

Institutional Development of NMCG



Part A: Strategic Framework Including a Proposed Organigram

Part B: Guidance Documents (GDs) for River Basin Management Planning and Implementation

Imprint

Published by the

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices

Bonn and Eschborn, Germany

Responsible

Martina Burkard
Support to Ganga Rejuvenation (SGR)
B-5/1, Safdarjung Enclave
New Delhi 110029, India
Phone +91 49495353
Fax +91 49495391
Martina.Burkard@giz.de
www.giz.de/India

As at

July 2023

Authors

Burkard Martina, Hoda Ziaul, Gautam Sumit Kumar (Dr.), Kaur Harneet, Mishra Rajiv Ranjan, Nag Nayantara,
Neun Hansjörg (Dr.), Rao Deep, Sahdev Gaurav, Sinha Sudeep Kumar, Whalley Peter D (Dr.)

In consultation with



Design

Shubhangi Choudhary
Key and Blanc, Bengaluru

GIZ is responsible for the content of this publication.

On behalf of the

German Federal Ministry for Economic Cooperation and
Development (BMZ)

Table of Content

Executive Summary		9
<hr/>		
1. Introduction and Context	1.1 National Mission for Clean Ganga (NMCG)	16
	1.2 Institutional Development Need	16
	1.3 Indo-German technical cooperation “Support to Ganga Rejuvenation”	17
	1.4 Scope of the Consulting Services	17
	1.5 Methodology	18
<hr/>		
2. Analysis and Findings	2.1 NMCG Mandate, Role, Evolution, and Future Orientation	22
	2.1.1 Background and Context	22
	2.1.2 Authority Order (AO) 2016 – A Strong Basis for NMCG Functioning	25
	2.1.3 Legal Standing of NMCG	28
	2.2 Evolution of the Organisation Structure of NMCG	34
	2.3 Interfaces with Other Organisations	37
	2.3.1 Central Pollution Control Board (CPCB)	38
	2.3.2 Central Water Commission (CWC)	40
	2.3.3 Ministry of Housing and Urban Affairs (MoHUA)	42
	2.3.4 Central Ground Water Board (CGWB)	43
	2.3.5 Inland Waterways Authority of India (IWAI)	44
	2.3.6 State Missions for Clean Ganga (SMCG)	45
	2.3.7 District Ganga Committees (DGCs)	45
	2.4 Summary and Conclusions	46
<hr/>		
3. Inferences from International RBOs	Inferences from International RBOs	47
	3.1 International RBO Examples	49
	3.1.1 Example 1: International Commission for the Protection of the Danube River (ICPDR)	49
	3.1.2 Example 2: International Commission for the Protection of the Rhine (ICPR)	50
	3.1.3 Example 3: Lake Chad Basin Commission (LCBC)	52
	3.2 Key Observations from International RBOs	53
	3.3 NMCG vis-à-vis Other RBOs	55

	3.4 Summary and Conclusions	59
<hr/>		
4. Recommendation: NMCG's Proposed New Organisational Structure	4.1 NMCG's Organisational Structure Framework	60
	4.2 Interface with Key Stakeholders	66
	4.3 Key Observations and Recommendations from SMCGs and DGCs	67
<hr/>		
5. Guidance Documents	5.1 Guidance Document (GD) on the Establishment of a RBM Unit	69
	5.2 Guidance Document on the Formation of Thematic Expert Groups (TEGs)	69
	5.3 Guidance Document on Stakeholder Engagement and Participation	70
<hr/>		
6. Next Steps		71
<hr/>		
Annex 1: Bibliography		72
Annex 2-A: List of Stakeholder Consulted		73
Annex 2-B: Example of Guideline Questionnaire		76
Annex 3: Approach and Methodology Towards Development of Strategy Framework		78
Annex 4: Organisational Structure Framework		81

Tables

Table 1	Some specific paragraphs of AO 2016 which reflect the broad mandate of NMCG regarding RBM	26
Table 2	Comparison between selected international RBOs and AO 2016	56
Table 3	Some of the key aspects on SMCGs which need further deliberations	67
Table 4	Some of the key aspects on DGCs which need further deliberations	68

List of Figures

Figure 1	Proposed NMCG organisation structure	14
Figure 2	Overview of the Consultant's key activities for carrying out the Services	19
Figure 3	The current organisational structure of NMCG	35
Figure 4	Indian Water-related ministries, institutions, organisations, and committees	37
Figure 5	NMCG vis a vis other departments - overlap in responsibilities	42
Figure 6	Major river basins of the world	47
Figure 7	ICPDR organisational chart	50
Figure 8	ICPR organisational chart	51
Figure 9	Lake Chad Basin Commission organisational structure	52
Figure 10	Graphic summary of the proposed NMCG organisational structure	64

Abbreviations

AHT	AHT GROUP GmbH	GoI	Government of India
AMU	Aligarh Muslim University	GPI	Grossly Polluting Industry
AO	Rejuvenation, Protection and Management Authorities Order, 2016.	GRBMP	Ganga River Basin Management Plan
Para.	Paragraph	HoD	Head of Department
BMZ	German Federal Ministry of Economic Cooperation and Development	ICPDR	International Commission for the Protection of the Danube River
CEPT	Common Effluent Treatment Plants	ICPR	International Commission for the Protection of the Rhine
CGWB	Central Ground Water Board	IEWP	Indo-EU Water Partnership
CPCB	Central Pollution Control Board	IIT	Indian Institute of Technology
CPRI	Central Pollution Control Board	INR	Indian Rupees
CPPRI	Central Pulp and Paper Research Institute	IWAI	Inland Waterways Authority of India
CSR	Corporate Social Responsibilities	IWAI Act	Inland Waterways Authority of India Act
CWC	Central Water Commission	IWG	Institutional Development Working Group
DG	Director General	JICA	Japan International Cooperation Agency
DGC	District Ganga Committee	JMI	Jamia Millia Islamia University
EC	Executive Council	KM	Knowledge Management
ED	Executive Director	LCBC	Lake Chad Basin Commission
E-Flows	Environmental Flows / Ecological Flows	M&E	Monitoring and Evaluation
EG	Expert Group	MoEF&CC	Ministry of Environment, Forest and Climate Change
EPA 1986	Environmental Protection Act 1986	MoHUA	Ministry of Housing and Urban Affairs
EU	European Union	MoJS	Ministry of Jal Shakti
GC	Governing Council	MoM	Minutes of Meeting
GD	Guidance Document	MoWR, RD&GR	Ministry of Water Resources, River Development and Ganga Rejuvenation
GIS	Geographical Information System	NGC	National Ganga Council
GIZ	German Development Cooperation		

Abbreviations

NGO	Non-Governmental Organisation	UDD	Urban Development Department
NLC	National Legal Consultant	UJS	Uttarakhand Jal Sansthan
NGRBA	National Ganga River Basin Authority	UK	Uttarakhand
NGT	National Green Tribunal	ULB	Urban Local Bodies
NHAI	National Highways Authority of India	UP	Uttar Pradesh
NIT	National Institute of Technology	UPJN	Uttarakhand Pey Jal Nigam
NMCG	National Mission for Clean Ganga	WB	World Bank
PIAS	Pollution Inventorisation, Assessment and Surveillance	WQM	Water Quality Management
PMU	Project Management Unit	ZBNF	Zero Budget Natural Farming
PoMs	Programme of Measures		
RBM	River Basin Management		
RBMP	River Basin Management Plan		
RBO	River Basin Organisation		
RGMC	River Ganga Management Committees		
SER	Strengthening of Environmental Regulators		
SDG	Sustainable Development Goals		
SGR	Support to Ganga Rejuvenation Project		
SMCG	State Mission for Clean Ganga		
SOP	Standard Operating Processes		
SPMG	State Project Management Group		
STP	Sewage Treatment Plant		
TC	Technical Cooperation		
TDD	Technical Discussion Document		
TEG	Thematic Expert Group		
ToR	Terms of Reference		

Executive Summary

The River Ganga has a significant economic, environmental, cultural and religious value in India. Ganga Basin is spread to 26% of India's land mass, is home for 43% of India's population and contributes 40% of India's GDP. As experienced in other basins of the world, managing a river basin of this size and importance is a continuous task and requires the commitment of the government as well as presence of a strong institution with the longterm task of managing the basin in an integrated manner, ready to take up the new challenges and being able to adapt its structure accordingly.

