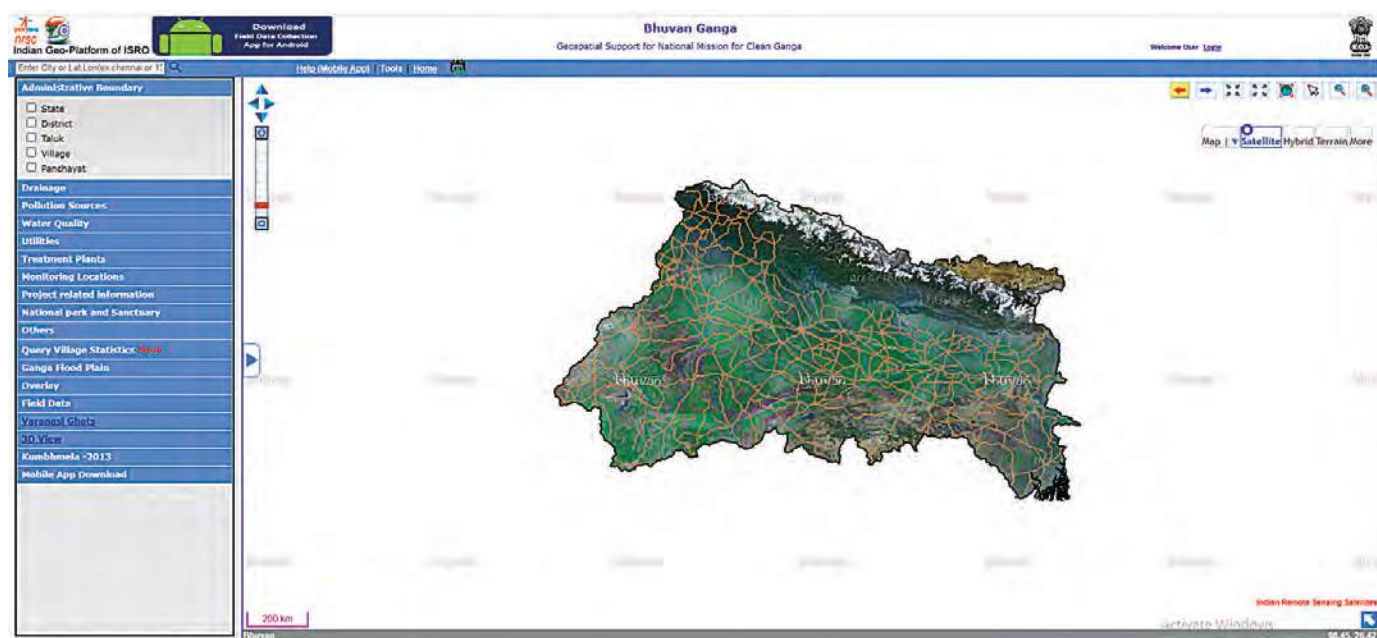


Figure 66 Bhuvan Ganga app Dashboard

8.2.2 LiDAR Mapping- Survey of India, Dehradun

NMCG has collaborated with Survey of India to facilitate the Ganga rejuvenation task by using Geographic Information System (GIS) technology for mapping the Ganga basin in high resolution generating Digital Elevation Models (DEM). This technology enables identification of entire topography of an area making it easy for policy makers to analyse the available data and improve decision-making process. Critical pollution hotspots are also easily identified through this technology. Mapping Area is 43,084 km² along the 10 Km buffer of River.



Figure 67 Bhuvan Ganga app Dashboard

8.2.3 Sand Mining Mapping using UAV Technology by IIT K

- This pilot project was focused on a small stretch of the main Ganga river between Raiwala and Bhogpur in Uttarakhand
- IIT Kanpur is executing the research project on "Geomorphic and Ecological Impacts of Sand Mining in Large Rivers as revealed from high resolution historical remote sensing data and drone surveys:

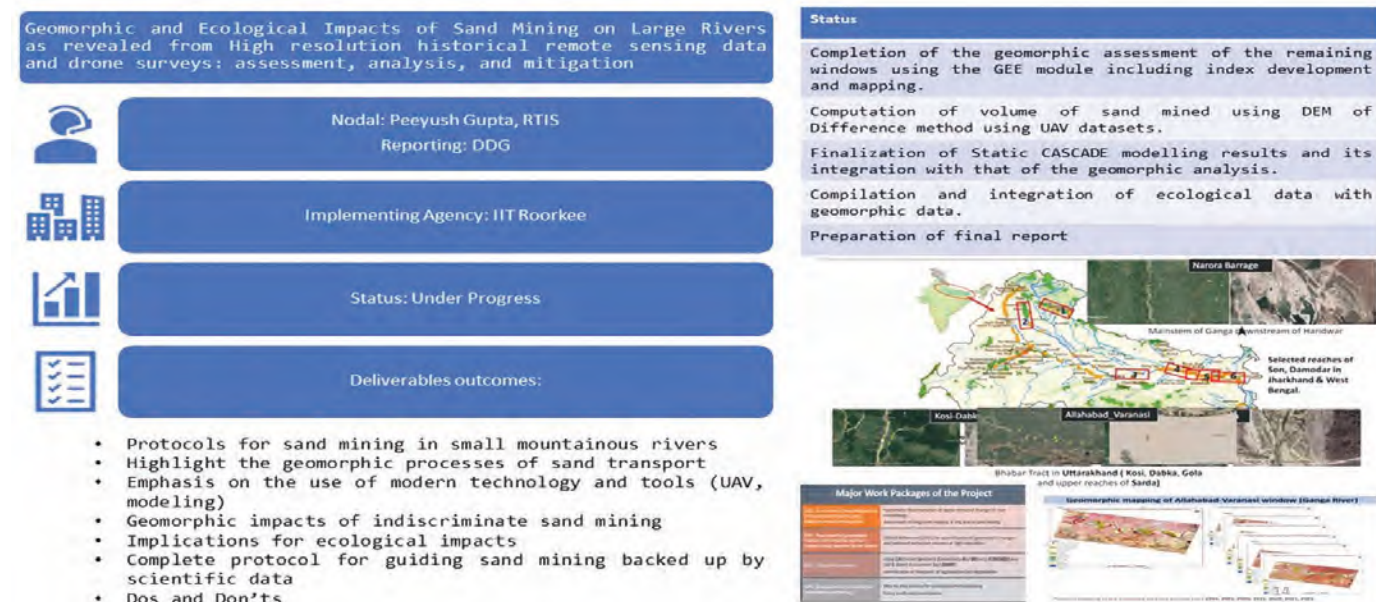


Figure 68 Sand Mining Mapping

8.2.4 Water bodies mapping using UAV technology by QCI

QCI is executing "Census Survey of Water Bodies in Ganga Basin" using drone technology. The purpose of the study is to do mapping of all the water bodies in 31 Ganga districts (3189 villages) of Uttar Pradesh, Uttarakhand, Bihar, Jharkhand & West Bengal for improvement/ rejuvenation of water bodies that are either dried up or working less than their full efficiency.

8.2.5 Corona Spy Satellite using Remote Sensing Technique by IIT K

Reconstructing the Ganga of the Past from Corona archival imagery- implemented by IIT Kanpur.

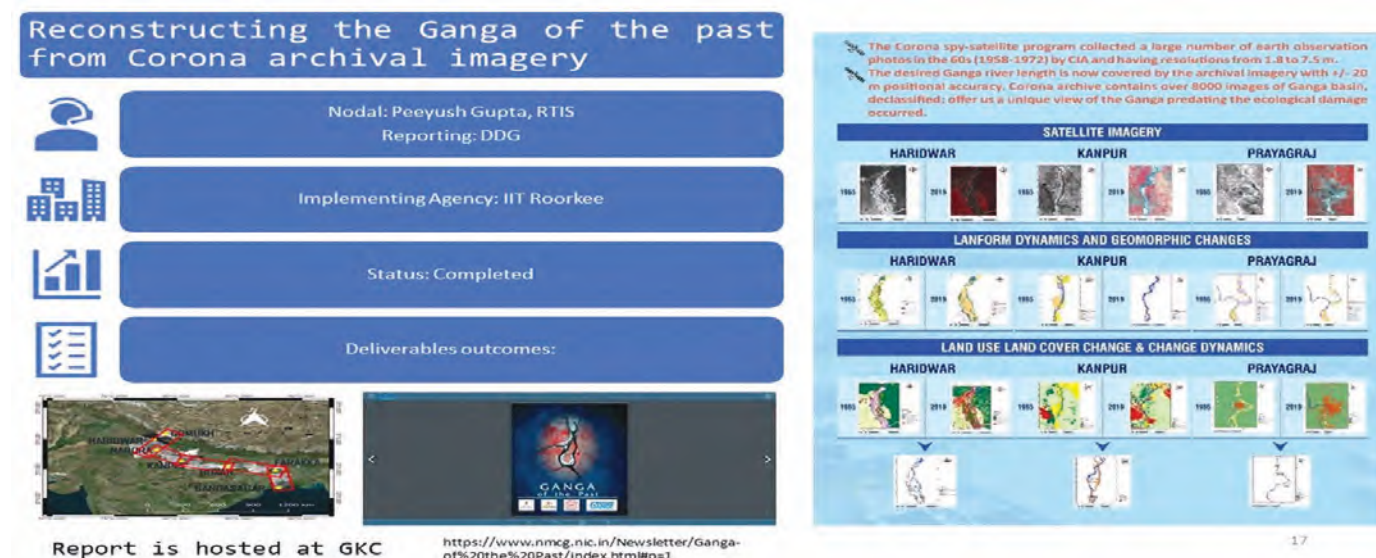


Figure 69 Reconstructing the Ganga of the Past from Corona archival imagery

8.2.6 Spring Rejuvenation using Remote Sensing, GIS & UAV technology

- Pilot study on spring rejuvenation for Tehri Gadhwal district of Uttarakhand – under implementation by **Survey of India/ CGWB**. Project cost is ₹8.50 cr.
- Rejuvenation of dying springs in Tokoli Gad catchment of Tehri Garhwal District using Geo-chemical & Geo-physical techniques- under implementation by **IIT Roorkee**. Project cost is ₹1.35 cr.

8.2.7 Aquifer Mapping using Heliborn Survey by NGRI, Hyderabad

Aquifer mapping project- Data generation for aquifer mapping with focus on paleo-channels in parts of Ganga Yamuna Doab in Kaushambi-Kanpur stretch for tracking the existing paleo-channel further northwest ward for engineered ground water recharge/ augmentation, Uttar Pradesh is executing by National Geophysical Research Institute (NGRI), Hyderabad.

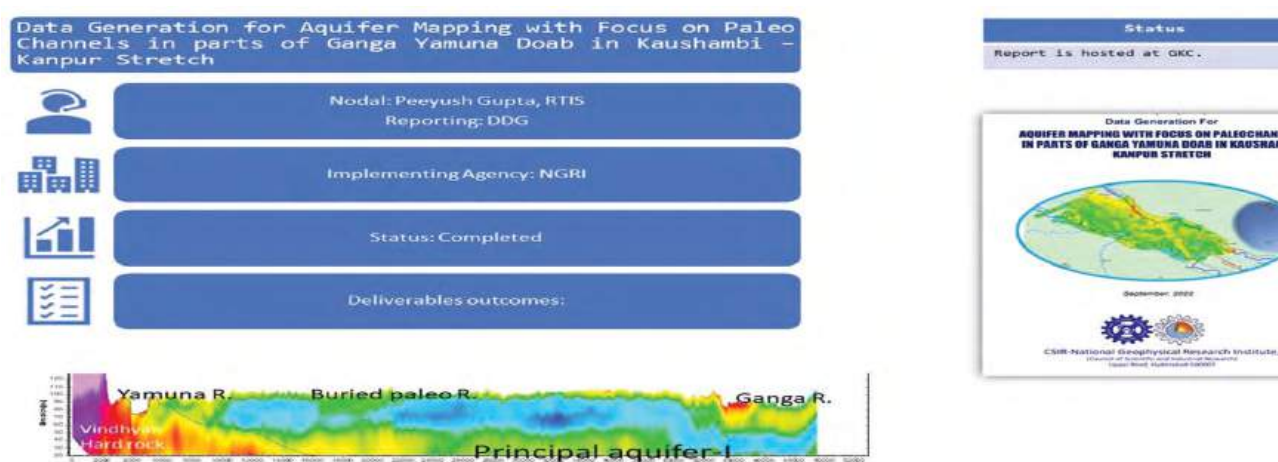


Figure 70 Aquifer Mapping

8.2.8 Climate Change scenario mapping using Weather Research and Forecasting Model by IIT D

High resolution climate scenarios for basin scale water resource management applications - under implementation by IIT Delhi. Project cost is ₹1.31 cr. NMCG is working with IIT Delhi to map out high resolution climate scenarios for basin-scale water resources management.

8.2.9 Environmental Flow Assessment using GIS, RS, Survey by NIH, Roorkee

Environmental Flow Assessment for Yamuna River from Hathnikund Barrage to Okhla Barrage – implemented by NIH, Roorkee. Project cost was ₹104.62 lakh.

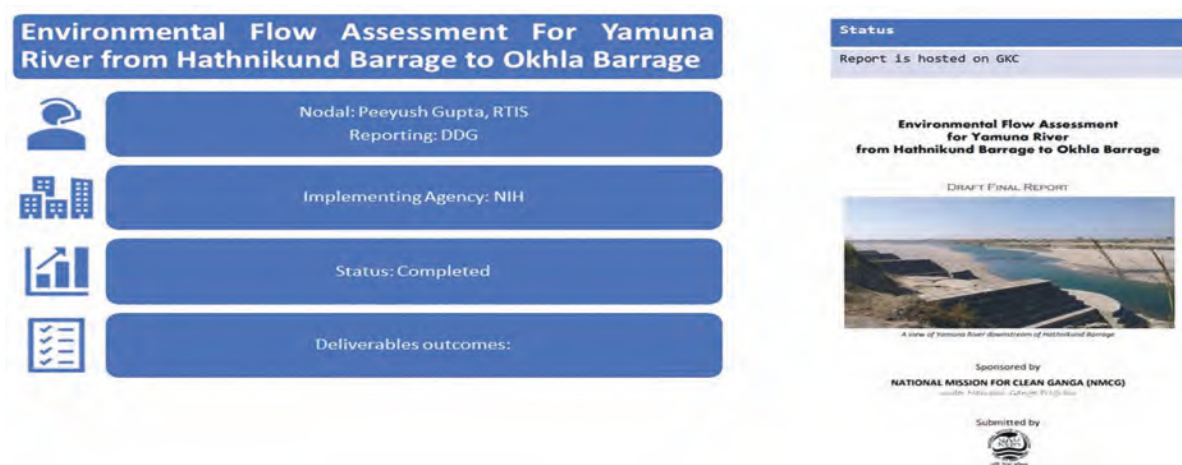


Figure 71 Environmental Flow

8.2.10 Soil Erosion Mapping by IIT Roorkee

Identification of Critical Soil Erosion Prone Areas and Preparation of Catchment Area Treatment Plan - under implementation by IIT Roorkee. Project cost is ₹40.2 lakh.

8.2.11 Cultural Mapping using GIS by INTACH

NMCG in partnership with INTACH is carrying out the cultural mapping of the main stem of the Ganga from origin to Ganga Sagar documenting the rich natural, built and intangible heritage.

8.2.12 Satellite Image-derived Water Quality Research using Remote Sensing by WRI

The pilot project on ‘Satellite Image-derived Water Quality Research (SIWAR)–River Ganges’ was executed by World Resources Institute (WRI) India to understand if satellite image-derived water quality measurements can effectively supplement in-situ water quality monitoring.