The Government of India (GoI) realises that the achievement of India's development agenda which is aligned with the Sustainable Development Goals (SDGs) is closely associated with the holistic management of Ganga River Basin. Recognising the non-negotiable importance of this basin in India's development journey, it is indeed required that the entire basin is managed in an integrated manner with a futuristic and sustainable vision.

Striving towards this, the Government of India declared the River Ganga as a National River in 2008. In 2014, the Government of India (GoI) launched the Namami Gange Programme with a budget of INR 20,000 Crores to rejuvenate Ganga through a holistic and integrated strategic approach addressing the entire river basin.

The Namami Gange Programme builds on and takes forward the National Ganga River Basin Authority (NGRBA) constituted in 2009 with the objective 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. This approach was also the basis for the comprehensive Ganga River Basin Management Plan (GRBMP) prepared by a consortium of seven Indian Institutes of Technology (IITs) from 2010 to 2015. GRBMP is a strategic document looking at the restoration of the wholesomeness of the Ganga ecosystem and improvement of its ecological health. The National Mission for Clean Ganga (NMCG) was set up in 2011 as an implementing arm of NGRBA to take up the execution of projects then supported by the World Bank.

In 2014, after launch of Namami Gange, NMCG continued to be the implementing agency for this integrated and comprehensive programme, which brought under one umbrella various action plans in existence for different rivers in the Ganga Basin. With an assured funding for five years, the mission was structured as a multi-sectoral programme and finally approved by Union Cabinet in 2015. Aiming to empower NMCG for effective implementation, River Ganga (Rejuvenation, Protection and Management) Authorities Order was issued in 2016 (AO 2016) by the Central Government through the erstwhile Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD & GR), GoI (now, Ministry of Jal Shakti, MoJS, GoI).

The Namami Gange Programme was launched in 2014 as a holistic and integrated strategic approach to rejuvenate River Ganga and its tributaries

Namami Gange builds on the basin approach adopted under the National Ganga River Basin Authority in 2009 and also applied in the development of the Ganga River Basin Management Plan.

National Mission for Clean Ganga is the implementing authority of Namami Gange programme given significant power under the "River Ganga (Rejuvenation, Protection and Management) Authorities Order" issued in 2016

Since then NMCG has seen a significant change in its leadership structure as well as an expansion of its mandate, role and activities. The delegation of sanctioning authority along with other supporting provisions enabled completion of a large number of infrastructure projects.

Additional areas of interventions for improving ecology and flow such as wetlands, biodiversity conservation, afforestation, promotion of natural farming, etc have been taken up with concerted efforts for public awareness. The Mission has seen several national and international recognitions, the latest being the United Nations (UN), in 2022, declaring Namami Gange as one of the top 10 World Restoration Flagships to revive the natural world.

However, even as the scope and scale of activities of NMCG have enhanced significantly over the years, the organisational structure of NMCG has not undergone much change largely remaining a project oriented organisation. The existing structure does not have an adequate mechanism for effectively performing the enhanced regulatory role and basin management functions. Introducing such mechanisms could be in charge of monitoring of pollution abatement, regulation of ecological flow, activities in the floodplains, etc. and development, implementation and monitoring of River Basin Management Plans for River Ganga and its tributaries. At present, NMCG has attempted to deliver these functions partly through short term consultancies/deputations whereas the very nature of such functions is long term. NMCG understands the need for institutional strengthening to permanently integrate the comprehensive basin management functions in its organisational structure in order to effectively fulfill its mandate under AO 2016.

NMCG recognizes the need of institutional strengthening for performing its basin management role as mandated by AO 2016

In this context NMCG requested advice of the Indo-German Technical Cooperation project "Support to Ganga Rejuvenation (SGR)" in the institutional development of NMCG. The SGR project is implemented by German Technical Cooperation (GIZ) on behalf of the German Federal Ministry of Economic Cooperation and Development to support responsible stakeholders at national level, particularly the National Mission for Clean Ganga (NMCG) as well as in selected states and districts in the application of integrated holistic approaches to River Basin Management (RBM) taking European Union and other international methods and experience into account with suitable adaptation to Indian condition.

As a part of the cooperation programme, a consulting team from AHT GROUP GmbH (lead firm) and Deloitte Touche Tohmatsu India LLP (sub-contractor) (hereinafter referred to as "the Consultant" or "study team") was assembled comprising of international and national experts. The scope of work included:

1. Understand the current functioning of the NMCG, State Missions for Clean Ganga (SMCGs) and District Ganga Committees (DGCs) and the perceived challenges to realise the aspirations of the Authority Order (AO) 2016, and subsequently give recommendations for strengthening the institution and develop a new organogram of the NMCG.
2. To develop three Standard Operating Processes (SOPs) understood as Guidance Documents in respect of certain aspects being identified as important for planning, implementation, and monitoring for integrated River Basin Management (RBM) within the scope of the developed organisational structure.

To understand and analyse the over-arching role of NMCG, the Consultant conducted extensive secondary research on NMCG and its activities. The team also carried out a detailed review of the institutional mechanisms of international River Basin Organisations (RBOs). The Consultant together with GIZ organised a series of consultations including interviews of Secretary/Ministry of Jal Shakti (MoJS), officials from NMCG, the Institutional Development Working Group (IWG comprising of NMCG, GIZ, World Bank and ASCI), the Central Water Commission (CWC), the Central Groundwater Board (CGWB), Niti Ayog, the Central Pollution Control Board (CPCB) at national level and SMCGs and relevant institutes including DGCs in the state of Uttarakhand and Uttar Pradesh. These consultations were held in various formats (face-to-face as well as virtual).

In July 2022, the Consultant organised a mission with face-to-face meetings in Delhi to share the findings, present and discuss the options for a new organogram summarised in the first draft strategy paper and solicit their inputs to develop and finalise the same. Consultations were held with the former DG, NMCG, the current DG, NMCG, Executive Directors (EDs) of NMCG, representatives from State and District level stakeholders, the NMCG-IWG, multi-stakeholders' representatives from national organisations together with NMCG and finally a retreat with NMCG's senior leadership, representatives from the German Embassy, GIZ and the consultants on 15 July 2022 in Manesar.

Thereafter, in January 2023, Trilegal was engaged as the National Legal Consultant (NLC) by NMCG to undertake a comprehensive institutional assessment study of the legal framework. As part of its scope of work, the NLC analyzed the applicable legal regime including the AO 2016, prevalent and past legislation pertaining to the Ganga Basin planning and management, and potential conflicts which may emerge when NMCG takes steps to realize the mandate of the AO 2016. After meetings and discussion with the GIZ and NMCG, the NLC has provided its inputs on the present Strategic Framework Document on the NMCG's legal standing and the interaction of its powers/ functions with other statutory authorities.

All of the above exercises led to develop and finalise the Strategic Framework Document at hand explaining the way forward for NMCG for further strengthening its position as RBO and realise the mandate given in AO 2016. The Strategic Framework Document also includes options for new organisational structure for NMCG derived from international good practices and findings of consultations as well as the preferred option in more detail. This Final Strategic Framework Document incorporates feedback from the NMCG, NMCG-IWG, findings of the mission to New Delhi as well as deliberations made by the NMCG senior leadership retreat. In October 2023, there was a second retreat held at Manesar which was attended by senior management of NMCG- the Director General, Deputy Director General, ED Finance, Advisor, World Bank representatives, GIZ representatives and consultants from AHT, Deloitte and Trilegal.

Key Findings and Recommendations

A basin based approach was embedded right from the launch of the Namami Gange Mission as an integrated conservation mission for Ganga and its tributaries in 2014.

The Namami Gange Mission got final approval from Union Cabinet in 2015. The strategic vision and basin characterisation under the Ganga River Basin Management Plan (GRBMP) prepared by the consortium of IITs facilitated in shaping the comprehensive nature of the mission. Subsequently, the Authority Order (AO) 2016 by the Central Government through the erstwhile MoWR, RD & GR, GoI - now the MoJS, defines the role and responsibilities of major stakeholders, in particular outlining NMCG's mandate and overall responsibilities for shaping the policies and most of the activities for cleaning and rejuvenating the River Ganga.

The analysis of the AO 2016 shows that there are several opportunities which would further strengthen NMCG's presence in the sector including its core mandate in the preparation and/or updating of the River Basin Management Plan (RBMP)¹.

NMCG has been constituted as an authority under Sections 3(3) and 23 of the Environmental Protection Act (EPA) 1986. NMCG is the nodal agency for nationwide implementation of the provisions of the AO 2016 and for effective abatement of pollution and rejuvenation, protection and management of the River Ganga and its tributaries.

An analysis of the sector and feedback from stakeholders show that there are overlaps in responsibilities with other, mainly national stakeholders such as the Central Pollution Control Board (CPCB), the Central Water Commission (CWC), and the Central Groundwater Board (CGWB).

A basin based approach was embedded right from the launch of the Namami Gange Mission as an integrated conservation mission for Ganga and its tributaries in 2014.

The AO 2016 provides the basis for NMCG to shaping the policies and framework conditions for Ganga and its strong role in preparing RBM Plans

¹ RBMP would be understood throughout this document as River Basin Management Plans (RBMP) for Ganga and its sub-basin with a gender inclusive approach

There are also areas for further clarification in relation to sharing responsibilities with State and District institutions. While CPCB, CWC and CGWB have countrywide mandates in their specific areas, NMCG's mandate is focusing solely on River Ganga and its tributaries.

It is also clear from the AO 2016 that the scope and responsibilities of NMCG are broader than international basin organisations, many of which have been developed to act as secretariats to conventions or other agreements. Specifically, NMCG has extensive responsibility for implementing infrastructure projects whereas in case of those international RBOs, implementing projects are typically responding to donor funded initiatives. In an international basin, implementing measures (management actions) identified in RBMPs are the responsibility of countries within the international basin. Those who are involved in project implementation have more substantial staffing.

Furthermore, international RBOs are not mandated with regulatory tasks which is the mandate of specialised institutions in riparian member countries. NMCG has been mandated to undertake those regulatory functions by AO 2016. With regards to staffing it can be observed, that international RBOs would have more permanent staff rather than temporary and/or on deputation or short term contract basis as is the case with NMCG. Some voices have pointed out that there is a conflict of interest at NMCG between its role as project implementer and its attributed role as regulator.

To address the above observations, Senior Leadership from NMCG agreed on the strategic framework with following interventions on priority:

- River Basin Management Plans (RBMP) for Ganga and its sub-basins would form the basis of developing its activities; Unit should/will be established and lead this.
- There are important stakeholders at the National, State and District level which have significant skills and expertise with respect to River Basin Management. It is important to have a mechanism to co-opt their expertise in the functioning of the NMCG. Formation of Thematic Expert Groups will be of immense value to achieve this;
- Further strengthening and stakeholders' involvement at State and District levels to ensure stronger ownership and sustainability of NMCG's initiatives;
- Regrouping of functions at NMCG to better reflect the present and future role of NMCG is recommended;
- A clear internal separation of NMCG regulatory functions vis-a-vis the programme planning and implementation group is required.

Scope and responsibilities of NMCG are broader than international basin organisations.

RBMP will form the basis for NMCG's work supported by an RBM Unit and Thematic Expert Groups.

The proposed NMCG organisational structure is presented in a schematic below (Figure 1):

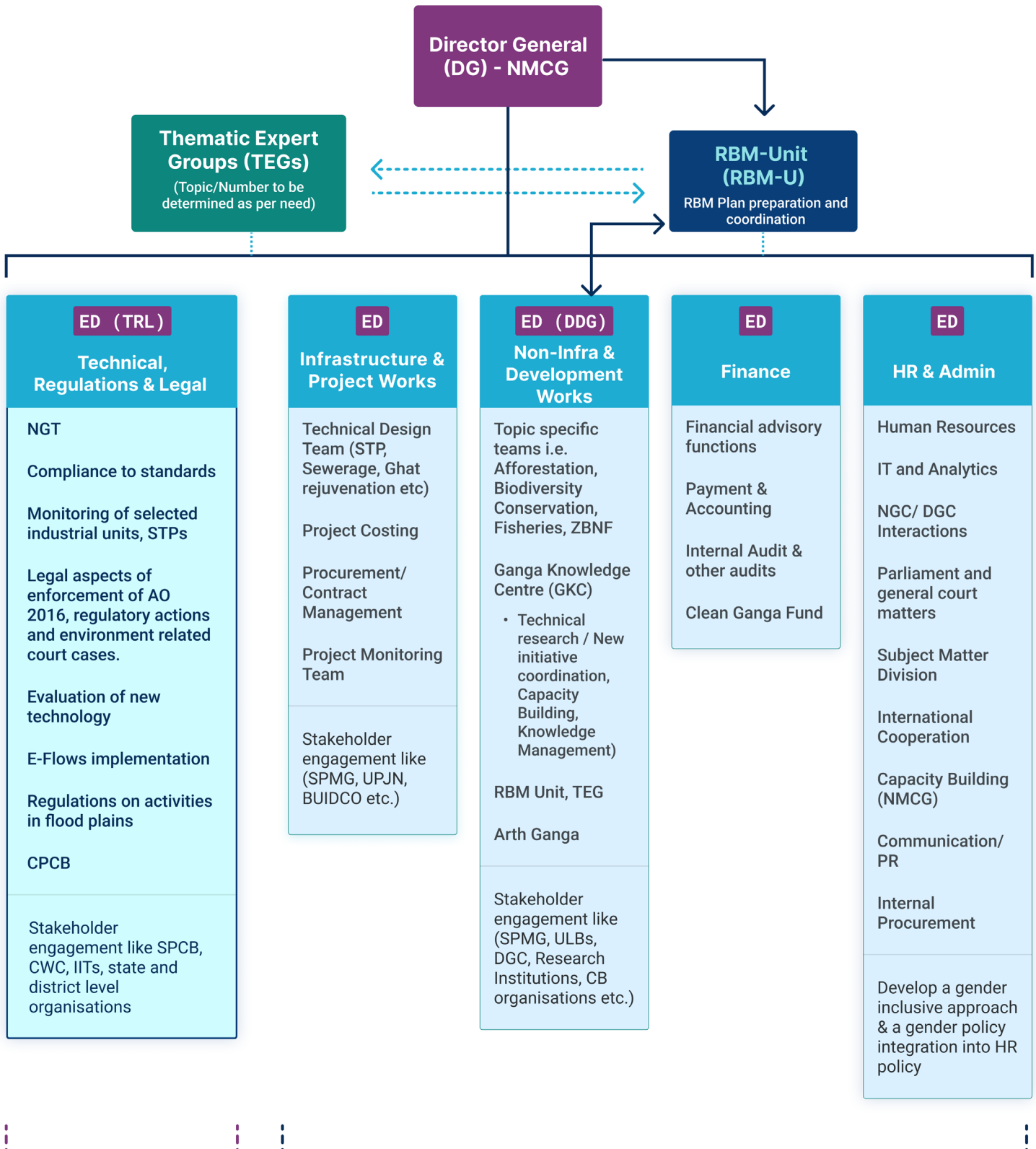


Figure 1: Proposed NMCG organisation structure

The key recommendations for strengthening of NMCG's proposed organisational structure are as follows:

- **Establishment of a River Basin Management Unit (RBM-U)**

To coordinate the activities of the River Basin Management Plan, NMCG is envisaged to create a RBM-U reporting to the DG's Office.