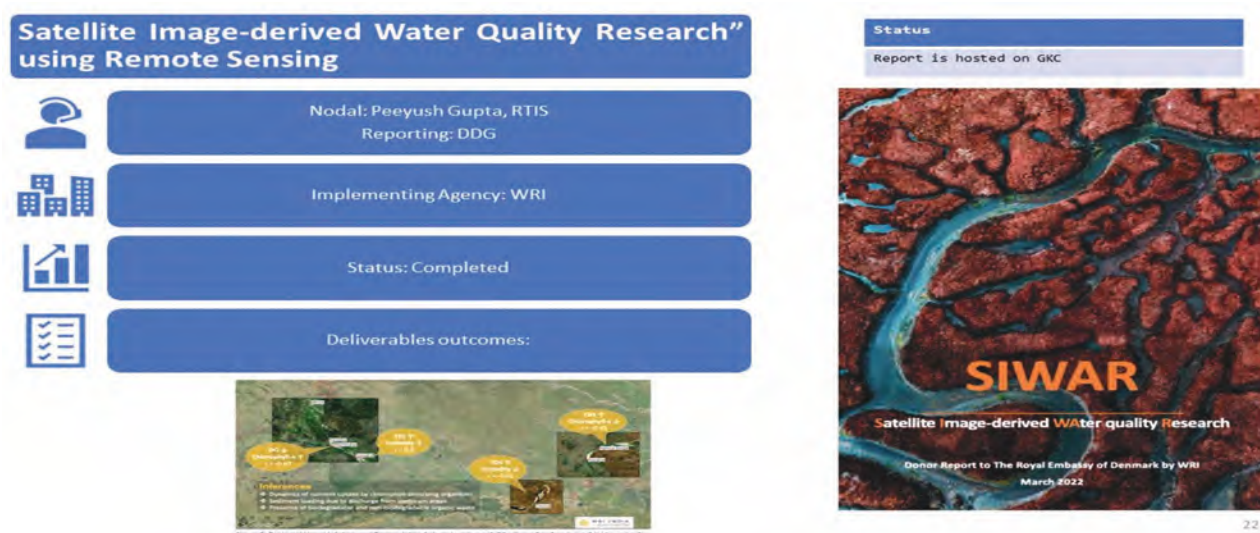


Figure 72 Satellite Image-derived Water Quality Research using Remote Sensing

8.2.13 Geo-Ganga: Space Based Mapping & Monitoring of Ganga River

NMCG awarded a research project titled “Geo-Ganga: Space Based Mapping & Monitoring of Ganga River” to IIRS, Dehradun under the “Namami Gange Program”. The funds for the project have also been sanctioned by NMCG on August 11, 2023.

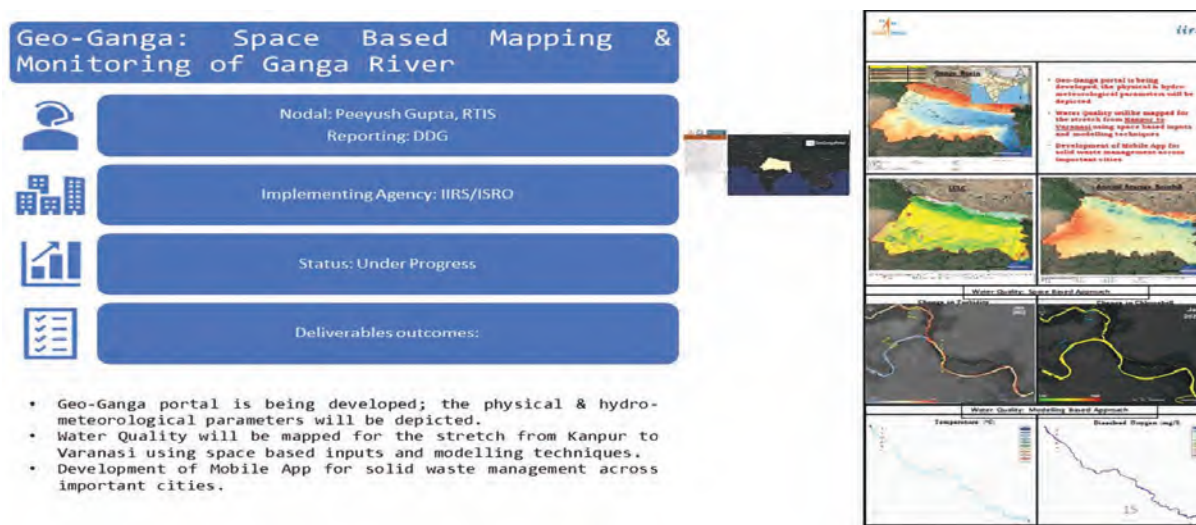


Figure 73 Geo-Ganga

8.2.14 Fluvial geomorphology mapping of Hindon River basin

Fluvial geomorphological mapping will enable better management of developmental activities along the river flood plains and zonation of vulnerable regions within the river watershed. It is useful for the Identification of zones with scope for future Ghat development, cultivating socioeconomic activities, and Sustainable methods for nurturing Agricultural Development.

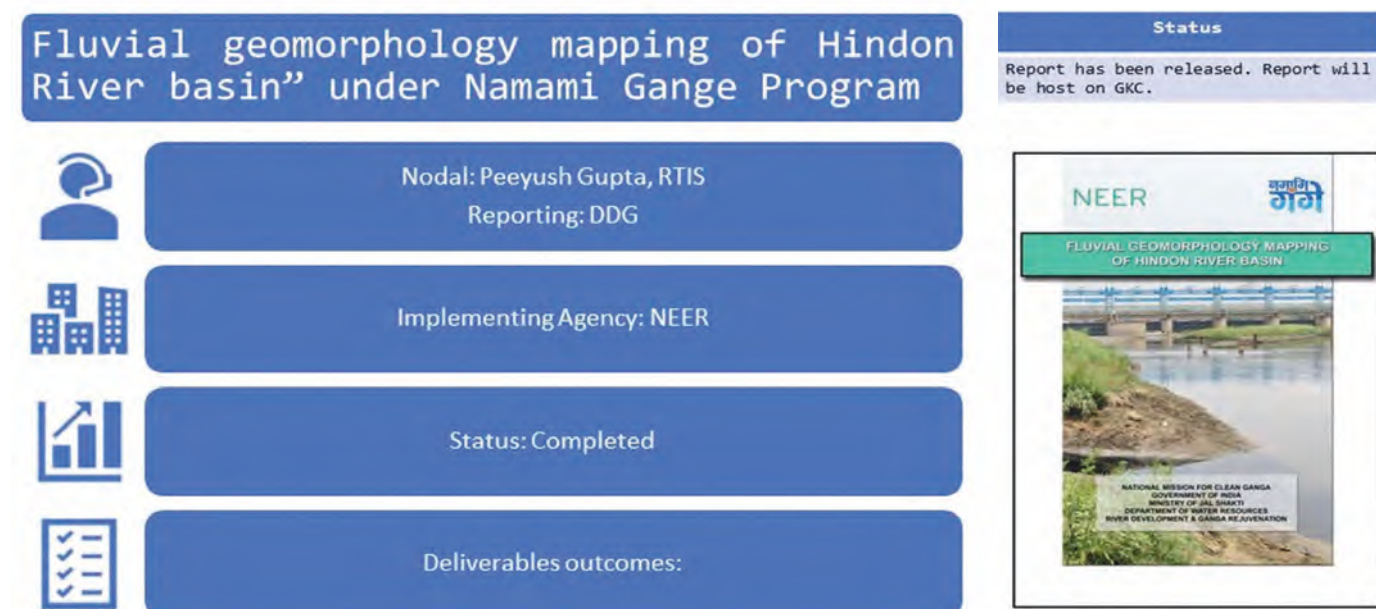


Figure 74 Fluvial geomorphology mapping

Communication and Public Outreach

9.1 Workshops, Visits & Events

9.1.1 Namami Gange-Universities Connect

On 12th April 2023, in presence of Union Minister for Jal Shakti, NMCG signed MoUs with 49 universities to foster awareness among the youth on water conservation in general and river rejuvenation in particular. The event called “Namami Gange: Universities Connect” – was organised by the National Mission for Clean Ganga (NMCG) and APAC News Network in New Delhi. The theme of the event was ‘Igniting Young Minds, Rejuvenating Rivers’.



Figure 75 Namami Gange Universities Connect

9.1.2 Annual Amity International Public Policy Conference 2023

On 12th April 2023, DG, NMCG delivered the special address at “Annual Amity International Public Policy Conference 2023 (AIPPC)” on the Theme: “Public Policies and Business Strategies in India and Europe: Ideas for a Sustainable, Inclusive and Resilient Society” at University, Noida.



Figure 76 NMCG delivered the special address at “Annual Amity International Public Policy Conference 2023 (AIPPC)”

9.1.3 Workshop on Sludge Management

On 2nd May 2023, NMCG organized a workshop on Sludge Management: Issues, Challenges and Way Forward & Online Continuous Effluent Monitoring Systems: Issues, Challenges and Way Forward.



Figure 77 NMCG organised workshop on OCEMS & Sludge Management

9.1.4 Workshop on Nature-Based Solutions for Water Pollution

DG, NMCG, delivered a keynote address at the workshop on “Selection Guidelines for Constructed Wetland Systems for the Treatment of Sewage in India” organized by IIT Roorkee at the India International Centre in New Delhi.

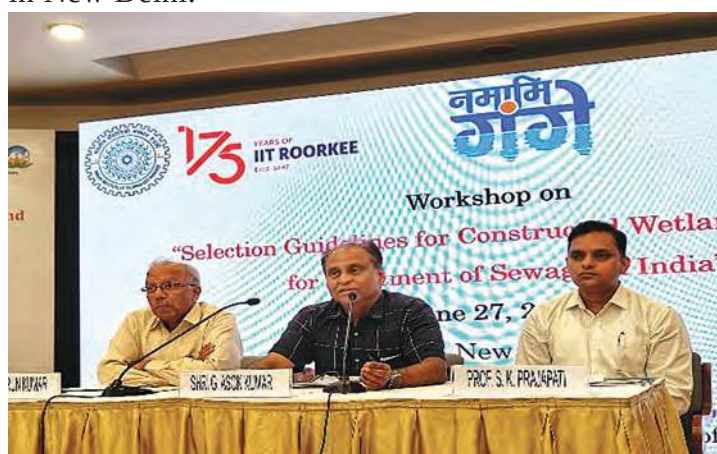


Figure 78 Workshop on “Selection Guidelines for Constructed Wetland Systems for the Treatment of Sewage in India,”

9.1.5 Visit of Students and Educators of North Eastern University, Boston, USA to NMCG

On 17th July 2023, the students and educators from North Eastern University in Boston, USA, visited the NMCG office. DG of NMCG briefed them about the mission’s responsibilities and recent achievements.



Figure 79 Visit of Students and Educators of North Eastern University, Boston, USA to NMCG

9.1.6 4th World Environment Summit 2023

On 5th November 2023, DG, NMCG attended the 4th World Environment Summit 2023 as chief guest for the Award Ceremony. This was organised in collaboration with institutions and organizations including CSIR-NEERI, Dr. Bhim Rao Ambedkar College, University of Delhi, Zoological Survey of India, Kolkata, MoEF&CC, Government of India, GRC India, MSMECCII, and in foreign partnership with Villa College Maldives, Tribhuvan University, Kathmandu, Nepal, and Zoological Society of Bangladesh. The event brought together more than 1000 participants, including academicians, scientists, medical professionals, policymakers etc.

9.1.7 Bharatiya Vigyan Sammelan 2023

DG, NMCG participated in the 6th Bharatiya Vigyan Sammelan and Expo jointly organised by Vijnana Bharati and Government of Gujarat at Ahmedabad from 21st to 24th December 2023.

9.1.8 World Water Week

National Mission for Clean Ganga (NMCG) hosted an online session in Stockholm Water Week on 21st August 2023. The theme of the session was 'Peer Networking for Integrated River Basin Planning and Management' with an interactive discussion on the adoption of the river basin management approach.



Figure 80 NMCG Participation during Stockholm World Water Week 2023

9.1.9 8th India Water Impact Summit

Shri Nitin Gadkari, the Hon'ble Union Minister of Road Transport and Highways of India, inaugurated the 8th Edition of the India Water Impact Summit (IWIS) on November 22, 2023, at the Dr. Ambedkar International Centre in New Delhi. The summit, organized by the National Mission for Clean Ganga (NMCG) and the Center for Ganga River Basin Management and Studies (cGanga), spanned three days from November 22 to 24, 2023. The theme of IWIS 2023 was 'Development vis-à-vis Land, Water, and Rivers,' aimed at uniting scientific experts, stakeholders, and government representatives to address dynamic challenges and opportunities in India's water sector.



Figure 81 Glimpses from 8th India Water Impact Summit

9.1.10 9th India Industry Water Conclave and 11th Edition of FICCI Water Awards at FICCI

On 15th December 2023, DG, NMCG, delivered a keynote address at the Federation of Indian Chambers of Commerce & Industry (FICCI), 9th India Industry Water Conclave and 11th Edition of the FICCI Water Awards in New Delhi.

9.2 Awareness Campaigns

9.2.1 Ganga Utsav

The 7th edition of Ganga Utsav, orchestrated by the National Mission for Clean Ganga (NMCG), unfolded its splendour at Dr Ambedkar International Centre on 4th November 2023. The inauguration ceremony was graced by Ms. Debashree Mukherjee, Secretary of the Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, and witnessed by Mr. G. Asok Kumar, Special Secretary and Director General of NMCG. This momentous occasion marked not only the initiation of Ganga Utsav but also the unveiling of the 33rd edition of Namami Gange Magazine, the new Chacha Chaudhary series, and the Voyage of Ganga Booklet, crafted in collaboration with the National Book Trust (NBT).



Figure 82 Glimpses of Ganga Utsav Celebration in 2023

9.2.2 Visit to Bodhgaya for rejuvenation of River Niranjana & Signing of MoU with IIM Bodhgaya

On July 15 and 16, 2023, DG, NMCG visited Bodhgaya, Bihar, to strategize the rejuvenation of the long-

dead River Niranjana (Falgu). On 15th July 2023, An MoU has been signed between NMCG and IIM, Bodhgaya to collaborate on various fronts for academic excellence in water quality and sustainable development. During the orientation programme, DG, NMCG also addressed the students of the 2023-2025 batch of IIM Bodhgaya, Bihar.



Figure 83 DG NMCG Visit to Bodhgaya for rejuvenation of River Niranjana & Signing of MoU with IIM Bodhgaya

9.2.3 Mission LiFE Campaign

NMCG organized a one-month long ‘Mission LiFE Campaign’ from 3rd May to 5th June 2023 across 5 Ganga Main Stem States. A variety of activities and events including- Awareness Drives, Competitions, Ganga Marathon, Ghat Par Haat, Ganga Aarti, Yoga, Plantation, Ganga Swachhta Pakhwada and Environment Sustainability Pledge were organized under the Mission LiFE Campaign aimed to ensure maximum participation and to strengthen the people-river connect.

9.2.4 Yamuna Sansad on World Environment Day

On 4th June 2023, DG, NMCG, along with NMCG officials, partner NGOs and the residents of Delhi, actively participated in the “Yamuna Sansad” program held at Chhath Ghat, ITO, Delhi.



Figure 84 “Yamuna Sansad” program held at Chhath Ghat, ITO, Delhi to celebrate World Environment Day

9.2.5 International Day of Yoga

On the occasion of the International Day of Yoga, the National Mission for Clean Ganga (NMCG) organized ‘Ghat Par Yoga’ on 21st June 2023 at BSF Camp, Zero Pushta, Sonia Vihar in Delhi on River Yamuna. A group of NGOs, Delhi Jal Board (DJB), Border Security Force (BSF), Ganga Task Force (GTF), volunteers from Ganga Vichar Manch, students, children and local people participated in large numbers in the event which took place between 6 AM to 8 AM.



Figure 85 Glimpses of International Yoga Day Celebration on 21st June 2023 at Delhi on River Yamuna

9.2.6 Igniting Young Minds: A Global Campaign

National Mission for Clean Ganga (NMCG) has undertaken the webinar series 'Igniting Young Minds: Rejuvenating Rivers' global. The 13th edition of the webinar series, now titled, 'Igniting Young Minds: A Global Campaign' was virtually organised on 8th July 2023 in collaboration with APAC News Network, with the objective of invoking participation from 'Young Water Sustainers to Build Tomorrow's Global Sustainability Leaders'.

9.2.7 Har Ghar Tiranga Campaign

Under the theme of 'Har Ghar-Har Ghat Tiranga', various awareness and public outreach activities were conducted across five Ganga Basin States with wide participation from schools, colleges and youth groups.



Figure 86 Glimpses of Har Ghar Tiranga Campaign

9.2.8 Swachhta Hi Sewa

Swachhta Hi Sewa was organised across 5 Ganga Basin States from 16th to 30th September 2023. Various activities such as awareness drives, prabhat pheri, rallies, competitions, marathons and cultural events were organized with active participation from school and college students, youth groups and volunteers.