- **Establishment of Thematic Expert Groups (TEGs):**

Senior leadership from NMCG confirmed that the **RBM Unit would adopt a Thematic Expert Group (TEG) approach** to actively involve key partners (for example, CPCB, CWC, CGWB, etc.) and to maintain close cooperation with RBM approaches being developed at the State and District bodies.

- **Separation of regulatory functions from other functions within the NMCG organisation:**

A group for Technical, Regulatory and Legal functions is suggested to be set up. The group amongst other activities outlined in the organogram diagram, shall include a legal cell which would be responsible for managing legal aspects of enforcing AO 2016, regulatory actions and NGT litigations. The group shall be headed by the ED Technical.

- **Infrastructure and projects:**

A group for infrastructure and project works is envisaged to continue.

- **Non-Infrastructure development initiatives:**

A separate non-infrastructure group is proposed to be set up for handling programmatic interventions of afforestation, biodiversity conservation, gender issues etc. and cross cutting initiatives such as capacity building, knowledge management, technical-research coordination, new initiatives such as Arth Ganga and other emerging areas.

The Deputy Director General (DDG) is envisaged to lead the RBM Unit as well as the non-Infrastructure group.

- **Internal Services (Finance and HR & Admin):**

The internal services would comprise of finance, HR and administration groups as is the case presently. However, and taking into consideration that women are affected whenever they are not granted sufficient attention and engagement in water resources management, it is of utmost importance that NMCG HR would give more focus on gender aspects by introducing a gender policy and offering qualified female experts opportunities for postings in management and policy decision making positions.

1. Introduction and Context

In 2014, the Government of India (GoI) launched the Namami Gange Programme demonstrating the need for a holistic and integrated strategic approach addressing the entire river basin to achieve a cleaner Ganga.

1.1 National Mission for Clean Ganga (NMCG)

The National Mission for Clean Ganga (NMCG) was established in 2011 to implement the World Bank financed 'National Ganga River Basin Project' and to provide secretariat support to the National Ganga River Basin Authority. Over a period of time, it has emerged as the predominant institution coordinating all initiatives and stakeholders for cleaning and rejuvenating the River Ganga with an extremely wide array of responsibilities and tasks. The River Ganga (Rejuvenation, Protection and Management) Authorities Order notified in 2016 Authority Order/AO 2016 constituted NMCG as an authority under the EPA 1986, and defined the institutional framework and the main activities and responsibilities for NMCG as well as the State and District level institutions and other important stakeholder institutions involved in rejuvenation of the River Ganga.

1.2 Institutional Development Need

NMCG has evolved as a unique organisation in terms of the geographical spread as well as the diverse range of its activities. Even as the scope and scale of the activities of NMCG have enhanced significantly over the years, the organisational structure of NMCG has not changed significantly. While prioritising its attention on certain tasks, for example creation of sewerage infrastructure in first few years, it has also started expanding in other areas. Often the need to focus more on quantity and ecology in addition to cleaning has also been suggested in different review meetings. NMCG has started gaining experience with the implementation of E-Flows notification, flood plain demarcation etc. NMCG has also expanded its activities on ground through formation of District Ganga Committees (DGCs) in 139 districts going beyond the districts on the mainstem of Ganga. The need to carry out more activities beyond the five mainstem Ganga states, the increased mandate being given by the National Green Tribunal (NGT), expectation to provide leadership in certain matters beyond Ganga Basin etc. have also led to a realisation within the NMCG for strengthening the organisation for future challenges of enhanced scale and scope. This has triggered taking up a systematic exercise for further development of the institution and arrive at an appropriate organisation. This recognition by NMCG is also supported by various stakeholders with a common objective of NMCG fulfilling its mandate under AO 2016 for ensuring a healthy and thriving Ganga River Basin.

Given the scope of NMCG's work and its reach, NMCG leadership realised that the organisation is poised at a milestone where it needs a sustainable yet flexible institutional structure to cater the ever growing need to adapt its approach in view of emerging challenges. This futuristic approach of NMCG will apparently involve a more effective coordination and communication with various national and basin level stakeholders, leveraging their experience and expertise for the cause and collectively setting up a standardised and uniform strategy to realise the aspiration of AO 2016.

The River Basin Organisations worldwide have also undergone similar processes of evolution. Many of them have some similarities (as well as dissimilarities) with the NMCG. There are aspects of the structure and functioning of some of these RBOs which could provide useful and relevant inferences for the NMCG organisation.

It is with this perspective that this strategic framework carefully examines NMCG's current functioning, reviews the aspirations of AO 2016, and accordingly proposes an organigram for NMCG's institutional development which would enable NMCG to discharge its current and future functions through its strengthened and resilient institutional structure and processes as well as sharing of workload with other main stakeholders involved in Ganga River Basin Management.

1.3 Indo-German technical cooperation “Support to Ganga Rejuvenation”

This strategic document is developed under the Indo-German Technical Cooperation project “Support to Ganga Rejuvenation”. Indo-German Technical Cooperation on the Rejuvenation of the River Ganga started taking shape in the year 2014/2015, when the Government of India requested German support for the rejuvenation of Ganga River. During a visit to India, former German Chancellor Angela Merkel and Prime Minister Narendra Modi agreed to cooperate in this important initiative. Subsequently in 2015, the German Technical Cooperation (Deutsche Gesellschaft for Internationale Zusammenarbeit (GIZ) GmbH) was commissioned by the German Federal Ministry of Economic Cooperation and Development (BMZ) to implement the first phase of the Support to Ganga Rejuvenation (SGR) project. In 2020, the second phase of the SGR was launched. The SGR II Project is implemented in conjunction with the Development and Implementation Support to the India-EU Water Partnership, Phase II (IEWP Action, Phase II), jointly co-financed by the European Union (EU) and BMZ.

The Project's overall objective is to support responsible stakeholders at national level as well as in selected states and districts in the application of integrated approaches to River Basin Management (RBM) suitably taking European Union (EU) methods and experience appropriately into account and to facilitate cooperation between India and EU Member States on water-related issues.

1.4 Scope of the Consulting Services

The Consulting Services facilitate the Institutional Development Process of the NMCG taking the examples of European / International Good Practice in the Area of River Basin Organisation (RBO) into account and aim to support the NMCG to strengthen its efficiency as an RBO. To this end, AHT GROUP GmbH together with its sub-contractor Deloitte Touche Tohmatsu India LLP (hereinafter, jointly referred to as “the Consultant” or “study team”) have been contracted by GIZ to work towards the following two key deliverables:

- Develop the organisational structure of the NMCG in-line with the Authority Order 2016 and by taking into account European/ international RBOs' experiences, and
- Develop three Standard Operating Processes (SOPs) / Guidance Documents (GDs) with regard to planning, implementation, and monitoring for integrated RBM within the scope of the developed organisational structure.

One of the milestones necessary to achieve the Service's key deliverables is an outline of the "Strategic Framework for the Institutional Development of NMCG" which is the document at hand. GIZ also consulted with Trilegal, the NLC engaged by NMCG, who provided their inputs on the legal standing of NMCG and the interaction of its powers/ functions with other authorities.

The above two key deliverables of the study are compiled as Part A (Strategic Framework) and Part B (Guidance Documents).

1.5 Methodology

The Consultant's key activities under this assignment were to, together with GIZ, identify the relevant stakeholders to be involved in the Services, as well as identify and review important documents available on the institutional development of NMCG which are to be considered for the Services. Likewise, clarifying NMCG's vision of possible institutional changes in NMCG as an RBO and their expectations from the Services was another key activity. The Consultant's generic methodology is shown in a schematic form in Figure 2 below.

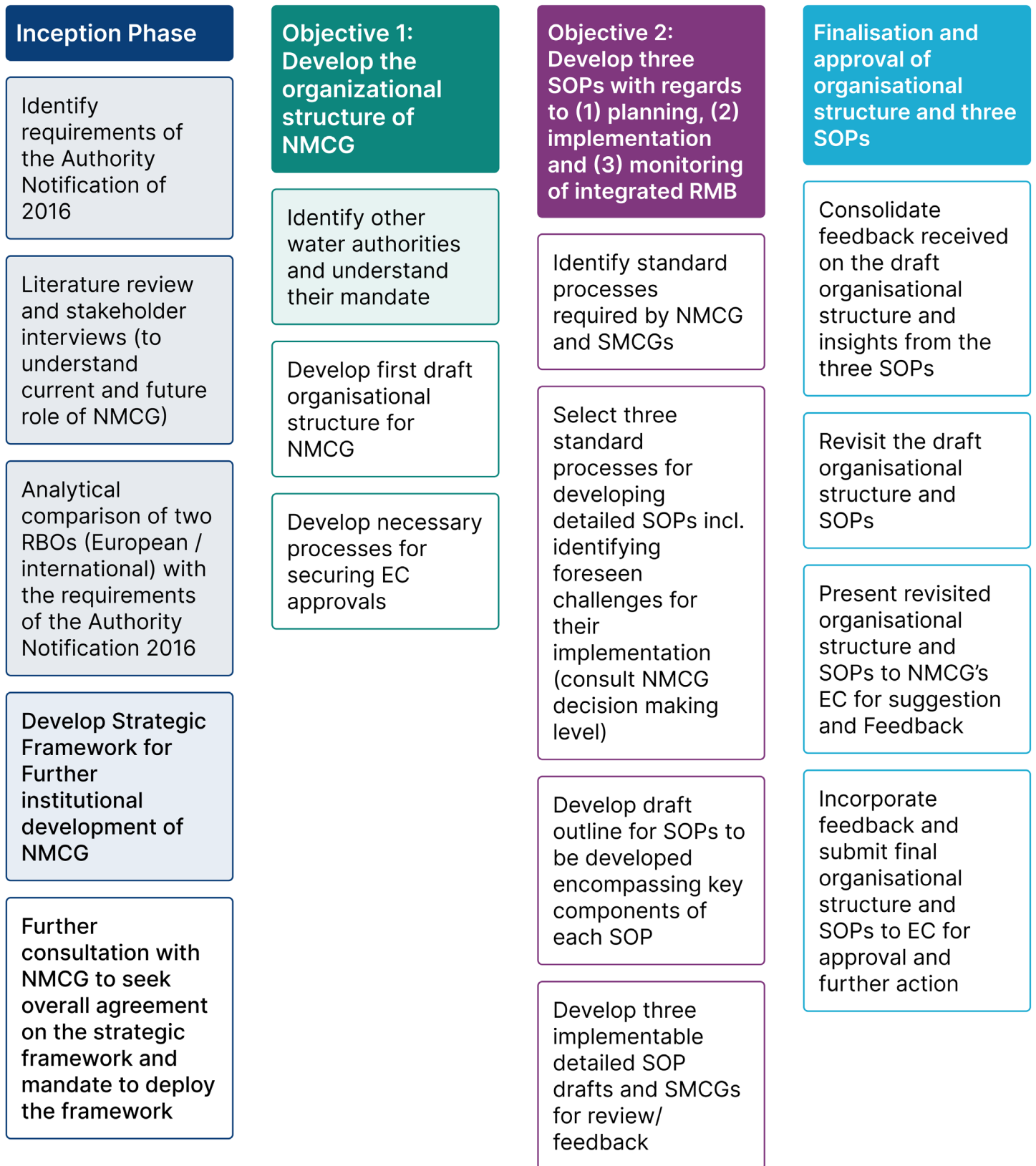


Figure 2: Overview of the Consultant's key activities for carrying out the Services

1.5.1 Document Review and Analysis

The Consultant reviewed several relevant key documents and websites of stakeholder organisations to derive relevant inferences for NMCG (see Annex 1: Bibliography).

1.5.2 Stakeholder Meetings

The Consultant carried out stakeholder consultations, over a four-month period, with

- Key NMCG officials, NMCG Institutional Development Working Group (IWG), selected National level organisations such as Central Water Commission (CWC), Central Pollution Control Board (CPCB), Central Ground Water Board (CGWB), NITI Ayog etc;
- State level organisations such as SMCG/SPMG, State Ground Water Department, Forest Department, Agriculture Department, State Pollution Control Board, Forest Department, Implementing agencies such as Jal Nigams and Jal Sansthan and state/regional offices of CWC and CGWB amongst others; and
- District level representatives of the District Ganga Committees (DGCs).

This was followed up by a week-long stakeholder consultations in New Delhi in July 2022, where there were separate workshop sessions with different categories of stakeholders to present the key findings and seek feedback. The culmination of the week-long meetings was a one-day retreat with the Senior leadership of NMCG including former DG of NMCG. This report incorporates the feedback received from stakeholder workshops and meetings as well as the retreat. The full list of meetings and an example of guideline questionnaire are presented in Annex 2-A: List of Stakeholder Consulted and Annex 2-B: Example of Guideline Questionnaire.

1.5.3 Need for gender inclusive approach

Gender equality refers to the equal rights, responsibilities and opportunities of women and men, transgender girls and boys. Inclusion means equal rights for all. Gender equality prevents violence against women and girls. It's essential for economic prosperity. Societies that value women and men as equal are safer and healthier. Gender equality is a human right. Women today are often excluded from water governance forums, organisations, decision-making opportunities, and practices, despite global initiatives such as the Dublin Principles, which call for the central role that women play in water management to be recognised, utilised, and valued.

Gender inclusion calls for 4 action areas which are

1. Institutional leadership and commitment -Make gender equality and inclusion core organisational goal
2. Gender and inclusion analysis that drives change – conduct gender inclusion analysis at all levels,

3. Meaningful and inclusive participation in decision making and partnerships – Adopt a “Nothing about them without them” approach
4. Equal access to and control of resources - Significant efforts are needed to ensure that access to and control of resources – both land and water– make ownership more inclusive.

As the above states the importance of the need for gender inclusive approach in water resources management/River Basin Management, institutions like NMCG should ensure the gender inclusive approach adopted in all aspects from project designing, planning, implementation and evaluation. The starting point for NMCG could be to begin with drafting a Gender policy for the NMCG. This should be integrated within the HR policy as this is yet to be drafted. Representation of women at senior leadership positions at first or second level of leadership is an aspect that should be further deliberated with DoPT (Department of Personnel & Training). Having a gender focal point within the organisation will help all the processes to undergo through gender lens and ensure that whatever is done internally as well as externally by NMCG, SMCGs and DGCs are gender sensitive and gender inclusive. It needs to be ensured that the gender focal person has a clear mandate and his/her capacities are enhanced and equipped with clearly defined time allotment for exclusive gender tasks. This is an important step to avoid conflicts with other responsibilities within the organisation.