Figure 87 Glimpses of Swachhta Hi Sewa Campaign

9.2.9 Swachhta Diwas

As part of the Swachhta Hi Seva (SHS), 2023 campaign, National Mission for Clean Ganga (NMCG) organized a cleanliness drive – *Ek Tareekh, Ek Ghanta* – at Chhat Ghat, ITO on the eve of Gandhi Jayanti. Ms. Debashree Mukherjee, Secretary, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, participated in the cleanliness drive that began at 10 AM. Around 1000 people joined the drive and more than 6000 kilogram of waste was collected.



Figure 88 Glimpses of Swachhta Hi Sewa Campaign

9.2.10 Women and Water Dialogue Series

Event was organized on June 05, 2023 in Rishikesh, Uttarakhand on the occasion of World Environment Day, 4th Event was organized on September 22, 2023 in Kanpur, UP on the occasion of World Youth Skills Day and finale of the series took place in Prayagraj on 11th October 2023.



Figure 89 Glimpses of Women and Water Dialogue Series

9.2.11 Ganga Sustainability Run

On 5th November 2023, DG, NMCG inaugurated the Ganga Sustainability Run at Rishikesh, organized by Vivekananda Youth Connect Foundation along with Parmarth Niketan, Rishikesh to an effort to create awareness of GANGA's ecosystem.



Figure 90 Ganga Sustainability Run 2023

9.2.12 Namami Niranjana Campaign

Under its unique initiative of rejuvenation of small rivers, NMCG organized 'Namami Niranjana Campaign' for the revival and rejuvenation of the Niranjana (Falgu) River. The campaign was launched by Shri Rajendra Vishwanath Arlekar, Hon'ble Governor on 20th Feb. 2024 at Mahabodhi Cultural Centre, Bodh Gaya, Bihar. Namami Niranjana Yatra was also flagged off during the event.



Figure 91 Glimpses from Namami Niranjana Campaign

9.2.13 Ganga Swachhta Pakhwada

The National Mission for Clean Ganga (NMCG) organised the Ganga Swachhta Pakhwada at ITO, Chhath Ghat on 28th March 2023, demonstrating its steadfast commitment to riverine cleanliness.



Figure 92 Glimpses of Ganga Swachhta Pakhwada

9.2.14 Launch of Ganga Bhog

On 22nd April, 2023, on the World Earth Day, 'Ganga Bhog- Gangotri se Ganga Sagar tak' was launched at Triveni Ghat, Rishikesh under Arth Ganga initiative.



Figure 93 on World Earth day 'Ganga Bhog-Gangotri se Ganga Sagar Tak' was launched at Triveni Ghat, Rishikash under Arth Ganga Initiative

Alliances & Networks

Namami Gange being India's first comprehensive integrated mission aimed to bring about a remarkable transformation in river conservation. As Namami Gange emphasizes on 'rejuvenating' instead of merely 'cleaning' the rivers in Ganga basin. Along with traditional techniques of creating sewage infrastructure, water quality monitoring and industrial effluent treatments, Namami Gange also focusses on multiple areas of policy, restoring the riparian ecosystems, and maintaining health of the river.

Inspired Vision

The Hon'ble Prime Minister in his address at the National Ganga Council 2019 emphasized on the fact that there is need for a new thinking, a paradigm shift in approach where the River Cities ask what they can do for rivers. Namami Gange has, therefore, embarked on this journey to bring rivers to the forefront and mainstream them into a City's urban planning processes.

"There is a need for new thinking for 'River Cities'. There is need for the residents of these cities to ask, 'What can we do for the rivers?' There is a need for a new river centric thinking in planning for cities on the banks of rivers. The river health needs to be mainstreamed into urban planning process by developing Urban River Management Plans. Cities should be responsible for rejuvenating their rivers. It has to be done not just with the regulatory mindset but also with developmental and facilitatory outlook."

Shri Narendra Modi
Hon'ble Prime Minister of India

10.1 The River Cities Alliance (RCA): Empowering Collaboration

Launched in November 2019, the RCA serves as a collaborative platform for over 145 river cities (as of July 2024) across India. Through this exchange, cities gain valuable insights and best practices to develop and implement effective river-centric development plans, ensuring a more sustainable future for both urban centers and the Ganga. Out of 145 members of RCA, 106 are from main stem states as per the following table.

State	Member Cities
Uttarakhand	14
Uttar Pradesh	25
Bihar	20
Jharkhand	14
West Bengal	33
Total	106

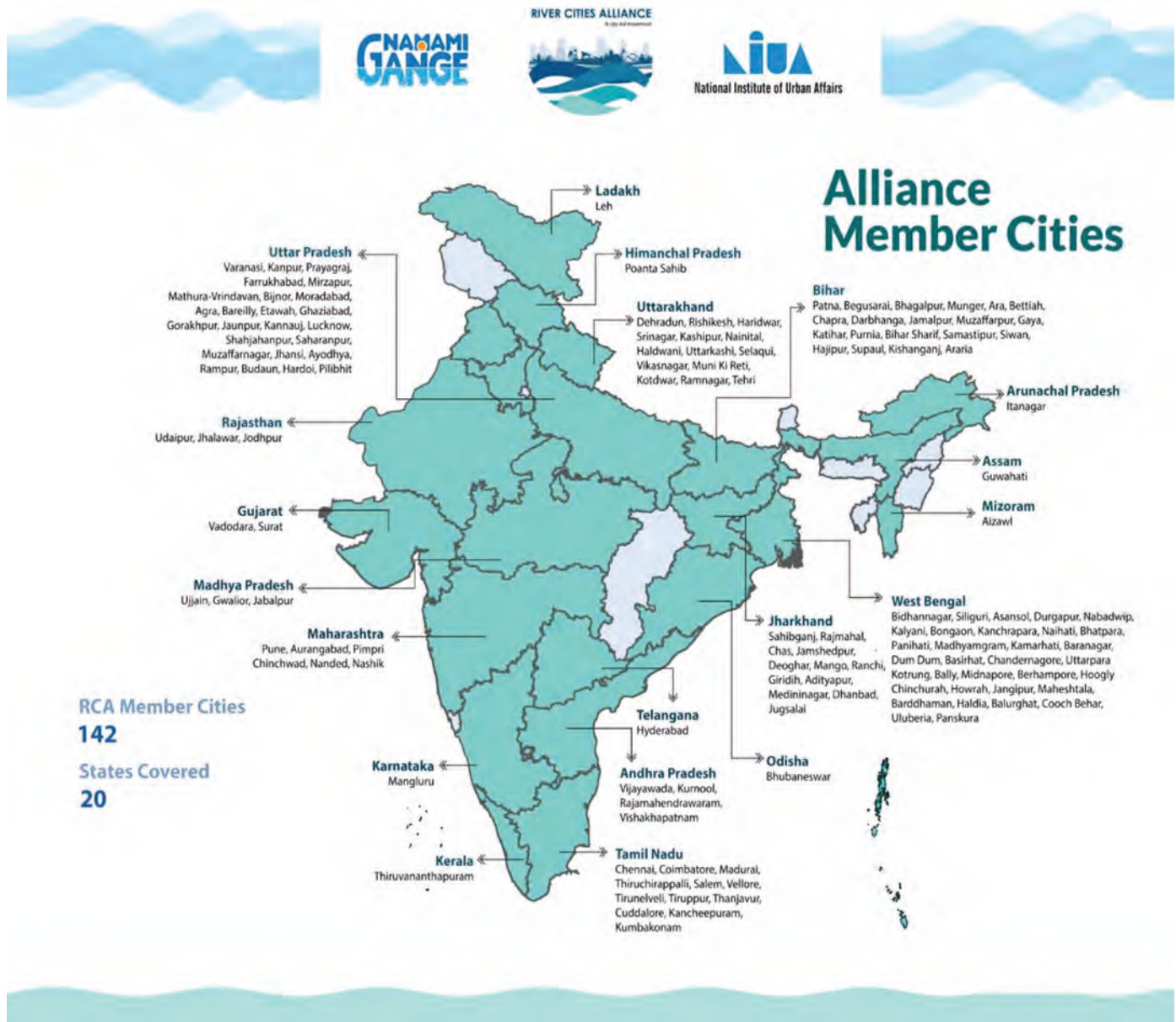


Figure 94 states covered

The RCA operates through three core pillars:

A. Networking:

- i. **Annual River Summit:** The RCA organizes a flagship annual event bringing together member cities for knowledge exchange, policy discussions, and networking opportunities.
- ii. **Official City Visits:** The RCA facilitates exchange visits between member cities, enabling officials to learn from each other's successes and challenges in river management.
- iii. **Bi-monthly Newsletter:** A bi-monthly newsletter serves as a platform for sharing best practices, upcoming events, and success stories across the RCA network.

B. Capacity Building:

- i. **Certification Training Programs:** The RCA offers certification training programs for city officials, equipping them with the necessary knowledge and skills for river-sensitive urban development.

- ii. **Needs-Based Events:** The RCA develops an annual calendar of events based on member city needs, including workshops, conferences, and training sessions on relevant topics.
- iii. **Webinars and Expert Talks:** The RCA organizes regular webinars and invites renowned experts to share their knowledge and insights on various aspects of river management.

C. Technical Support:

- i. **River-Sensitive Urban Planning:** The RCA provides technical support to member cities in developing river-sensitive urban plans that integrate river health into overall city development strategies.
- ii. **Innovative Management Practices:** The RCA promotes the adoption of innovative solutions in urban river management, such as green infrastructure, nature-based solutions, and smart technologies.
- iii. **River-Linked Economy:** The RCA assists cities in exploring opportunities for developing a thriving river-linked economy, promoting sustainable livelihoods and responsible riverfront development.
- iv. **Urban Water Body Rejuvenation:** The RCA recognizes the importance of interconnected water bodies and offers support for rejuvenating and restoring urban ponds, lakes, and wetlands.

Through these core activities, the NMCG empowers RCA member cities to become active stewards of the Ganga, paving the way for a future where cities and rivers thrive together.

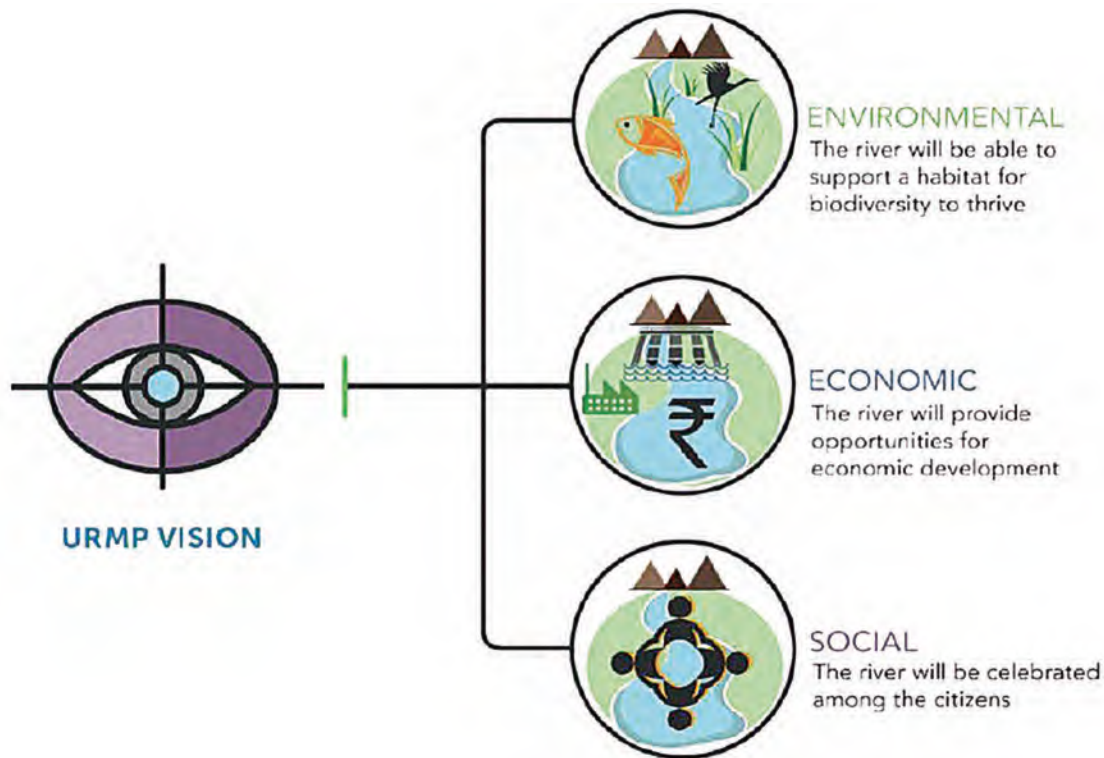
10.2 The Urban River Management Plan (URMP): Equipping Cities for Action

Building upon the collaborative spirit promoted by the RCA, NMCG, in partnership with the National Institute of Urban Affairs (NIUA), developed the URMP framework around March 2020. This practical guide equips city planners and officials with the necessary tools and knowledge to integrate river health into urban development strategies. URMP focuses to develop a dedicated strategy for managing the extent of the urban rivers based on the three pillars of sustainable development as below:

- i. **Environmental benefits:** These include rich biodiversity, clean air, clean water, improved groundwater levels. This vision of the URMP seeks to change this trend by developing healthy rivers that are able to provide an environment for diverse species of flora and fauna to flourish in their natural states.
- ii. **Economic benefits:** These include Improved livelihood opportunities, tourism growth, attractive external investment. Rivers support the livelihoods of several communities, through the various ecosystem services it provides. The vision for this element of the URMP seeks to enhance this aspect in a sustainable and river-friendly manner.
- iii. **Social benefits:** These include vibrant places for religious, cultural and recreational events, serene and scenic picnic spots. This vision of the URMP for this element, therefore, seeks to create an environment to make the citizens treasure the river and celebrate it as a valuable common asset.

Three URMPs have been developed in accordance to the framework proposed by the National Mission for Clean Ganga (NMCG, under the Ministry of Jal Shakti) and the National Institute for Urban Affairs

(NIUA, an autonomous body under the Ministry of Housing and Urban Affairs) for cities of Ayodhya, Kanpur and Chhatrapati Sambhaji Nagar.



An integrated approach to manage the river and its associated elements in a city sustainably

Figure 95 URMP Framework

10.3 Global River Cities Alliance (GRCA): Expanding Collaboration

The Global River Cities Alliance (GRCA), led by the NMCG under the Ministry of Jal Shakti, Government of India, was launched at COP28 on 10th December 2023 at the United Nations Climate Change Conference, COP 28 in Dubai, United Arab Emirates with countries namely India, Egypt, Netherlands, Denmark, Ghana, Australia, Bhutan, Cambodia, Japan and river-cities of The Hague (Den Haag) from the Netherlands, Adelaide from Australia, and Szolnok of Hungary and International funding agencies the World Bank, Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB) and knowledge management institution like KPMG entering into a partnership, widely expanding the reach of the existing

River Cities Alliance (RCA), formed by NMCG in association with National Institute of Urban Affairs (NIUA) in 2021.



Figure 96 Glimpses of GRCA Launch CoP 28

The world-renowned spiritual leader Shri Sadhguru, Founder, Isha Foundation also graced the event and delivered a special address to the audience. He expressed his passion for rivers while iterating their importance through examples and personal anecdotes such as the Kaveri River.

Additionally, NMCG on behalf of RCA has signed a Memorandum of Common Purpose (MoCP) with the Mississippi River Cities and Towns Initiative (MRCTI), representing 124 cities/towns situated along the banks of the Mississippi River, USA.