Leadership committed to gender equality and inclusion policies and practices helps to incentivise staff and other actors to take inclusive approaches. Leadership can be exercised at different levels, but senior leadership with gender sensitivity is required for organisational change. Integrating gender equality and inclusion expectations in key performance indicators and work plans is one way of ensuring that staff from across the organisation take steps to mainstream gender and inclusion considerations.

2 Analysis and Findings

2.1 NMCG Mandate, Role, Evolution, and Future Orientation

This chapter presents an over-view of the background and context of the NMCG as an institution and the overall genesis of the Namami Gange Programme. The chapter discusses the transition in the role of NMCG over the years, the future direction of the organisation and potential implications for the organisational structure. Also some important interface areas and potential overlaps with other institutions involved in the River Ganga Basin and possible implications on the structure of the NMCG are addressed here.

2.1.1 Background and Context

River Ganga has significant economic, environmental, cultural and religious value in India. In 2008, the Government of India declared River Ganga as a National River. The Ganga River Basin is the largest river basin in India in terms of catchment area constituting 26% of the country's land mass and supporting more than 43% of its population. The River is 2,525 km long, binds five states together along its main stem and 11 in the entire basin. The Ganga Basin contributes to 28% of the India's water resources. The River is rich in biodiversity and host of several sanctuaries, Ramsar sites and biosphere reserves. It is the home to the Gangetic dolphin, the national aquatic animal of India, and is also densely populated with 97 major urban agglomerates and 4,457 villages along its main stem.²

The River has degraded over time due to the discharge of untreated municipal sewage, effluents from industries and waste from many other sources that get discharged leading to pollution. This has been a national concern for several decades.

There have been discrete initiatives and efforts over the decades to arrest this degradation and control the pollution entering the river and revive the river. However, the results show that further efforts are needed and thus also justify further strengthening of the institutions entrusted with this task, first and foremost NMCG.

² NMCG Annual Report, 2021



Post 2008 initiatives

Initiatives post 2008 gave the initial impetus to the river cleaning and rejuvenation efforts. In 2008-2009, there was a renewed effort by the Government of India with the **declaration of the Ganga River** as a National River and the constitution of the **National Ganga River Basin Authority (NGRBA)** was a coordinating authority for strengthening the collective efforts of the Central and State Government for effective abatement of pollution and conservation of the river Ganga.

Under NGRBA, a consortium of 7 Indian Institutes of Technology (IITs) was given the task to prepare a **Ganga River Basin Management Plan (GRBMP)**. As the World Bank supported (National Ganga River Basin Project) came into being, the **NMCG was established** as a registered Society in 2011 to implement the programme and provide the secretariat function to the NGRBA. In parallel, the State Programme Management Units (SPMGs/SMCGs) were also constituted. Despite these efforts, challenges persisted and only limited results were observed on the ground.



Post 2014 initiatives

Post 2014, the focus on the River Ganga increased manifold with significant increase in political commitment. In the period between 2014 and 2016, there were several developments which increased the focus and the level of activity and commitment towards rejuvenation and pollution abatement in the river basin:

- The IIT consortium completed the Ganga River Basin Management Plan (GRBMP) exercise in 2015. This was and still is a formal document which provides a good diagnosis of the issues and laid down the principles and strategic direction.
- The Namami Gange Mission was announced with a large budget including the ongoing funding from World Bank (WB) and Japan International Cooperation Agency (JICA) added up to around INR 20,000 Crores over a five-year period. The programme provided for a work programme and sub-heads and adequate budgets were allocated.



Ganga River Basin Management Plan (GRBMP) 2010

One of the important functions of the NGRBA was to prepare and implement a Ganga River Basin Management Plan (GRBMP). The task of developing this comprehensive plan was given to a consortium of seven IITs in 2010. After the rigorous research and stakeholder consultations, GRBMP was published in 2015.³

GRBMP undertook a detailed analysis of the problems within the whole basin impacting the water quality, the adequacy of the flow for the river and dependent ecosystems. A key element of a RBMP is an overview of problems identified in the basin characterisation that specifies what will be done. There is an expectation that the current GRBMP will be updated following good practices worldwide on periodically revising the plans worldwide and taking into account the development and there would be periodical revision of plans with a planning Cycle approach.

The importance and benefits of a River Basin Management Plan (RBMP) have been shown in multiple national and international river basins around the world as an effective approach to managing rivers and their catchments. A GIZ paper⁴ for NMCG highlighted the approaches and benefits of an integrated basin approach to address pollution and overuse of the waters within a basin, drawing on experiences of international River Basin Management Plans within Europe that respond to the EU Water Framework Directive (WFD).

Of key importance for all RBMPs is that they are considered operational plans to guide actions and the associated investments towards the agreed objectives and goals for the basin. This requires a broad stakeholder involvement to help develop the plan and then ensure adequacy of the plan's implementation.

Some observations have emerged from stakeholder discussions and review of the document including the following:

- Absence of a comprehensive list of expected measures or management actions (Programme of Measures / PoM) that are required to mitigate the pressures identified in the GRBMP.
- Future updates would also benefit from ensuring state-level (and district-level) river management plans are developed consistent with the overall basin plan. This would help in providing necessary detail at local levels for ensuring identification and implementation of appropriate measures. Strengthening of such bottom-up approach would further ensure that the real local needs are addressed, ownership gets improved and gradual increase in the provision of required finances and that contributions from state and district levels would take place.

³ NMCG Annual Report 2020-21, page 7

⁴ Technical Discussion Document: National Mission for Clean Ganga's Way forwards – a Functional River Basin Organisations, GIZ, 2020)



Namami Gange Programme

Spurred by the advantages of basin approach, the government launched an Integrated Ganga Conservation Mission/Programme under National Ganga River Basin Authority (NGRBA) called “Namami Gange” designed as an umbrella programme, aiming at integrating previous and ongoing initiatives (including NGRBA projects) by enhancing efficiency, extracting synergies, and supplementing them with more comprehensive and better coordinated interventions. Union Cabinet approved the Namami Gange programme on 13 May 2015 as a comprehensive approach to rejuvenate River Ganga and its tributaries under one umbrella.⁵ In February 2023, Namami Gange Mission II (NGM II) has been approved for a period from 2022 till 2026.

In 2022 the United Nations (UN) has recognized Namami Gange as one of the top 10 World Restoration Flagships to revive the natural world.

2.1.2 Authority Order (AO) 2016 – A Strong Basis for NMCG Functioning

Post 2016, NMCG has seen a significant expansion of its role and of its activities. The River Ganga (Rejuvenation, Protection and Management) Authorities Order notified in 2016 (AO 2016), is the central document defining the institutional set-up of main activities and responsibilities for the major stakeholder institutions involved in rejuvenation of the river Ganga. NMCG has been constituted as an authority to act as the nodal agency for the nationwide implementation of the provisions of the AO 2016 and for effective abatement of pollution and rejuvenation, protection and management of the River Ganga and its tributaries. A thorough analysis of the AO 2016 provides a summary of most important institutions, tasks and responsibilities of NMCG.

The National Ganga Council (NGC) which is the apex of the institutional structure is headed by the Prime Minister, thereby reflecting the commitment at the highest levels. As per Clause 13 of the AN 16, on and from date of constitution of NGC, the NGRBA shall stand dissolved. An Empowered Task Force (ETF), chaired by Union Jal Shakti Minister is to guide other Ministries, Departments, State Government Departments and entities in a more effective manner and improve inter-ministerial, inter-governmental coordination.