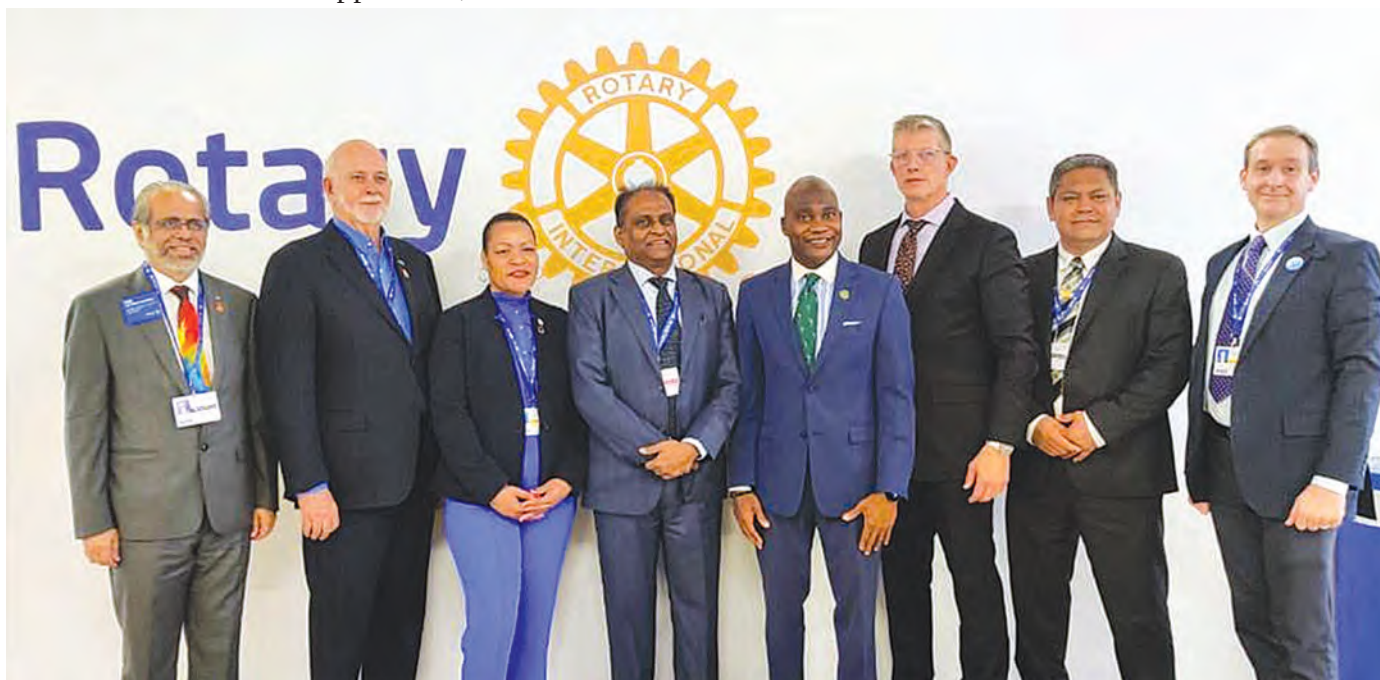


Figure 97 NMCG on behalf of RCA has signed a Memorandum of Common Purpose (MoCP) with the Mississippi River Cities and Towns Initiative (MRCTI)

A. Inaugural CNO Meeting: Building a Network for Action

Following the GRCA's launch, the Director General (DG) of NMCG took a proactive step by chairing the first meeting of Country Nodal Officers (CNOs) on February 27, 2024. This crucial gathering brought together representatives from 11 countries (including Egypt, Netherlands, Hungary, Australia, Israel, Cambodia, Denmark, Japan, Bhutan, Ghana, and India) and 5 organizations (World Bank, Asian Infrastructure Investment Bank (AIIB), Asian Development Bank (ADB), GIZ, and NIUA).



Figure 98 Inaugural CNO Meeting

International Support and Collaboration

The strong brand name of Ganga attracts counties, corporates, and individuals alike and there is strong desire amongst them to be associated in one form or the other with the noble task of cleaning the venerated river. Offer for cooperation from many countries, water sector companies and financial institutions have been received, some of which have materialised in firm agreement of collaboration, while others are in advance stage of discussions.

At present the formal international help to the program is being extended by World Bank under second phase with **\$400 Million loan and by JICA for projects in Varanasi and under Yamuna Action Plan**. Several countries have shown interest for extending their expertise and cooperation, of which Netherlands, Japan, Germany, UK, and Israel have made reasonable progress in creating a mechanism for formal collaboration.

A brief scope of cooperation with different countries/ agencies with which discussions are being held or finalized is as under:

11.1 India – World Bank Cooperation

The World Bank is supporting the Government of India in its effort to rejuvenate the Ganga River. It is also financing key infrastructure investments in the five main-stem states - Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal from the International Development Association (IDA) and the International Bank for Reconstruction and Development (IBRD).

The second phase of the World Bank assisted Namami Gange Programme was declared on 7th July 2020 and became effective from 21st July 2020. The IBRD loan of USD 400 million consists of Institutional Development, Infrastructure Development, Innovative Financing and Program Communication and Management. The first phase of the World Bank Assisted Programme ended on 31st December 2021. The second National Ganga River Basin Project of the World Bank will finance sewage networks and treatment plants in select urban areas to help control pollution discharges.

Some of the major activities undertaken during 2023-2024

- On 24th April, 2023, a meeting was held between NMCG, World Bank and official Delegation from Ethiopia.



Figure 99 DG NMCG presented the interventions under Namami Gange to Ethiopian Delegation and World Bank

- On 25th May 2023, a meeting was held with Ms. Sumila Gulyani Water Practice Head, World Bank South Asia to discuss broad areas of cooperation in accordance with Namami Gange's path from idea to proof of concept and establishing itself as a scalable model. During the meeting, the prospect of adapting Ganga's experience to other rivers was also explored.



Figure 100 DG NMCG with Senior Officials discussing Namami Gange with Ms. Sumila Gulyani Water Practice Head, World Bank South Asia

- From 8th to 23rd February 2024, mid-term review meetings held with NMCG to discuss and review the progress of the projects sanctioned in Namami Gange Programme II.

11.2 India- Germany Cooperation

In context to the Indo-German Government Negotiations on Development Cooperation held in New Delhi on 27th November 2019, a Technical Cooperation Agreement was signed on 22nd June 2020 between the Government of the Federal Republic of Germany and the Government of India. The volume of the project is 6.9 million Euros (4.5 million from BMZ and 2.4 million Euro from EU). The political partner for this cooperation is the Ministry of Jal Shakti while implementation partner for SGR-II is the National Mission for Clean Ganga (NMCG).

The first phase of the SGR project spanned from 2015-2020 while the EU Co-financing component was from 2017-2020. Phase II of SGR and IEWP Action are being implemented from Nov 2020 to September 2023 covering below topics:

Thematic areas of the SGR II and IEWP Action Phase II components

Thematic areas SGR component	Common Thematic areas	Thematic areas IEWP Action component
Institutional Development	River Basin Planning and Management	Safe Reuse of Treated Water
Public Outreach	Environmental Flows	Irrigation and Efficient Water Use
Accidental pollution / International exchange on SARS-CoV-2 in wastewater systems	Crosscutting: Capacity Development Gender	Crosscutting: Flagging of Business Opportunities

Some of the major activities undertaken during 2023-24

- On 20th April, Mr. Gajendra Singh Shekhawat Hon'ble Union Minister for Jal Shakti, Government of India had a meeting with German Ambassador to India Dr. Philipp Ackermann today at Namami Gange office in New Delhi. They had positive discussions on various topics to strengthen relations between India and Germany in the water sector.



Figure 101 Hon'ble Union Minister for Jal Shakti, Government of India meeting with German Ambassador

- On 10th June, 2023, Executive Director (Technical), NMCG along with A German delegation led by H.E.Svenja Schulze, Federal Minister for Economic Cooperation and Development visited Okhla STP.



Figure 102 H.E. Svenja Schulze, Federal Minister for Economic Cooperation and Development visited Okhla STP

- On 27th September 2023, the Model District Ganga plans was launched for Udham Singh Nagar, Shahjahanpur, Moradabad and Bareilly prepared by DGC under the guidance of GIZ and WWF.



Figure 103 DG, NMCG, delivered a keynote address during Launch of District Ganga Plans

- On 6th September, 2023 NMCG officials participated in a training session in Nainital, as part of the support for the Ganga rejuvenation initiative by Sustainable Urban and Industrial Development.

11.3 India-EU Strategic Partnership

As part of the India-EU Strategic Partnership and based on (i) the Joint Declaration between the EU and the Government of India (2016) as well as (ii) the Memorandum of Understanding on Water Cooperation between the EU and the GoI (2016), the EU and India established the India-EU Water Partnership (IEWP) as a political dialogue between the EU and India.

The IEWP Action Phase 1 was implemented from 1 July 2017 – 31 October 2020 (40 months) and the Action's current Phase 2 is being implemented since 1 November 2020 until 30 September 2023 (35 months).

The Ministry of Jal Shakti (MoJS) is the political partner of the EUD regarding the IEWP. The MoJS assigned several aligned authorities responsible for the implementation of the IEWP Action. The National Mission for Clean Ganga is an important partner and steering the technical implementation of the following work areas under IEWP Action Phase 1:

- E-Flows Assessment in the Ramganga River Basin
- Safe Reuse of Treated Water
- Development of Ramganga RBM Plan (together with Indo-German Cooperation Project 'Support to Ganga Rejuvenation')

National Mission for Clean Ganga is also member of the Tapi River Basin Committee constituted by the Ministry of Jal Shakti to oversee and steer the development of comprehensive Tapi River Basin Management Plan based on EU good practices.

Some of the major activities undertaken during 2023-24

- On 10th May 2023, a meeting was held regarding the India-EU Water Partnership Action for implementation of the National Framework on Safe Reuse of Treated Water and promoting sustainable water management practices in India.
- On 20th November 2023, DG, NMCG delivered a special address during the Final Event of Phase II of Support to Ganga Rejuvenation and India-EU Water Partnership Action took place at The Lalit, New Delhi.



Figure 104 DG, NMCG delivered a special address during the Final Event of Phase II of Support to Ganga Rejuvenation and India-EU Water Partnership Action

11.4 Indo-Danish Collaboration

Under Indo-Danish Collaboration, India and Denmark have established Green Strategic Partnership agreed by Hon'ble Prime Ministers of Government of India and the Government of the Kingdom of Denmark.

Following this, an MoU for cooperation in Water Sector was signed on 12th September, 2022 (includes establishment of CoE and Smart Lab on Clean River (SLCR)). Later, a Joint Steering Committee (JSC) & Progress Review Committee (PRC) was constituted on 16th September, 2022 to provide guidance and review the progress of activities under SLCR. In this regard, following progress has been made till now:

- Concept of secretariat has been developed – Proposal with Responsibility & Budget is prepared.
- SLCR in collaboration with Unnat Bharat Abhiyan (UBA) working for awareness and capacity building in the rural sector in the Varuna Basin.
- Varuna related Activities and Project preparation including development of Models as a demonstration and baseline data generation in Varuna basin for development of Holistic Plan.
- Conducted capacity building including workshops and exposure visits to Denmark.
- DG, NMCG along with NMCG officials participated in 3rd International Conference on River Health: Assessment to Restoration (RHAR), 2023 organised by Department of Civil Engineering, IIT(BHU) Varanasi.

11.5 India- Netherlands Cooperation

A MoU on cooperation in the field of water management was signed between Ministry of Jal Shakti, India & Ministry of Infrastructure & Environment of Netherlands in June to strengthen the collaboration between the two countries in the field of water, delta management and water technology.

Some of the major activities undertaken during 2023-24

- The first Ministerial Level Joint Working Group Meeting held on 3rd April 2023 in New Delhi under the co-chairmanship of Mr. Gajendra Singh Shekhawat Hon'ble Union Minister for Jal Shakti, Government of India and Mr. Mark Harbers, Hon'ble Minister of Infrastructure and Water Management, Government of Netherlands.



Figure 105 First Ministerial Level Joint Working Group Meeting under Indo-Dutch Cooperation

- On 20th to 21st December 2023, Kick off Water as Leverage Workshop was organized in Prayagraj. The workshop had participants from Netherlands and Indian side comprising officials from NMCG, Prayagraj Municipal Corporation, Central Water Commission, Central Ground Water Boards and others.



Figure 106 Kick Off Water as Leverage Prayagraj under Indo Dutch Cooperation

11.6 India – Israel Cooperation

A Memorandum of Understanding (MoU) between the Ministry of Jal Shakti, India and the Ministry of National Infrastructure, Energy and Water Resources of Israel was signed on 11.11.2016 in New Delhi on cooperation in water resource management and development.

Some of the major activities undertaken during 2023-24

- On 9th May, in the august presence of Foreign Minister of Israel Mr Eli Cohen and Foreign Minister of India Dr S. Jaishankar a Joint Statement of Intent was signed today between NMCG, State of Israel and IIT Roorkee.



Figure 107 Foreign Minister of India and Foreign Minister of Israel signing a Joint Statement NMCG, State of Israel and IIT Roorkee

Arth Ganga

In 2019, during the inaugural of the National Ganga Council meeting at Kanpur, Hon'ble Prime Minister Shri Narendra Modi introduced a transformative vision for the holistic development of the Ganga River and its environs—The Arth Ganga. This innovative approach departed from the Namami Gange initiative, the Union Government's flagship project dedicated to cleansing the Ganga. Emphasising a paradigm shift, PM Modi advocated for the Arth Ganga, centering its focus on fostering sustainable development along the Ganga by intertwining economic activities with the river ecosystem.

The National Mission for Clean Ganga (NMCG), in collaboration with various Ministries, Departments of both Central and state governments, and non-governmental organizations, has spearheaded numerous initiatives within the key verticals outlined by the Arth Ganga

Key Verticals identified for Interventions under Arth Ganga

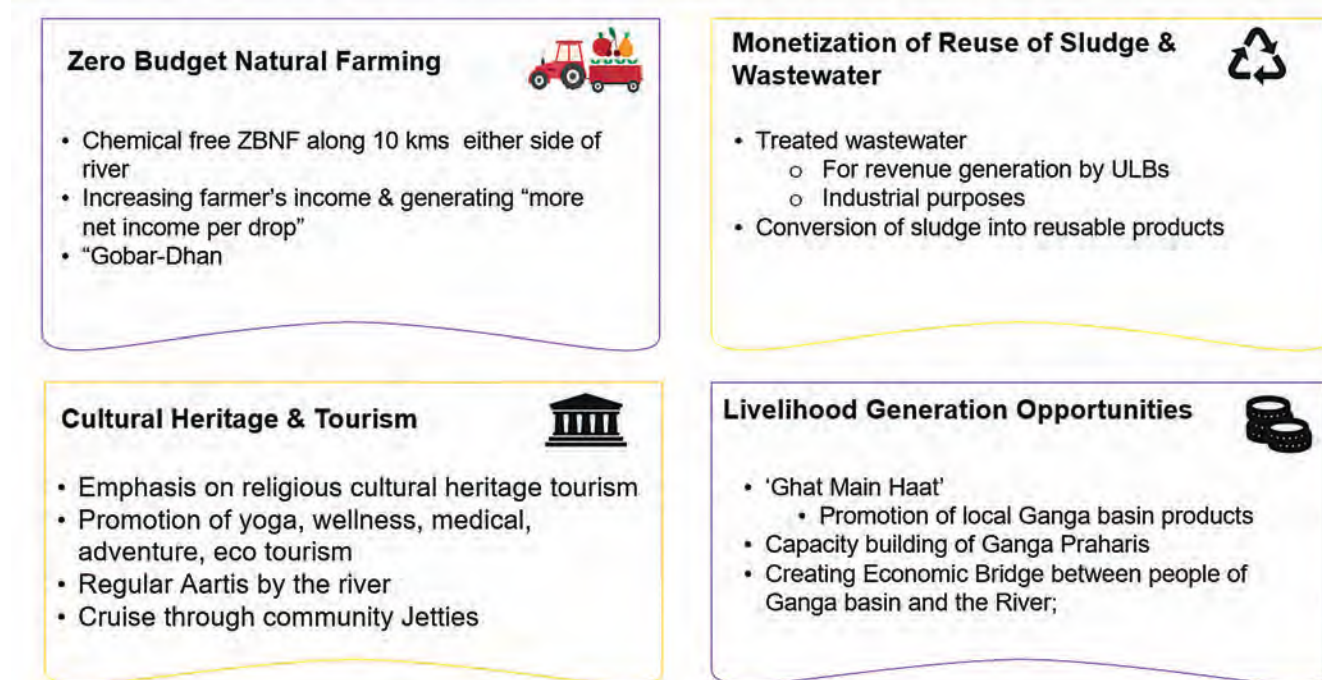


Figure 108 verticals of Arth Ganga

12.1 Zero Budget Natural Farming

Recognizing the critical role, the agriculture plays in the Ganga Basin, natural farming emphasizes sustainable and eco-friendly farming techniques. A key initiative within this vertical is the implementation of Zero Budget Natural Farming on both sides of the river within a 10-kilometer span. It involves chemical-free farming practices, encouraging farmers to rely on natural inputs and minimizing external inputs.

Key Highlights of Activities Undertaken in Vertical I- Zero Budget Natural Farming and Allied Areas:

- MoUs for the promotion of Natural Farming signed with OISCA International (23rd February 2024) and Gurukul Kangri Deemed to be University, Haridwar (28th Feb 2024). Two natural farming model farms will be established at Sambhal (U.P.) and Haridar (U.K.)

- Series of Natural Farming Workshops have been organized in coordination with State Agriculture Departments, NCONF, Art of Living & Sahakar Bharati - Workshops in Shirdi, Bulandshahr, Sonipat, Varanasi, Haridwar, Meerut, Hastinapur, Bijnor, Saran, Bhojpur, Buxar, Samastipur, Purnea, Katihar, Bhagalpur, Khagaria and Sahebganj.

12.2 Monetization and Reuse of Treated Wastewater and Sludge

MoU signed with Ministry of Power for reuse of waste water. This vertical strategically endeavors to repurpose treated water for pivotal applications such as irrigation and industrial processes, concurrently serving as a means of revenue generation for Urban Local Bodies (ULBs).

Key Highlights of Activities Undertaken in Vertical II- Monetization of Reuse of Sludge & Wastewater:

- 20 MLD Mathura Tertiary Treatment Plant commissioned for supply of treated wastewater to IOCL's Mathura Refinery



Figure 109 Tertiary Treatment Plant, Mathura

- Published “National Framework for Safe Reuse of Treated Water”

12.3 Promotion of Cultural Heritage and Tourism

Promotion of cultural heritage and tourism, breathing life into the historical tapestry of the Ganga and its surrounding areas. The vertical aims to strengthen the cultural connection with the river through the orchestration of aartis and the establishment of Ganga trails, fostering a deeper appreciation for Ganga's cultural heritage and promoting sustainable tourism practices in harmony with the river's essence.

Key Highlights of Activities Undertaken:

- All Ganga Basin districts were mapped for documenting architectural, natural and intangible cultural heritage under INTACH study
- Two publications on these aspects released, titled: *Samagrata & Samakshta*.
- Regular conduct of Ghat par Yoga, Ghat par Haat and Ghat pe Aarti to generate local tourism and boost local economy by sale of local products.
- Arti workshop is being organised with Pramath Niketan, Rishikesh.
- Ganga Utsav 2023: Celebration of Ganga as National River in Ganga Districts.

12.4 Livelihood Generation Opportunities

This vertical uplifts local economies and empowers communities through the creation of livelihood-generation opportunities. The establishment of “Ghat Main Haat” stands as a testament to this vision, providing bustling marketplaces along the picturesque riverbanks of Ganga cities and towns.

Key Highlights of Activities Undertaken

JALAJ Livelihood Model - Implementation in progress at 50 locations. To be replicated at 25 more locations by Wildlife Institute of India (WII), Dehradun;

- NMCG and HESCO launched 'Ganga Bhog – Gangotri Se Ganga Sagar Tak' to promote awareness on livelihood generation among locals; centered on the '5 Ms' concept: Maa (mother), Mandir (temple), Mitti (land), Mahila (women) and Mota-anaj (millets)
- Livelihood and capacity building trainings were given under the Project 'Capacity Building Programme for Leveraging Community and Local Resources Based on Technology' with HESCO
- 'Ghat Par Haat' campaign organized since April 2023 as a major activity under the Arth Ganga initiative to strengthen 'river-people connect'.
- Jalaj Awareness and Marketing Centre (JAM Centre) has been established at Dilli Haat, INA, New Delhi. This Center is operationalized since 17th September 2023. The objective of the Centre is to promote the products (agriculture, natural, processed food items and handicrafts, etc.) being produced in the Ganga Basin and create awareness on the Namami Gange intervention.



Figure 110 Glimpse of Information Dissemination Section in JAM Centre, Dilli Haat INA



Figure 111 Glimpses of Livelihood Activities

- Training on Prasad making, incense sticks, mats, jute bags, millet laddoo, juice, beautician, stitching etc. to Ganga Praharis through WII and HESCO.
- Promoting Home Stay, Arth Ganga Trails, Jungle walks, Religious Tourism Ganga Guides etc.

Development of Ghats & Crematoria

13.1 Ghats and Crematoria

Development of Ghats and Crematoria encourages cleanliness of riverbanks, improved infrastructure for social and cultural events, and better infrastructure for cremation, preventing the discharge of unburnt dead bodies into the river Ganga. They encourage People River connectivity, economic activity, alternate modes of transportation, and the sustainable economic growth of those living along riverbanks.

Under Namami Gange Programme development of 238 ghats, 63 crematoria and 9 kunds have been taken up at sanction cost of ₹1557.64 Crores (including RFD Patna). Out of these, 208 ghats, 53 Crematoria and 9 kunds have been completed.



Figure 112 RFD PATNA

Table 17 A detailed snapshot of various activities undertaken

S. No.	State	No. of Projects	No. of Projects Completed	Proposed			Cost (In Crores)	Completed		Ongoing/Under Progress		Under Tendering	
				Ghats	Crematoria	Total		Ghats	Crematoria	Ghats	Crematoria	Ghats	Crematoria
1	Uttarakhand	21	13	33	27	60	327	25	26	6	1	2	0
2	Uttar Pradesh	25	21	113	15	128	476	103	15	8	0	2	0
3	Bihar	19	15	61	10	71	521	54	6	1	1	6	3
4	Jharkhand	4	4	13	3	16	62	13	3	0	0	0	0
5	West Bengal	9	5	14	6	20	39	13	3	1	2	0	1
6	Madhya Pradesh	3	0	3	1	4	100	0	0	3	1	0	0
7	Himachal Pradesh	1	0	1	1	2	29	0	0	0	0	1	1
	TOTAL	82	58	238	63	301	1,557	208	53	19	5	11	5

Project for the rejuvenation of 9 kunds have also been sanctioned in Uttar Pradesh at an estimated cost of ₹18.87 Cr. The project stands completed.

13.1.1 Uttarakhand

The works for development of 33 ghats and 27 crematoria in Uttarakhand at an estimated cost of ₹327.62 Crores are at different stages of completion. As on date 25 ghats and 26 crematoria have been completed.

13.1.2 Uttar Pradesh

The works for development of 113 ghats, 15 crematoria and 9 kunds in Uttar Pradesh have been taken up

at an estimated cost of ₹476.79 Crores and are also under different stages of execution. Out of these, 103 ghats, 15 crematoria and 9 kunds have been completed.



Pooth Ghat, Hapur

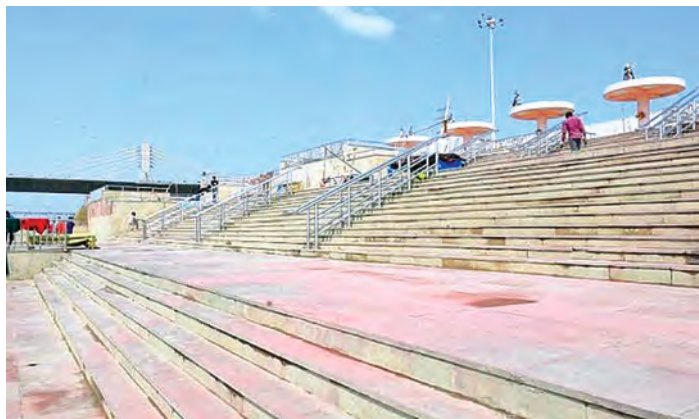


Fatah Ghat, Mirzapur

Figure 113 Completed Ghats in Uttar Pradesh

13.1.3 Bihar

The works for development of 61 ghats and 10 crematoria in Bihar taken up at an estimated cost for ₹521.81 Crores (including RFD Patna). 54 Ghats and 6 Crematoria have been completed.



Simariya Ghat, Barauni



Balu Ghat, Sultanganj

Figure 114 Completed Ghats in Bihar

13.1.4 Jharkhand

Development of 13 ghats and 3 crematoria have been taken up in Jharkhand at an estimated cost of ₹ 62.07 Crores and as on date all ghats and crematoria are completed and handed over to concerned ULB.



Mangal Haat Ghat, Sahibganj



Maskalaiya Crematorium, Sahibganj

Figure 115 Completed Ghats in Jharkhand

13.1.5 West Bengal

Development of 14 ghats and 6 crematoria have been taken up at an estimated cost for ₹39.40 Crores. Out of these 13 Ghats and 3 crematoria have been completed.



Figure 116 Babu Ghat, garulia

13.1.6 Madhya Pradesh

Development of 3 ghats and 1 crematorium have been taken up at an estimated cost for ₹100.03 Crores. The projects are under execution stage

13.1.7 Himachal Pradesh

Development of 1 ghat and 1 crematorium have been taken up at an estimated cost for ₹29.92 Crores. The projects are under execution stage

State Initiatives

14.1 SMCG Uttarakhand

As part of Namami Gange Programme, the status of various projects of Uttarakhand in 2023- 2024.

14.1.1 Ongoing Projects in Uttarakhand 2023-2024

- Development of Bathing Ghat in Badrinath



Figure 117 Bathing Ghats in Badrinath

- Interception & Diversion (I&D) and STP work of 06 nos. Polluted River Stretches to Rejuvenate River Bhela, Dhela, Kichha, Kosi, Nandhore, Pilakhar and Kashipur Sewerage (I&D) Scheme (Dhela River) Phase-I of District Udham Singh Nagar.



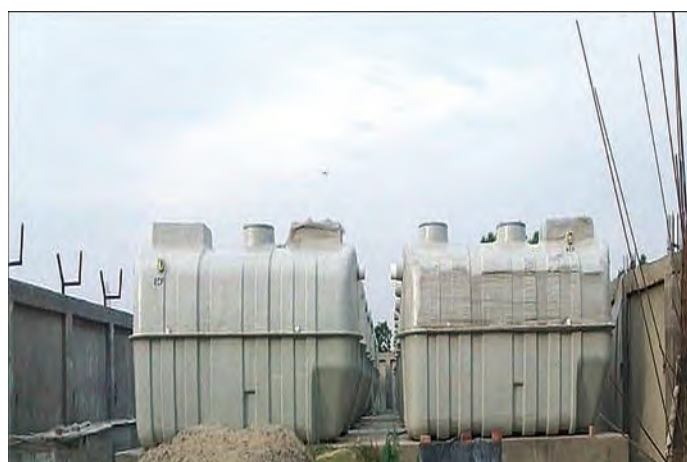
10 MLD STP, Kashipur



500 KLD STP, Beljuri



300 KLD STP Gulariya



10 MLD STP, Bazpur

**Figure 118 Under Progress project photos**

- I&D and STP project at Gaurikund & Tilwada, District - Rudraprayag
- Interception & Diversion (I&D) and STP works for Muni Ki Reti Dhalwala (8.0 MLD STP), Neelkanth Mahadev (1.5MLD STP), Jonk -Swargashram (3.0 MLD STP)
- I& D Work of Rispana and sewage Treatment plant (15 MLD) work at Sapera Basti, Dehradun Under Namami Gange Programme (Bindal River)
- Co-treatment of Septage at existing STPs of Haridwar 150 KLD, (100 KLD Jagjeetpur + 50 KLD Sarai 0 Rishikesh -50 KLD, Srinagar 30 KLD and Devprayag 5.0 KLD under NGP

- Pollution Abatement Works (I&D with STP) for Khoh River at Kotdwar
- Faecal Sludge Treatment Plant (FSTP) in Bahadrabad, Haridwar
- 04 No. River front Development work at Badrinath, Chamoli by PWD Uttarakhand (Sri Badrinath – Part A, C, F-1, and G-1):

The project was sanctioned as under and Public Work Department, Uttarakhand has been appointed as Executive agency for the project.

- Part A:** The Riverfront Development work for Part A at Badrinath, Uttarakhand has been sanctioned at an estimated cost of ₹28.22 Cr with 100% central funding under Clean Ganga Fund (CGF) head of Namami Gange program, NMCG.



Work progress – River Front A (December, 2023)



Site condition (March, 2024)

Figure 119 Under Progress project photos

- Part C:** The Riverfront Development work for Part C at Badrinath, Uttarakhand has been sanctioned at an estimated cost of ₹03.89 Cr with 100% central funding under Clean Ganga Fund (CGF) head of Namami Gange program, NMCG. The work could not be done during peak winter season due to heavy snow fall.
- Part G-1:** The Riverfront Development work for Part G1 at Badrinath, Uttarakhand has been sanctioned at an estimated cost of ₹13.93 Cr with 100% central funding under Clean Ganga Fund (CGF) head of Namami Gange program, NMCG. The project is currently under tendering process.
- Part F-1:** The Riverfront Development work for Part G1 at Badrinath, Uttarakhand has been sanctioned at an estimated cost of ₹13.17 Cr with 100% central funding under Clean Ganga Fund

(CGF) head of Namami Gange program, NMCG. The project is currently under tendering process.

- Development of Mata Balkumari Bathing Ghat and 1 IWC system at Village Ajeetpur, Haridwar



Figure 120 Mata Balkumari Bathing Ghat

- Afforestation Programme for the year 2023-24 under Namami Ganga Programme, Uttarakhand Forest Department (Funding under NGP)
- Construction of Akhand Param Dham Ashram Ghat at Haridwar, Uttarakhand



Figure 121 Akhand Param Dham Ashram Ghat

14.1.2 Activities taken up in cooperation with GIZ under the Indo German Bilateral Cooperation Project- Support to Ganga Rejuvenation (SGR)-II in Uttarakhand, 2023-24

a. District Ganga Plan.



Figure 122 Consultations for Udham Singh District Ganga Plan

- handbook also prepared as a tool for other districts to prepare their respective District Ganga Plans. Orientations done for all the 13 DGCs in Uttarakhand on usage and application of the handbook for District Ganga Planning.



Figure 123 Training of 13 DGCs on application of the handbook for District Ganga Planning

b. Ramganga River Basin Management Plan



Figure 124 River Basin Management Plan

E-Flows Assessment and Stakeholder Consultation: Under IEWP Action, E-Flows assessment carried out in Ramganga Basin including selected sites in Uttarakhand. Further, series of stakeholder consultations were organized in which participation of officials from SPMG and line departments was done to identify three climate-sensitive measures that ensure E-Flows in the Ramganga Basin



Figure 125 Stakeholder Consultation on E-Flows Assessment

14.1.3 River Cities Alliance (RCA)

There are 14 cities in Uttarakhand which are the members of River Cities Alliance (RCA)

S.No.	Town	ULB	Category	Main River
1	Dehradun	Dehradun Municipal Corporation	Municipal Corporation	Ripsana
2	Halwani	Haldwani Municipal Corporation	Municipal Corporation	Gaula
3	Haridwar	Haridwar Municipal Corporation	Municipal Corporation	Ganga
4	Kashipur	Kashipur Municipal Corporation	Municipal Corporation	Dhela
5	Kotdwar	Kotdwar Municipal Council	Municipal Council	Koh
6	Muni Ki Reti	Muni Ki Reti Nagar Panchayat	Nagar Panchayat	Ganga
7	Nainital	Nainital Municipal Council	Municipal Council	Mandal
8	Ramnagar	Ramnagar Municipal Council	Municipal Council	Kosi
9	Rishikesh	Rishikesh Municipal Corporation	Municipal Corporation	Ganga
10	Selakui	Selakui Nagar Panchayat	Nagar Panchayat	Song
11	Srinagar	Srinagar Municipal Corporation	Municipal Corporation	Alaknanda
12	Tehri	New Tehri Municipal Board	Municipal Board	Bhagirathi
13	Uttarkashi	Uttarkashi Municipal Council	Municipal Council	Bhagirathi
14	Vikasnagar	Vikasnagar Municipal Council	Municipal Council	Yamuna

14.1.4 State Ganga Committee:

State Ganga Rejuvenation, Protection & Management Committee of Uttarakhand (Uttarakhand State Ganga Committee) has been notified as an Authority vide Gazette Notification dated: 07.04.2017 of Ministry of Jal Shakti, Govt. of India.