In summary, by virtue of AO 2016, NMCG shall:

- Direct, monitor, and seek information;
- Approve projects below INR 1,000 crores and develop financial models that would improve the performance and sustainability of projects, which can be adopted other committees and authorities for abatement of pollution and rejuvenation, protection and management of River Ganga;
- Be able to have appointment of senior officials to the positions of the Director General (DG) and Executive Directors (EDs);

⁵ NMCG Annual Report 2020-21, page 10

- formulate, with the approval of the Central Government, the National policy for effective abatement of pollution and rejuvenation, protection and management of River Ganga, and specify additional principles to be followed for rejuvenation, protection and management of River Ganga
- make or cause to make the River Ganga Basin Management Plan
- Power to issue directions to any authority or person, as it may consider necessary for abatement of pollution and rejuvenation, protection and management of the River Ganga
- (shall have) a strong **coordination** role for all activities related to the River Ganga Basin incl. planning, commissioning of studies, Research and Development (R&D) projects, knowledge management, communication;
- (shall be in charge of) **implementation** of the Namami Gange Programme which also incorporates the World Bank and JICA assisted projects. This includes both infrastructure projects and other technical assistance interventions;
- (shall have) **regulatory, monitoring and approval-roles** related to environmental flows, pollution abatement, safety audits, permissions for any construction activities etc.

The following Table 1 highlights some specific paragraphs of AO 2016 which reflect the broad mandate of NMCG regarding River Basin Management.

Table 1: Some specific paragraphs of AO 2016 which reflect the broad mandate of NMCG regarding RBM

Paragraph no.

Para. 4	Defines the principles for rejuvenation, protection and management of river Ganga, and empowers NMCG to specify additional principles as required
Para. 5	Specifies NMCG's role as regards ecological flows of River Ganga waters
Para. 6 and 7	Prevention, control and abatement of environmental pollution, and to take emergency measures in case of pollution
Para. 8	NMCG has the power of issuing directions to any authority, Board, Corporation or person
Para. 9 and 27	Shall specify protocols of safety audits
Para. 10	Shall monitor pollution on its own or by directions through other agencies
Para. 25	Monitor execution of plans and programmes of District Ganga Committees (DGCs) and other authorities through SGCs.
Para. 29	SGCs (State Ganga Committees) are bound by directions of National Ganga Council (NGC) and NMCG

- Para. 32** | Specifies geographical areas of NMCG operations (all Ganga and tributaries)
- Para. 33** | NMCG to be the nodal agency for nationwide implementation of the AO 2016
- Para. 34 and 36** | NMCG is an empowered organisation – approvals <1,000 crores IRs
- Para. 38** | Coordinates all activities regarding rejuvenation and protection of Ganga as directed by NMCG
- Para. 39** | Defines detailed functions of NMCG namely, NMCG shall:
- Cause to identify threats to River Ganga, measures/ remedial actions required etc.
 - Shall make or cause to make the RGB Management Plan (cost, timelines, responsibilities etc.
 - Shall cause to be determined the magnitude of ecological flows
 - Identify where E-Flows have been modified and measures for correction thereof
 - Devise a system for continuous monitoring of flow of water
 - Prepare or cause to prepare of detailed project reports or execution of projects for
 - abatement of pollution and rejuvenation
 - Facilitate setting up or designate and direct existing centres for R&D and establish a knowledge base, analytical tools on abatement of pollution and rejuvenation
- Para. 40** | Establish River Ganga Monitoring Centres
- Para. 41** | Defines further powers of NMCG in more detail such as:
- Formulate, with approval of Central Government, the National Policy for effective abatement of pollution and rejuvenation, protection and management of River Ganga
 - Approve, with or without modifications, the RGB Management Plan (RGMBP) and direct amendments, if any
 - Approve the planning, financing and execution of programmes for abatement of pollution in the River Ganga
 - Direct any person or authority to take measures for restoration of river ecology and management in the River Ganga Basin States
 - Recommend to the Central Government, for creation of special purpose vehicles as maybe considered appropriate, for implementation of this AO
 - NMCG may evolve an appropriate mechanism for implementation of its decisions and the decisions of the National Ganga Council
- Para. 47** | NMCG has the authority to call upon any authority, board, corporation or person to furnish information, inspect the books, and to furnish any reports, returns, statistics among others
- Para. 51** | NMCG may constitute one or more River Ganga Management Committees

2.1.3 Legal Standing of NMCG

NMCG has been constituted as an authority⁶ by way of the AO 2016 issued by the erstwhile MoWR, RD & GR, Gol - now, the Ministry of Jal Shakti, Gol, in exercise of powers granted to the Central Government under sections 3(3) and 23 of the EPA 1986.

Section 3(3) of the EPA 1986 empowers the Central Government to constitute an authority by an order for the purpose of exercising and performing its powers and functions under the EPA 1986. Section 23 of the EPA 1986 allows the Central Government to delegate its powers and functions to any authority. By way of the AO 2016, the Central Government has delegated the task of effective abatement of pollution, rejuvenation, protection and management of River Ganga and its tributaries to NMCG and other authorities constituted thereunder.

AO 2016 is a delegated legislation, and since it has been validly promulgated, it carries the statutory force of the parent statute under which it has been framed i.e., the EPA 1986.⁷ It is settled law that there is a presumption of constitutionality in favour of such delegated legislation.⁸

To support its role as the nodal agency,⁹ NMCG has been given wide powers under AO 2016. Under Para. 8 of AO 2016, NMCG has the power to issue necessary directions to any authority or person necessary for abatement of pollution and rejuvenation, protection and management of River Ganga, and such authority or person shall be bound to comply with the same.

Further, Para. 41 of AO 2016 specifically lays down the powers of NMCG, which include taking various actions for effective abatement of pollution and rejuvenation, protection and management of River Ganga and its tributaries. These actions include formulating the National policy under AO 2016, coordinating, monitoring and reviewing the implementation of various programmes or activities, taking such measures as may be necessary for better co-ordination of policy and action, and issuing directions for proper or prompt execution of projects interfacing with River Ganga and its tributaries. NMCG has also been empowered to evolve an appropriate mechanism for implementation of its decisions and the decisions of the National Ganga Council, as well as issue directions to the State Ganga Committees, District Ganga Committees or local authorities and other authorities in the implementation of the River Ganga Basin Management Plan and any other matter connected with affairs of River Ganga and its tributaries.

⁶ Para 31 of AO 2016

⁷ Rajasthan State Road Transport Corp. v. Bal Mukund, (2009) 4 SCC 299; State of U.P. v. Babu Ram Upadhyaya, AIR 1961 SC 75

⁸ Johns Teachers Training Institute v Regional Director National Council of Teacher Education, (2003) 3 SCC 321

⁹ Para. 33 of AO 2016

The specific powers of NMCG may appear to overlap with the general powers of other statutory authorities, Boards, Corporations and other persons under existing laws. To resolve any potential conflict arising from such overlap, the legal doctrine of harmonious construction may be applied. The rule of harmonious construction requires that, in cases of conflict between laws, a conjoint reading of provisions that gives effect to both laws must be followed.¹⁰

It is only in cases of an irreconcilable conflict between two provisions of a statute/instrument, that it is to be seen which would be the leading and subordinate provision.¹¹ Thus, the principal effort of all competent authorities with jurisdiction over matters relating to the River Ganga (and its tributaries) ought to be to consult, collaborate and arrive at a consensus in exercise of their concurrent legislative mandates. The NMCG serves as a nodal forum for such consultation and collaboration on all matters relating to the River Ganga.

Another legal principle of statutory interpretation that applies in construing the AO 2016 is the principle of general provisions yielding to special provisions that govern a common subject matter. As AO 2016 is a special legislation dealing specifically with the rejuvenation, protection, and management of River Ganga and its tributaries, in case of any potential conflict between the AO 2016 and the provisions of any other general statute, the provisions of AO 2016 would be given preference.¹²

The legislative intent of the AO 2016 is to unify and co-ordinate the disparate jurisdictions of the various central and state authorities that interface with the River Ganga in various capacities. It is settled law that where a later special law is inconsistent with an earlier general law,¹³ the later special law will prevail over the earlier general law. Equally, if there is an interpretation of two seemingly conflicting laws that can give effect and meaning to both sets of laws, then that harmonious interpretation is to be preferred over one that would render one law ineffective.