Table 18 Details of Uttarakhand State Ganga Committee Meeting during year 2023-24

S.No.	Subject	Date of Meeting
1	Fifteenth State Ganga Committee meeting	06-06-2023
2	Sixteenth State Ganga Committee meeting	18-01-2024

14.1.5 District Ganga Committee

In Uttarakhand, the District Ganga Committees have been formed in all the Districts vide Gazette notification and National Mission for Clean Ganga, New Delhi vide D.O. letter dated: 7th April, 2022 has apprised all the DGCs conduct their Monthly, Mandated, Minuted, Monitored meeting on every 2nd Friday of the month under chairmanship of District Magistrate to overview the status of Namami Gange programme in the District. The current status of all the DGCs minutes of meeting uploaded over GDPMS portal during Financial Year 2023-24 is as below:

Table 19 Details of Uttarakhand DGCs Meetings conducted in 2023-24

S.No.	Attributes	Numbers
1	Total No. of DGCs constituted and notified	13
2	Total number of meetings held by DGCs during 2023-24	149

14.1.6 List of Event/IEC Activities-2023-24 Organized by SPMG Uttarakhand

- i. **International Yoga Day 21st June-** On the occasion of International Yoga Day (21 June 2023) National Mission for Clean Gange, New Delhi & State Program Management Group, Uttarakhand under joint aegis organized a yoga program with 13 district Ganga committees, listed universities/ colleges and Uttarakhand Peyjal Nigam.
- ii. **Harela Festival-** Harela Pakhwada is being celebrated from 16th to 23rd July 2023 on the occasion of Lok Parv Harela by the universities/colleges listed in the State Programme Management Group (SPMG). Tree plantation was done on a large scale by the empanelled universities/colleges, and a large scale awareness campaign was also conducted to make the general public aware of greenery and environment.
- iii. **Har Ghar Tiranga-** On the occasion of the 77th Independence Day, the State Programme Management Group (SPMG) organized various IEC activities under the theme of 'Har Ghar Har Ghat Tiranga' from 15th August 2023 at Kedar Ghat, Uttarkashi, Triveni Ghat, Rishikesh, Chandighat Haridwar, Yamuna Bairaaj Ghat Daakpather, Sangam Ghat Devprayag, Augustmuni Ghat, Augustmuni etc. as part of the 'Azadi Ka Amrit Mahotsav' celebrations Tiranga Yatras, awareness rallies, and other Programmes were organized."
- iv. **Ganga Utsav-** On the occasion of "Ganga Utsav" (04 November 2023), a Ganga Aarti Programme was conducted with the help of 13 District Ganga Committees (DGC) and empanelled universities/ colleges various Ghats in Uttarakhand situated on the banks of river Ganga and its tributaries. During the "Ganga Utsav" program, various IEC (Information, Education and Communication) activities along with cleanliness campaign at Ganga Ghats and various places, public awareness rally, yoga practice, painting, Ganga oath, water sports, cultural program, Ganga Aarti, Deepdaan, signature campaign etc.) were organised.

- v. **Ganga Swachta Pakhwada-** The Swachhta Pakhwada celebrated from March 16th to March 31st, 2024 empanelled colleges/universities of SPMG Uttarakhand. Various activities, such as Shramdaan, Swachta Rally, Nukkad Natak, Ganga Swachta Pledge, Awareness Rally, cultural activities, Ganga Aarti etc. organized during this period.
- vi. **National Seminar-** A one-day national workshop was organized by the National Mission for Clean Ganga, New Delhi, State Program Management Group, Namami Gange Dehradun and Pt. Lalit Mohan Sharma Shri Dev Suman University Rishikesh. Regarding the IEC activities to be organized by the listed universities/colleges.
- vii. **Cleanliness Campaign-** IIT Roorkee conducted a cleanliness drive with the support of Namami Gange. The campaign was carried out in collaboration with the help of students. organized a cleanliness drive on the Chandighat Haridwar.
- viii. **Painting Competition-** As part of its IEC activities, the State Project Management Group of Namami Gange, Uttarakhand organizes painting competitions from time to time for students in the listed colleges.
- ix. **Ganga Aarti-** Ganga Aarti is being organized at Sharda Ghat Tanakpur Champawat, Laxmi narayan Ghat, Roorkee and Chandighat Haridwar under the aegis of State Project Management Group, Namami Gange Uttarakhand.
- x. **Educational Tour-** Students of engineering colleges of the state were given an educational tour to the Sewerage Treatment Plant (STP) constructed under the Namami Gange programme. Also the working of Sewerage Treatment Plant (STP) was explained. An educational tour was conducted by the students of IIT Roorkee and Devbhumi Uttarakhand University.
- xi. **Marathon-** Sachivalaya Athletics and Fitness Club organized Akhand Relay Marathon race from Dehradun to Rishikesh on 25 February 2024 for Ganga cleaning program and awareness in order to make the general public aware about the cleanliness and conservation of Ganga and its tributaries under the Namami Gange program.
- xii. **Swachhta He Sewa-** Under the Aazadi ke Amrit Mahotsav, IEC activities like cleanliness campaign, cleanliness rally, Ganga oath, debate competition and painting competition, etc. were organized by the listed colleges/universities during the “Swachhta Hi Seva” program on 02nd October.
- xiii. **Run for Unity-** On 31 October 2023, to commemorate the birth anniversary of Sardar Vallabhbhai Patel, famous as the Iron Man of India, Run for Unity was organized under the joint aegis of State Project Management Group, Namami Gange and Central Reserve Police Force (CRPF).





Figure 126 Glimpses of IEC Activities conducted during 2023-2024

14.2 SMCG Uttar Pradesh

14.2.1 Interception & Diversion (I&D) and Sewage Treatment Plants

Under Namami Gange Programme a that of the total 63 projects taken up so far 15 Projects are currently work in progress, 16 projects are under tendering and 32 have been completed so far. Further it is stated that the program has created 615.81 MLD treatment facility so far by construction of 25 number of STPs tapping 117 drains and another 35 STPS are at higher stage of completion which will add 631.30 MLD treatment capacity tapping 111 more drains. Besides this project for constructing 16 no of STPs are under allocation/under tendering which will add 826 MLD of treatment capacity. Total number of STPs planned under program are 76 adding 2073.11 MLD treatment facility in State under the Namami Gange Program. Another 14 Projects are under Planning Stage/Appraisal and Approval stage which will together add by installing 14 STPs of 464.4 (together) MLD treatment Facility.

14.2.2 Ghat Cleaning Projects

Mechanised Ghat cleaning works have been taken up to ensure cleanliness of Ghats at important pilgrimage cities.

Table 20 The details of these works are given below

S. No	City/Nagar Panchayat	No of Ghats being cleaned on daily basis	Date of Start of Works
1	Bithhor	19	1 June 2019
2	Kanpur	20	1 June 2019
3	Mathura Vrindawan	27	10 June 2019
4	Varanasi	88	13 Sep 2019
5	Prayagraj	21	10 June 2019
	Total	175	

14.2.3 Bio Remediation and Enhanced Natural Attenuation for In-Situ Nall Treatment

Under this component following works have been undertaken;

- i. NEERI treated 06 drains for 12 Months during Kumbh;
- ii. Treatment of Ram Nagar Drain (23.35 MLD), Varanasi using Bio Remediation was taken up;
- iii. Treatment of Rampur Drain (194 MLD), Rampur using Bio Remediation was taken up.

14.2.4 Conserving and Sustainably managing Gangetic Flood Plain Wetlands of Uttar Pradesh

Following works have been undertaken under this program;

- i. Field Training for frontline forest department officials;
- ii. Development of Protocol for rapid Assessment of Wetlands]ds Ecosystems Services (RAWES);
- iii. Development of Wetland Delineation Protocol;
- iv. Development of Wetland Monitoring Protocol;
- v. GIS Lab Enhancement;
- vi. GIS Cell Infrastructure Strengthening;
- vii. Satellite data procurement;
- viii. Consumables and GIS Software License;
- ix. Mapping of 280 Wetlands and LULC Classification Works.

a. Wetland Conservation Program for Ganga Floodplain

- i. Project–Conserving and sustainably managing Gangetic floodplain wetlands of Uttar Pradesh
- ii. Objective – To scale up and link wetland conservation with river rejuvenation and basin management
- iii. Area –Buffer of 10 km either side of river Ganga in 27 Ganga districts of Uttar Pradesh
- iv. Project Cost– ₹4.16 crore
- v. Expenditure– ₹2.55 crore
- vi. Following is the progress update on Wetland Conservation efforts under taken so far.
- vii. ‘Rapid Wetlands Ecosystem Services Assessment Protocol’ developed.
- viii. Using the protocol 275 wetlands identified// detailed survey and ground verification was carried out.
- ix. Brief documents and wetland health cards prepared.
- x. Training of wetland managers through workshops completed.
- xi. GIS lab of UP State Wetland Authority strengthened & web portal “Rapid Assessment of Wetlands” for documenting the information related to wetland has been developed.

Table 21 3 Sub-Basin level 5 year Integrated Wetland Management Plans prepared covering 27 districts of U.P. Ganga basin

Sub-basin Name	No of wetlands prioritised for MI	Projected Cost (₹in Cr.)
Above Ramganga Confluence	93	61.10
Ramganga Confluence to Gomti Confluence	106	72.70
Gomti Confluence to Ghaghra Confluence	32	42.03
Total	231	175.83

14.2.5 Conservation of Gangetic River Dolphin in Uttar Pradesh

- **CSS Project**–Species Revival Plan (SRP) under Integrated **MoEFCC**, Development of Wildlife Habitat (IDWH) (in consultation with Wildlife Institute of India)
- **Objective** –Conservation of Gangetic Dolphin
- **Duration** –2022-23 to 2026-27
- **Total Cost**–₹48.59 Cr
- **Sanction** –₹3.66 Cr for 2022-23
- **Released** – ₹91.68 lakh
- **Activities Proposed:**
 - i. **Establishment of protection infrastructure**
 - Purchase of fiber reinforced boats with OBM and other accessories
 - Deployment of manpower for protection/boats
 - DPOL for boats and vehicles
 - ii. **Research, monitoring and evaluation**
 - Hiring of research biologist
 - Purchase of monitoring equipments such as GPS, Binocular, Range Finder, Depth Sounder, flow meter
 - iii. **Preparation of management plan of hotspots**
 - iv. **Eco-development**
 - Net-entanglement refund and ghost net buy back
 - Acoustic deterrent device distribution
 - v. **Capacity building**
 - Training to field staff
 - Training of stakeholders - fisheries, irrigation, veterinarians, local NGOs
 - vi. **Awareness generation**
 - Workshop for all stakeholders
 - Engagement of Dolphin mitras
 - Establishment of Dolphin interpretation center
- a. **Way forward**
 - Baseline survey of Dolphin, associated aquatic fauna and their habitat by MoEFCC in progress.
 - Gangetic Dolphin also included in survey.
 - Survey by Wildlife Institute of India.
 - Survey in Uttar Pradesh has been completed. The data will be released.
 - A comprehensive National Conservation Plan will be formulated and funded by MoEFCC, GoI for conservation of Dolphin including Gangetic Dolphin.

14.2.6 River Basin Management Plan for River Ramganga

- i. The Project “Support to Ganga Rejuvenation (SGR)” in conjunction with the “Development and Implementation Support to the India-EU Water Partnership, (IEWP Action)” is implemented by GIZ on behalf of German Federal Ministry of Economic Cooperation and Development (BMZ) and the EU Delegation to India (EUD). Activities under the SGR component are financed by BMZ. Activities under the IEWP Action are co-financed by the EU and BMZ. The first phase of the SGR project was from 2015-2020 while EU Co-financing component was from 2017-2020. Phase II of SGR and IEWP Action are implemented from Nov 2020 to November 2023 and extended up to February 2024.
- ii. Under SGR Project, development of River Basin Management Plan for one of the sub-basin of Ganga i.e. Ramganga has been completed. It is based on approach that the different elements and steps of RBM Cycle are intertwined and webbed together. All Basin Stakeholders at different steps were involved not only to utilize their expertise but also train them on the RBM processes as the work progresses.
- iii. The 3rd meeting of Ramganga RBM Committee was held on 13th October 2023 where the Committee was apprised about the key aspects of the final Ramganga RBM Plan. In the meeting it was discussed that the Plan is available for now to initiate the implementation of PoM following deliberation with key implementing agencies.
- iv. The Ramganga RBM Plan has been circulated to the in-line departments at national and state levels to consolidate feedback on implementation of PoM. Also, RBM Unit has been working to further identify the PoM which can be implemented in short duration.

14.2.7 District Ganga Plan

District Ganga Plan for Shahjahanpur, Bareilly and Moradabad has been prepared. A dissemination event was organised to share the finalised DGPs and Handbook with other DGCs on 27th September 2023. Orientation program for DGCs in Ramganga Basin has been conducted.

14.2.8 River Cities Alliance (RCA) and Urban River Management Plan (URMP)

a. River Cities Alliance (RCA)

There are 25 cities in Uttar Pradesh which are the members of River Cities Alliance (RCA)

S.No.	Town	ULB	Category	Main River
1	Agra	Agra Municipal Corporation	Municipal Corporation	Yamuna
2	Ayodhya	Ayodhya Municipal Corporation	Municipal Corporation	Saryu
3	Bareilly	Bareilly Municipal Corporation	Municipal Corporation	Ramganga
4	Bijnor	Bijnor Municipal Council	Municipal Council	Ganga
5	Budaun	Budaun Municipal Council	Municipal Council	Sot
6	Etawah	Etawah Municipal Council	Municipal Council	Yamuna
7	Farrukhabad	Farrukhabad Municipal Council	Municipal Council	Ganga

S.No.	Town	ULB	Category	Main River
8	Ghaziabad	Ghaziabad Municipal Corporation	Municipal Corporation	Hindon
9	Gorakhpur	Gorakhpur Municipal Corporation	Municipal Corporation	Rapti
10	Hardoi	Hardoi Municipal Council	Municipal Council	Ramganga
11	Jaunpur	Jaunpur Municipal Council	Municipal Council	Gomati
12	Jhansi	Jhansi Municipal Corporation	Municipal Corporation	Betwa
13	Kannauj	Kannauj Municipal Council	Municipal Council	Ganga
14	Kanpur	Kanpur Municipal Corporation	Municipal Corporation	Ganga
15	Lucknow	Lucknow Municipal Corporation	Municipal Corporation	Gomti
16	Mathura-Vrindavan	Mathura-Vrindavan Municipal Corporation	Municipal Corporation	Yamuna
17	Mirzapur	Mirzapur Municipal Council	Municipal Council	Ganga
18	Moradabad	Moradabad Municipal Corporation	Municipal Corporation	Ramganga
19	Muzaffarnagar	Muzaffarnagar Municipal Council	Municipal Council	Ganga
20	Pilibhit	Pilibhit Municipal Board	Municipal Board	Ramganga
21	Prayagraj	Prayagraj Municipal Corporation	Municipal Corporation	Ganga
22	Rampur	Rampur Municipal Council	Municipal Council	Kosi
23	Saharanpur	Saharanpur Municipal Corporation	Municipal Corporation	Yamuna
24	Shahjahanpur	Shahjahanpur Municipal Corporation	Municipal Corporation	Yamuna
25	Varanasi	Varanasi Municipal Corporation	Municipal Corporation	Ganga

b. Urban River Management Plan (URMP)

• URMP – Kanpur And Ayodhya

The URMPs have been developed in accordance to the framework proposed by the National Mission for Clean Ganga (NMCG, under the Ministry of Jal Shakti) and the National Institute for Urban Affairs (NIUA, an autonomous body under the Ministry of Housing and Urban Affairs).

14.2.9 State Ganga Committee Uttar Pradesh

Nomination of Experts to State Ganga Committee Uttar Pradesh

Vide Gazette notification # 1064 dated 07 March 2024, following new expert members have been inducted in the SGC-UP.

1. Shri Raman Kant, Founder, Neer Foundation, Meerut - Member;
2. Shri Farooq Rehman Khan, State Program Director, WaterAid India, Uttar Pradesh - Member;
3. Shri Suresh Babu, Director, Rivers Wetlands and Water Policy Division, W.W.F., India - Member;

4. Dr. Radha Krishan Dixit, Associate Professor/ Ganga Activist, K.A.P.G. College, Kasganj, Uttar Pradesh -Member;
5. Shri Avdesh Kumar, Rashtriya Mantri, Ganga Samagra – Member

Table 22 The summary of State Ganga Committee Meetings held in 2023-24 is given below

Sr. No	Meeting	Venue	Mode	Date
1	Eleventh	Conference Room, Office of CS GoUP	Physical	29 September 2023
2	Twelfth	Conference Room, Office of CS GoUP	Physical	04 December 2023
3	Thirteenth	Conference Room, Office of CS GoUP	Physical	01 March 2024

14.2.10 District Ganga Committee

In Uttar Pradesh, the District Ganga Committees have been formed in 75 Districts vide Gazette notification and National Mission for Clean Ganga, New Delhi vide D.O. letter dated: 7th April, 2022 has apprised all the DGCs conduct their Monthly, Mandated, Minuted, Monitored meeting on every 2nd Friday of the month under chairmanship of District Magistrate to overview the status of Namami Gange programme in the District. The current status of all the DGCs minutes of meeting uploaded over GDPMS portal during Financial Year 2023-24 is as below:

Table 23 The summary of District Ganga Committee notified under the Chairmanship of District Magistrates is given below

Attributes	Numbers
Total No. of DGCs constituted and notified	75
Total number of meetings held by DGCs during 2023-24	828

14.2.11 IEC Projects

Few of the activities taken up For enhancing general awareness of masses in Ganga Districts under the Namami Gange program, involving masses masses from all walks of life are – Mission Life campaign, Azadi ka Amrit Mahotsav, Swachhta Pakhwara, Ganga Utsav, Swachhta Hi Sewa, Yoga Diwas, State Republic Day Parade Tableau, World Wetland Day Commemoration, World Day Commemoration, World Environment Day Commemoration, Ganga Samman Samaroh, Ganga Run, Cycling Race, Sports Event at Ganga Boat Race, Ganga Maha aarti at every Poornima, Chatt Puja, Mirzapur Mela, Garh Mukteshwar Mela, Radio Campaign on Ghats of 10 Ganga Districts, installation of Hoardings for publicity of NAMAMU Gange Program, Documentary on efforts to rejuvenate small rivers etc.. Total expenses incurred on Outreach and communication activities was ₹4.5 cr.

14.3 SPMG Bihar

14.3.1 Sewerage Projects & RFD Projects

BUIDCO is executing total 43 projects sanctioned under Namami Gange Programme. It includes total 33 Sewerage Infrastructure Projects comprising STP, Sewerage Network and I&D works, 4 STP projects, 3 RFD project, 2 Ghats development projects and 1 Crematoria project.

a. Status of 43 Projects: -

- **Completed**– 14 (Beur STP , Karmalichak STP, Saidpur STP and Adjoining Network, Pahari STP, Pahari Sewerage Network Zone IV, Gopalganj Ghat, RFD Patna-16 Ghats, Muzzfarpur Ghat, Barh STP and I&D works, Sultanganj STP and I&D works, Sonapur STP and I&D works, Saidpur Sewerage Network, Beur Sewerage Network and Naugachia STP and I&D works.
- **Ongoing**– 20 (18 Sewerage Project and 3 RFD Projects - RFD Manihari, Atal Manjhi Ghat and RFD, Patna- 3 Ghats – Bhadra, Mahavir and Naujar)
- **Under Tender**– 9 (I&D works and STP –Supaul, Ramnagar, Narkatiyaganj, Daudnagar, Motihari, Lakhisarai, Jamui, Raxaul and one Gopalganj Crematorium.

b. Status of Completed Projects: -

12 NMCG's Sewerage Network and I & D works and STP Projects have been inaugurated by Hon'ble Prime Minister of India on 2nd March 2024 at Aurangabad, Bihar. These projects name are Saidpur STP and Adjoining Network, Pahari STP, Pahari Zone-IV A(S) Network, Pahari Zone-V Sewerage Network, Beur Sewerage Network, Saidpur Sewerage Network, Karmalichak Sewerage Network, I&D works and STP Barh, I&D works and STP Sonapur, I&D works and STP I&D works and STP Sultanganj, I&D works and STP Naugachia respectively.

Two NMCG's Karmalichak STP and Beur STP Projects have been completed on 31st Aug 2020 in the difficult time due to Covid-19 period and both projects have been inaugurated by Hon'ble Prime Minister of India on 15th September 2020. Both these STP plants are under O&M progress.

Gopalganj Ghat, Ganga RFD Patna (16 Ghats) and Muzzfarpur Ghat have also been completed.

- 1) **Beur Sewerage Network Project:** - Total 100 % physical progress has been achieved in March 2023. Total expenditure incurred during 01.04.2023 to 31.03.2024 is ₹ 11.72 crore.



Figure 127 Beur STP 43 MLD

- 2) **Karmalichak Sewerage Network:** - Total 99.94 % physical progress has been achieved till March 2024.



Figure 128 Karmalichak STP Network 37 MLD

- 3) **Saidpur Sewerage Network Project:** - Total 100% physical progress has been achieved till March 2023.



Figure 129 Saidpur Sewerage Network

- 4) **Digha Sewerage Network and STP Project:** - The total scope of Sewerage Network is 303 Km out of which total 126.01 Km Sewerage Network has been laid and 100 MLD STP is under progress. Total 44.28 % physical progress has been achieved till March 2024.



Figure 130 Digha STP and Sewerage Network 100 MLD

- 5) **Kankarbagh Sewerage Network and STP Project:** - The total scope of Sewerage Network is 150 Km out of which 54.08 Km Sewerage Network has been laid. Total 39.67% physical progress has been achieved till March 2024.



Figure 131 50 MLD Kankarbagh STP and Sewerage Network

- 6) **Barh I&D and STP Project:** - 11 MLD capacity STP has been built. Total 100% physical progress has been achieved till March 2023.



Figure 132 Barh STP and I&D work 11MLD

- 7) **Mokama I&D and STP Project:** - Total 99.99% physical progress has been achieved till March 2024.



Figure 133 Mokama STP and I&D work 11MLD

- 8) **Sonepur I&D and STP Project:** 3.5 MLD capacity STP has been built. Total 100% physical progress has been achieved till March 2023.



Figure 134 Sonepur STP and I&D work 3.5 MLD

- 9) **Chhapra I&D and STP Project:** - 32 MLD capacity STP has been built. Total 99% physical progress has been achieved till March 2024.



Figure 135 Chhapra STP and I&D work 32 MLD

- 10) **Muzzafarpur Ghat Development work:** - The date of agreement of this project is 22.08.2020 and date of completion as per agreement is 21.02.2022. Total expenditure incurred during 01.04.2022 to 31.03.2023 is ¹ 10 crore. Total 100% Physical Progress has been March 2023.
- 11) **Gopalganj Ghat Development work:** - The Date of agreement is 04.01.2020 and date of completion as per agreement is 03.06.2021. 2 No. of Ghats have been built. 100% Physical progress has been achieved till July 2022 and handed over to Zila Parishad, Gopalganj.
- 12) **RFD, Patna:** - The Date of agreement is 24.04.2014 and date of completion as per agreement is 23.04.2016 and EOT is granted till 23.05.2020. 16 Ghats have been built. Physical progress 93% has been achieved till March 2023 and handed over to PMC, Patna for O&M.



Ganga RFD Patna



Gopalganj Ghat



Muzzafarpur Ghat

Figure 136 Completed Ghats

14.3.2 River Cities Alliance (RCA)

There are 20 cities in Bihar which are the members of River Cities Alliance (RCA)

S.No.	Town	ULB	Category	Main River
1	Araria	Araria Municipal Council	Municipal Council	
2	Arrah	Arrah Municipal Corporation	Municipal Corporation	Ganga
3	Begusarai	Begusarai Municipal Corporation	Municipal Corporation	Ganga
4	Bettiah	Bettiah Municipal Corporation	Municipal Corporation	Gandak
5	Bhagalpur	Bhagalpur Municipal Corporation	Municipal Corporation	Ganga
6	Bihar Sharif	Bihar Sharif Municipal Corporation	Municipal Corporation	Panchane
7	Chapra	Chapra Municipal Corporation	Municipal Corporation	Ganga

S.No.	Town	ULB	Category	Main River
8	Darbhanga	Darbhanga Municipal Corporation	Municipal Corporation	Bagmati
9	Gaya	Gaya Municipal Corporation	Municipal Corporation	Falgu
10	Hajipur	Hajipur Municipal Council	Municipal Council	
11	Jamalpur	Jamalpur Municipal Council	Municipal Council	Ganga
12	Katihar	Katihar Municipal Corporation	Municipal Corporation	Ganga
13	Kishanganj	Kishanganj Municipal Council	Municipal Council	
14	Munger	Munger Municipal Corporation	Municipal Corporation	Ganga
15	Muzaffarpur	Muzaffarpur Municipal Corporation	Municipal Corporation	Burhi Gandak
16	Patna	Patna Municipal Corporation	Municipal Corporation	Ganga
17	Purnia	Purnia Municipal Corporation	Municipal Corporation	Ganga
18	Samastipur	Samastipur Municipal Corporation	Municipal Council	
19	Siwan	Siwan Municipal Council	Municipal Council	
20	Supaul	Supaul Municipal Council	Municipal Council	

14.3.3 State Ganga Committee

State Ganga Rejuvenation, Protection & Management Committee of Bihar has been notified as an Authority vide Gazette Notification dated: 11.07.2017 of Ministry of Jal Shakti, Govt. of India.

14.3.4 District Ganga Committee

In Bihar, the District Ganga Committees have been formed in 38 Districts vide Gazette notification and National Mission for Clean Ganga, New Delhi vide D.O. letter dated: 7th April, 2022 has apprised all the DGCs conduct their Monthly, Mandated, Minuted, Monitored meeting on every 2nd Friday of the month under chairmanship of District Magistrate to overview the status of Namami Gange programme in the District. The current status of all the DGCs minutes of meeting uploaded over GDPMS portal during Financial Year 2023-24 is as below:

Table 24 The summary of District Ganga Committee notified under the Chairmanship of District Magistrates is given below

Attributes	Numbers
Total No. of DGCs constituted and notified	38
Total number of meetings held by DGCs during 2023-24	387

14.4 SPMG Jharkhand

14.4.1 Pollution Abatement

The river Ganga has urban and rural stretch of 83 km in Jharkhand. It passes through Sahibganj District of Jharkhand covering two towns i.e., Sahibganj and Rajmahal. The Urban & Rural population of Sahibganj is 1, 10,080 and 9,90,901 respectively. Namami Gange Project is being implemented by integrated efforts

of three departments of Jharkhand e.g., Urban Development & Housing Department (UD&HD), Water Resources Department (WRD) and Drinking Water & Sanitation Department (DW&SD). Among the three departments, UD&HD is the Nodal department for entire programme.

In the Namami Gange programme all the three departments are playing individually unique roles in various sanitation programme & mission. To start with, 1) UD&HD is exclusively the implementing body for Urban Waste Management. 2) DW&SD looks after the Rural Waste Management part and 3) WRD is looking after Riverbank Strengthening work.

a. Project Status:

- i. Municipal Wastewater, Sahibganj:-** The project covers two STP plants of 5 & 7 MLD capacity along with 53.15 kms of sewerage line. The Project was approved with ₹99.36 Crore including 5 years O&M funding pattern is (70:30) with respect to Centre and State share respectively.
- ii. Sahibganj 12 MLD STP (5 MLD+7 MLD) with 53.15 kms of sewerage line, which is under Operation Since September 2019.**
- iii. Municipal Wastewater, Rajmahal:-** The project covers One STP plants of 3.5 MLD capacities along with 34.21 kms of sewerage line and which is under Operation Since November 2021.

b. Project on River Damodar (a tributary of Holy River Ganga):

By including Damodar, a tributary of Ganga, which flows for 300 km in the state, in the Namami Gange project, the Central Government, has approved the Interception & Diversion (I&D) based Sewerage Treatment Plant (STP) project for Phusro, Ramgarh and Dhanbad cities.

- For Phusro city at a cost of ₹68.75 crore. The construction work of 14 MLD STP based on Interception & Diversion (I&D) technology will be started and the target is to complete it by January 2025.
- Construction work of 40 MLD STP based on Interception & Diversion (I&D) technology has been done for Ramgarh city at a cost of ₹310.11 crore and the target is to complete it in 2026.
- ₹808.84 Crore Dhanbad Town construction work of 192 MLD Interception & Diversion scheme for the River Damodar is approved by NMCG/GoI tender under HAM (Hybrid Annuity Model) NIT project for Dhanbad has been tendered and bids are under evaluation.

14.4.2 River Front development

- i. River Front Development, Sahibganj: -**The project covers construction and renovation of Bijli Ghat, Ferry Ghat, and Munnilal crematoria having total project cost of ₹10.20 Crores including 6 months O&M. with 100% Central funding.
- ii. River Front Development, Rajmahal: -**The project covers construction and renovation of Singhi Dalan, Ferry Ghat, and Madhusudan Cremation having total project cost of ₹9.35 Crores including 6 months O&M. with 100% Central funding.

- iii. **River Front Development, Kanhaiyasthan:** -The project covers construction of Kanhaiyasthan Ghat having total project cost of ₹8.20 Crores including 6 months O&M. with 100% central funding.

14.4.3 Entry Level Activity work at Sahibganj & Rajmahal

The project covers construction of 8 Ghats and 01 Crematoria, sanctioned with project cost of ₹33.58 Crores, which is carried by Central PSU NPCC; as on 31.03.2022, 8 Ghats and 01 Crematoria has been constructed.

14.4.4 River Surface Cleaning Work using Trash Skimmer

An initiative towards cleaning of river Ganga using Trash Skimmer machine has been taken since 04.01.2017 with a total project cost of ₹3.6 Crores.

14.4.5 River Cities Alliance and URMP

In order to take the agenda of river sensitive cities, a platform called 'River Cities Alliance' (RCA) was launched on 25th November 2021 by the Honble Minister for Jal Shakti, Shri Gajendra Singh Shekawat. The RCA has been envisaged as a city movement and focuses on three broad themes- networking, capacity building and technical support.

From Jharkhand, there are 14 cities who are members of the River Cities Alliance. This includes Sahibganj, Rajmahal, Chas, Jamshedpur, Deoghar, Mango, Ranchi, Giridih, Adityapur, Medininagar, Dhanbad, Jugsalai, Chirkunda and Phusro.

There are 14 cities in Jharkhand which are the members of River Cities Alliance (RCA)

S.No.	Town	ULB	Category	Main River
1	Adityapur	Adityapur Municipal Corporation	Municipal Corporation	Kharkai
2	Chas	Chas Municipal Corporation	Municipal Corporation	Bhima
3	Chirkunda	Chirkunda Municipal Council	Municipal Council	Barakar
4	Deoghar	Deoghar Municipal Corporation	Municipal Corporation	Mayurakshi
5	Dhanbad	Dhanbad Municipal Corporation	Municipal Corporation	Damodar
6	Giridih	Giridih Municipal Corporation	Municipal Corporation	Ushri
7	Jamshedpur	Jamshedpur Municipality/NAC	NAC	Subarnarekha
8	Jugsalai	Jugsalai Municipal Council	Municipal Council	Kharkhai
9	Mango	Mango Municipal Corporation	Municipal Corporation	Subarnarekha
10	Medininagar	Medininagar Municipal Corporation	Municipal Corporation	Koel
11	Phusro	Phusro Municipal Council	Municipal Council	Damodar
12	Rajmahal	Rajmahal Nagar Panchayat	Nagar Panchayat	Ganga
13	Ranchi	Ranchi Municipal Corporation	Municipal Corporation	Subarnarekha
14	Sahibganj	Sahibganj Municipal Council	Municipal Council	Ganga

A two day training program “Managing Urban Rivers – From Planning to Practice” has been conceptualized to orient the member cities on the unique framework “Urban River Management Plan (URMP) framework jointly developed by NIUA and NMCG. The URMP Framework essentially requires all river cities to plan and implement their actions under a ten-point agenda to ensure that the cities act as inter-related operational units working towards a common vision for the river.

The training program scheduled at Ranchi from 29th February to 1st March, 2024 is aimed at orienting the river cities of Jharkhand on the URMP framework and other aspects associated with managing the rivers within their administrative boundaries. The expected outcome of the training is that officials take Back River sensitive aspects to be included as part of their urban planning agenda. NMCG-NIUA would be supporting five cities in Jharkhand in preparing their URMPs – these are Adityapur, Ranchi, Giridih, Dhanbad and Medininagar.



Figure 137 14 ULBs and RCA Team in Jharkhand State to attend the RCA Workshop

14.4.6 State Ganga Committee

State Ganga Rejuvenation, Protection & Management Committee of Jharkhand has been notified as an Authority vide Gazette Notification dated: 07.04.2017 of Ministry of Jal Shakti, Govt. of India.

14.4.7 District Ganga Committee

In Jharkhand, the District Ganga Committees have been formed in 4 Districts vide Gazette notification and National Mission for Clean Ganga, New Delhi vide D.O. letter dated: 7th April, 2022 has apprised all the DGCs conduct their Monthly, Mandated, Minuted, Monitored meeting on every 2nd Friday of the month under chairmanship of District Magistrate to overview the status of Namami Gange programme in the District. The current status of all the DGCs minutes of meeting uploaded over GDPMS portal during Financial Year 2023-24 is as below:

Table 25 The summary of District Ganga Committee notified under the Chairmanship of District Magistrates is given below

Attributes	Numbers
Total No. of DGCs constituted and notified	4
Total number of meetings held by DGCs during 2023-24	25

14.4.8 List of Event/IEC Activities-2023-24 Organized by SPMG Jharkhand

State Mission for Clean Ganga (SMCG), Jharkhand organized Communication and Public Outreach Activities (which is also known as Information, Education and Communication/IEC) under Namami Gange to spread awareness to people of five district namely; Sahibganj (Ganga town), Dhanbad, Bokaro, Ramgarh (Ganga tributary Damodar town) and Ranchi (the capital of the state, Jharkhand) for conservation of River Ganga, its tributary; Damodar, Local rivers, Water sources, biodiversity, forest, wetland etc..

SMCG, organized couple of activities throughout the year for mass awareness. Special focus was on the students of schools and colleges, youth, women, people living near Ganga/Damodar Bank.

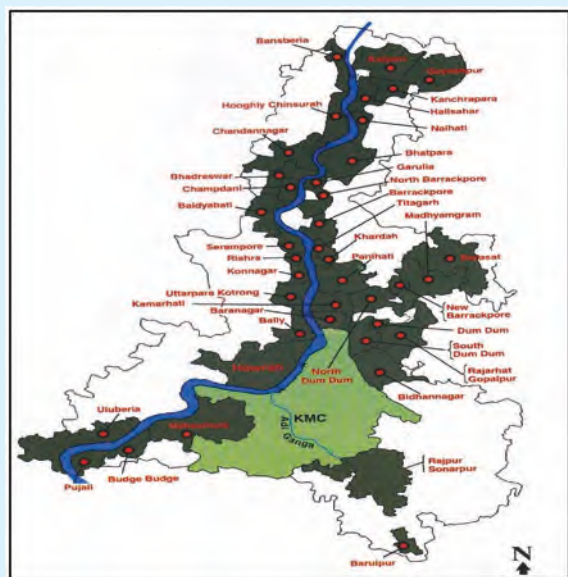


Figure 138 Glimpses of IEC Activities conducted during 2023-2024

14.5 SPMG West Bengal

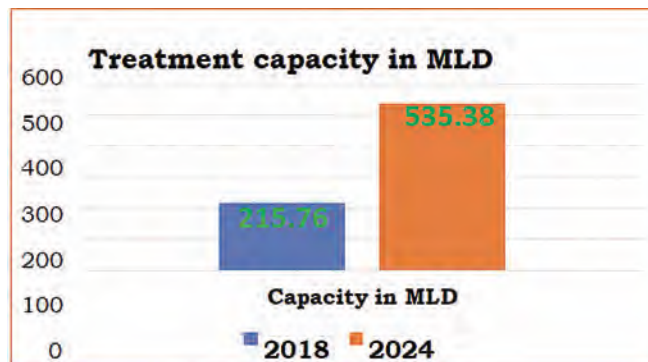
In the State of West Bengal, 43 towns along both sides of the bank of river Ganga were chosen and identified to be the towns/ ULBs for implementation of different schemes and program. These 43 towns were divided among the following Executing Agencies for execution of the projects-

1. Kolkata Metropolitan Development Authority (KMDA)
2. Kolkata Municipal Corporation (KMC)
3. Municipal Engineering Directorate (MED)



14.5.1 Achievement towards completion of Sewage Treatment Plants (STPs) over last Six (6) years

Over last six years, West Bengal has been successful in completing and commissioning Twenty (20) STPs and increased the treatment capacity by 319.62 MLD and this has resulted in successful reduction of BOD in river Ganga. Diagram showing progress in completion of Sewage Treatment Plant as well as enhancement in the Sewage Treatment Capacity over last 6 years (2018 – 2024)



a. Status of Projects- Ongoing

i. STP at Hooghly-Chinsurah Municipal Area Hooghly District with the capacity of 26.5 MLD:

Development of Interception and Diversion with Network and STP with Waste Water Treatment Facility on a “Design-Build-Operation-Transfer (DBOT)” Model for **Hooghly- Chinsurah Municipal Area** Hooghly District, West Bengal with 15 years of Operation & Maintenance under Namami Gange Programme (NMCG) is under progress; Partial Commissioning of the STP with 8 MLD flow will be done soon.



Figure 139 STP at Hooghly-Chinsurah Municipal Area

ii. STP at Maheshtala Municipality in the State of West Bengal with the capacity of 35 MLD:

Pollution Abatement Interception and Diversion with network and STP Works for River Ganga at **Maheshtala Municipal** Townin the State of West Bengal including 15 years of Operation & Maintenance under Hybrid Annuity based PPP Mode with capacity of 35 MLD is under progress. Overall physical progress of the project as on March, 2024 is 66.65%.



Figure 140 STP at Maheshtala Municipality

iii. STPs at Howrah, Bally and Kamarhati & Baranagar Under HAM mode with capacity of 65 MLD, 62 MLD and 60 MLD respectively:

Pollution Abatement Works for River Ganga at **Howrah, Bally and Kamarhati & Baranagar** Under Hybrid Annuity Model (HAM) with capacity of 65 MLD, 40 MLD and 60 MLD respectively having total cost of ₹595.72 Core are in progress. Start date of the project is March 2021; Hon’ble Prime Minister has inaugurated the project on 01.03.2024.



Figure 141 STPs at Howrah, Bally and Kamarhati & Baranagar

iv. **Berhampore STP with the capacity of 3.5 MLD:**

Development of I&D with Network and Waste Water Treatment facility on a “Design- Build- Operation-Transfer” (DBOT) Model for **Berhampore Municipal Town** with 15 Years of Maintenance is under Progress. Start date of the project is February 2020, Overall physical progress of the project as on March, 2024 is 55.30%. Extension of Time (EoT) of the STP project has been recommended till September- 2024, which is under examination of NMCG.



Figure 142 Berhampore STP

v. **Jangipur & Raghunathganj STPs with the capacity of 8 MLD & 5 MLD respectively:**

Development of Interception and Diversion with Network and Waste Water Treatment facility on a “Design-Build-Operation-Transfer” (DBOT) Model for **Jangipur & Raghunathganj Municipal Town** with 15 Years of Maintenance is under Progress. Start date of the project is February 2020; Overall physical progress of the project as on March, 2024 is 60.95%. Extension of Time (EoT) of the STP project has been recommended till September- 2024, which is under examination of NMCG.



Figure 143 Jangipur & Raghunathganj STPs

vi. **STP at North Barrackpore Municipality in the State of West Bengal with the capacity of 30 MLD at Babanpur and 8 MLD STP at Monirampur:**

Pollution Abatement Interception and Diversion with network and STP Works for River Ganga at Babanpur in North Barrackpore Municipal Town in the State of West Bengal including 15 years of Operation & Maintenance under Hybrid Annuity based PPP Mode with capacity of 30 MLD under in progress. Start date of the project is October 2023; Overall physical progress of the project as on March, 2024 is 25%. Date of completion of the Project is October 2025 (Including Trial Run).



Figure 144 STP at North Barrackpore Municipality

vii. **STP at Chakdah Municipal Town (15 MLD):**

Pollution Abatement Interception and Diversion with network and STP Works for River Ganga at Chakdah **Municipal** Town in the State of West Bengal including 15 years of Operation & Maintenance under DBOT Mode with capacity of 15 MLD has started w.e.f March, 2024;

a. **Status of Projects- Upcoming STP Projects**

- i. Pollution Abatement Works for River Ganga at Kolkata Municipal Corporation (Rehabilitation of existing 50 MLD STP at Keorapukur and other allied works at Kolkata).
- ii. Pollution Abatement & Rejuvenation of River (Adi Ganga 25.1 MLD), Kolkata, West Bengal (under Namami Gange Programme).

- iii. Pollution Abatement Works for River Ganga at Kolkata (Garden Reach) municipality (Interception & Diversion with STP) under Hybrid Annuity based PPP mode (65 MLD).
- iv. Pollution Abatement Interception and Diversion with network and STP Works for River Ganga in at Krishnanagar Municipal Town (14 MLD).

b. Upcoming FSTP Projects

- i. FSTP at Burdwan Municipal Area.
- ii. FSTP at Bansberia Municipal Area.

14.5.2 Ghat Development Work: Ongoing

Ghat Development of Prabhupada Ghat at Heritage city of ISKCON at Mayapur is under construction. Overall physical progress of the project as on March, 2024 is 68.2%



Figure 145 Prabhupada Ghat at Heritage city of ISKCON

14.5.3 Crematoria Projects

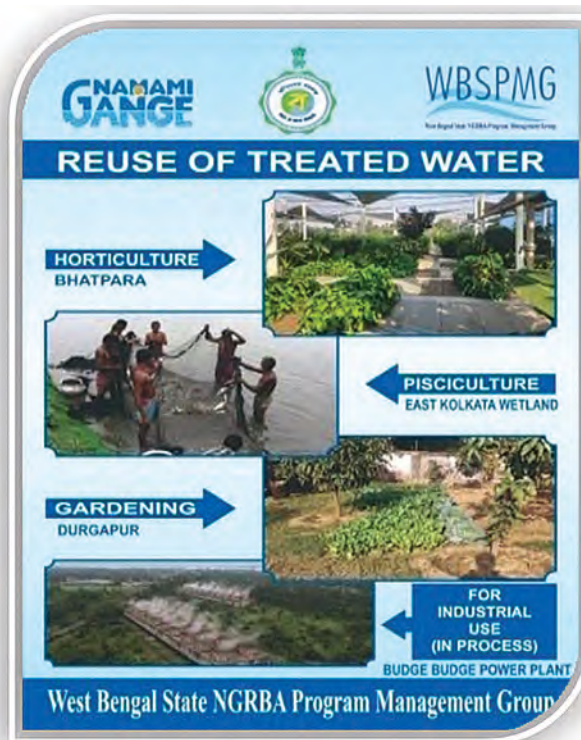
- New Electric Crematorium at Kalyani, Nadia is under progress. Overall physical progress of the project as on March, 2024 is 20.5% - **Ongoing**
- Construction of New Electric Crematorium at Kaliganj, Murshiabab, and at Barrackpore, West Bengal is under progress. - **Under Progress**
- Electric Crematorium at Garulia, Santipur & Chakdah - **Upcoming**

14.5.4 Re-use of Treated Waste Water

- Department of UD & MA, Govt. of West Bengal has framed a Policy on Re- use of Treated Waste Water in Urban Areas & has notified it on June 2020.
- Presently, state is utilizing Treated Waste Water in Pisciculture (Durgapur, East Kolkata Wetland, Nabadwip and Murshidabad), Gardening (Durgapur, Halisahar), Road Cleaning (New Kolkata Development Authority).
- EKW is an internationally recognized natural STP treating 910 MLD domestic Sewage which is then re-use for Pisciculture.
- DVC has mapped proposed STPs at Asansol & Durgapur for re-use of Treated Waste Water in their

Durgapur Steel Thermal Power Station (DSTPS)

- Presently 10% - 20% of the Treated Waste Water is being reused for various purposes in the state.



14.5.5 Display of Design Parameters

In all the existing STPs, WBSPMG has displayed the Design Parameters.

These Design Parameters are getting integrated in the Paribesh App of WBPCB so that the real time water quality data and the Compliance status are instantly visible online.

14.5.6 River Cities Alliance (RCA)

There are 33 cities which are the members of River Cities Alliance (RCA)

S.No.	Town	ULB	Category	Main River
1	Asansol	Asansol Municipal Corporation	Municipal Corporation	Damodar
2	Bally	Bally Municipal Council	Municipal Council	Hooghly
3	Balurghat	Balurghat Municipal Council	Municipal Council	Atrai
4	Baranagar	Baranagar Municipal Council	Municipal Council	Hooghly
5	Barddhaman	Barddhaman Municipal Council	Municipal Council	Damodar
6	Basirhat	Basirhat Municipal Council	Municipal Council	Ichamati
7	Benrampore	Berhampore Municipal Council	Municipal Council	Hooghly
8	Bhatpara	Bhatpara Municipal Council	Municipal Council	Hooghly
9	Bidhannagar	Bidhannagar Municipal Corporation	Municipal Corporation	Hooghly
10	Bongaon	Bongaon Municipal Council	Municipal Council	Ichamati

S.No.	Town	ULB	Category	Main River
11	Chandannagar	Chandannagar Municipal Corporation	Municipal Corporation	Hooghly
12	Cooch Behar	Cooch Behar Municipal Council	Municipal Council	Shil Torsa
13	Dum Dum	Dum Dum Municipal Council	Municipal Council	Hooghly
14	Durgapur	Durgapur Municipal Corporation	Municipal Corporation	Damodar
15	Haldia	Haldia Municipal Council	Municipal Council	Hooghly
16	Halisahar	Halisahar Municipal Council	Municipal Council	Bhagirathi
17	Hoogly Chinchurah	Hooghly Chinsurah Municipal Council	Municipal Council	Hooghly
18	Howrah	Howrah Municipal Corporation	Municipal Corporation	Hooghly
19	Jalpaiguri	Jalpaiguri Municipal Council	Municipal Council	Teesta
20	Jangipur	Jangipur Municipal Council	Municipal Council	Padma
21	Kalyani	Kalyani Municipal Council	Municipal Council	Hooghly
22	Kamarhati	Kamarhati Municipal Council	Municipal Council	Hooghly
23	Kanchrapara	Kanchrapara Municipal Council	Municipal Council	Hooghly
24	Madhyamgram	Madhyamgram Municipal Council	Municipal Council	Noai
25	Maheshtala	Maheshtala Municipal Council	Municipal Council	Hooghly
26	Midnapore	Midnapore Municipal Council	Municipal Council	Kansabati
27	Nabadwip	Nabadwip Municipal Corporation	Municipal Corporation	Hooghly
28	Naihati	Naihati Municipal Council	Municipal Council	Hooghly
29	Panihati	Panihati Municipal Council	Municipal Council	Hooghly
30	Panskura	Panskura Municipal Council	Municipal Council	Kansabati
31	Siliguri	Siliguri Municipal Corporation	Municipal Corporation	Mahananda
32	Uluberia	Uluberia Municipal Council	Municipal Council	Hooghly
33	Uttarpara Kotrung	Uttarpara Kotrung Municipal Council	Municipal Council	Hooghly

14.5.7 State Ganga Committee

State Ganga Rejuvenation, Protection & Management Committee of Uttarakhand (Uttarakhand State Ganga Committee) has been notified as an Authority vide Gazette Notification dated: 12.09.2017 of Ministry of Jal Shakti, Govt. of India.

14.5.8 District Ganga Committee

In West Bengal, the District Ganga Committees have been formed in 9 Districts vide Gazette notification and National Mission for Clean Ganga, New Delhi vide D.O. letter dated: 7th April, 2022 has apprised all the DGCs conduct their Monthly, Mandated, Minuted, Monitored meeting on every 2nd Friday of the month

under chairmanship of District Magistrate to overview the status of Namami Gange programme in the District. The current status of all the DGCs minutes of meeting uploaded over GDPMS portal during Financial Year 2023-24 is as below:

Table 26 The summary of District Ganga Committee notified under the Chairmanship of District Magistrates is given below

Attributes	Numbers
Total No. of DGCs constituted and notified	9
Total number of meetings held by DGCs during 2023-24	40

14.5.9 List of Event/IEC Activities-2023-24 Organized by SPMG West Bengal



Figure 146 Glimpses of IEC Activities conducted during 2023-2024



Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development and Ganga Rejuvenation
National Mission for Clean Ganga
New Delhi