On any questions of overlapping statutory powers, section 24 of the EPA 1986 is also relevant to consider. Para. 24 provides that provisions and the rules or orders made under the EPA 1986 shall have effect notwithstanding anything inconsistent contained in any enactment other than the EPA 1986. Since AO 2016 is an order issued under the EPA 1986, any inconsistencies with other statutes ought to be resolved with reference to it.

¹⁰ Maharashtra State Board of Secondary and Higher Secondary Education v. Paritosh Bhupeshkumar Sheth, (1984) 4 SCC 27; Sri Venkataramana Devaru v. State of Mysore, 1958 SCR 895; J.K. Cotton Spinning & Weaving Mills Co. Ltd. v. State of U.P., (1961) 3 SCR 185

¹¹ Union of India v. Dileep Kumar Singh, (2015) 4 SCC 421

¹² J.K. Cotton Spinning & Weaving Mills Co. Ltd. v. The State of Uttar Pradesh and Ors., AIR 1961 SC 1170

¹³ Maya Mathew v. State of Kerela and Ors, AIR 2010 SC 1932

Authority Order 2016 in the Context of RBOs

The comparison of NMCG with other international RBOs shows that the scope of the AO 2016 (as briefly summarised in this section) is significantly broader than that of other large international RBOs, and similar international (e.g. lake) bodies. Typically, international RBOs are involved in coordination of the countries actions to equitable manage the water resources (quantity and quality) in accordance with the agreed River Basin Management Plan. This makes appropriate institutional development effort of NMCG more important and a priority.

To ensure effective abatement of pollution and rejuvenation, protection and management of the River Ganga and its tributaries, it was necessary to have a nodal agency at the central level with wide overarching powers and functions specifically for coordinating and monitoring the functioning of various other authorities at the Central, State and district levels. While the federal structure of governance in India allows division of responsibility, it also leads to overlap and inconsistencies across different tiers.

Constitution of NMCG as an authority at the Central level under Para. 31 of the AO 2016 and its designation as the nodal agency for nationwide implementation of the provisions of the AO 2016 under Para. 33, is an effort to effectively abate pollution and ensure rejuvenation of River Ganga and its tributaries.

Conclusion: Opportunities for NMCG from the AO 2016

The analysis of the AO 2016 shows opportunities for NMCG to further strengthen its position as the nodal agency at the Central level (Para. 33, 34, 36) for River Ganga and its tributaries. Some examples are shown hereafter:

1. Para. 4 defines the principles for rejuvenation, protection, and management of river Ganga, and **empowers NMCG to specify additional principles** as required. This provides NMCG with the opportunity of defining the framework within which protection, management, cleaning and rejuvenation of River Ganga activities shall be carried out.
2. NMCG has the **power of issuing directions** (Para. 8) and could possibly explore areas for further improving overall efficiency of protection, management, cleaning and rejuvenation activities by issuing directions to other stakeholders and individual persons. It appears from the provisions of the AO 2016 and EPA 1986 that the directions issued by NMCG to other authorities or persons will be required to be complied with and will have an overriding effect on any inconsistent provision in any other existing law.

3. The AO 2016 has provisions for **regulatory, monitoring and approval** roles related to environmental flows, pollution abatement, safety audits, permissions for any construction activities etc.
4. NMCG shall make or cause **to make the RGB Management Plan** (cost, timelines, responsibilities etc. / Para. 39). This is certainly an area in which NMCG can be more prominent in taking more actively the lead.
5. Approve, with or without modifications, the RGB Management Plan (RGMBP) and direct amendments (Para. 41).
6. Formulate, with approval of Central Government, **the National Policy for effective abatement of pollution and rejuvenation, protection and management of River Ganga** (Para. 41). This is also an area where NMCG could proactively and constructively contribute to policy advice at the highest level.



NMCG Role and Expansion of Activities Post 2016

The present structure of NMCG stems partly from the past role of NMCG which, to start with, was essentially to be a Programme Management Unit (PMU) for the World Bank supported programme. As a consequence the leadership structure has completely changed. NMCG has focused on the implementation of the Namami Gange Programme which has defined programmes and budgets allocated. Important to note: Part of the permanent staff positions still come from the World Bank. In addition, the NMCG has already started to expand its activities to include principles of rejuvenation, protection and management of the river basin.

As per AO 2016, the NMCG is the nodal agency for the basinwide implementation of the provisions of the AO 2016 and for effective abatement of pollution and rejuvenation, protection and management of the River Ganga and its tributaries.

The level of activities and NMCG's role have significantly increased since 2016 including:

1. Strong Coordination role for all activities related to the River Ganga Basin, including planning, commissioning of studies, R&D projects, knowledge management, communication;
2. Implementation of the Namami Gange Programme, which also incorporates the World Bank and JICA projects. This includes both infrastructure projects and other technical assistance interventions. In 2023 the second phase of the Namami Gange Programme until 2026 has been approved by the Indian government;
3. Regulatory, Monitoring and Approval roles- related to environment flows, pollution abatement, safety audits, permissions for any construction activities etc.

As seen from above, the mandate given in AN 16 has the potential to enable NMCG for transformative results. There is also an unprecedented opportunity for NMCG to become a lighthouse for River rejuvenation in India and even beyond. It has a holistic basin wide template with unique institutional and functional features such as integration of the developmental and regulatory roles and can be model for basin rejuvenation. There are several initiatives in this mission which are first of its kind. NMCG with its multi institutional collaboration and developing research ecosystem has potential to further grow as RBO and lead basin management planning in India. NMCG would need to evolve structurally to ensure its own sustainability and to realise its full potential and also lead to lay down similar structure for other river basins. Such a robust organisation and holistic programme would also be needed for meeting the challenges emerging out of climate change.

The organisation has a clear Vision for Ganga Rejuvenation that constitutes restoring the wholesomeness of the river defined in terms of ensuring Continuous Flow (“Aviral Dhara”), Unpolluted Flow (“Nirmal Dhara”), Geologic and ecological integrity. The mandate requires NMCG to:

1. Ensure effective abatement of pollution and rejuvenation of the River Ganga by adopting a river basin approach to promote inter-sectoral co-ordination for comprehensive planning and management; and
2. Maintain minimum ecological flows in the River Ganga with the aim of ensuring water quality and environmentally sustainable development.¹⁴

The budget of NMCG broadly comprises the following subcomponents:¹⁵

- Sewerage and sanitation;
- Industrial pollution;
- Institutional development;
- Habitat improvement activities in Ganga Basin;
- River front management;
- Solid waste management;
- Research and development; and
- Biodiversity conservation
- Public outreach and awareness generation

¹⁴ https://nmcg.nic.in/aims_obj.asp

¹⁵ NMCG Annual Report 2019-2020



Future Role of NMCG

NMCG has the mandate under Namami Gange mission to take up required interventions in all 11 basin states. Initially, the projects were undertaken mostly in five states along the main stem of Ganga apart from several projects in Delhi for cleaning of Yamuna. One or two projects are also there in Haryana, Himachal Pradesh, Rajasthan and Madhya Pradesh. In phase II of the mission, more projects on tributaries would be taken up in all the basin states. Other non-infrastructure projects and activities apart from regulatory aspects would also be focused in this phase. This would need NMCG to strengthen itself for coordination with additional work in states. At present, state missions as a separate unit are only established in five Ganga main stem states. Suitable arrangements may need to be considered for the other six states.

Geographically expanding activities basin wide (11 states) & Diversification of activities towards basin management

This increase of geographical coverage will affect NMCG's focus, and it can be expected that future NMCG activities could include the following:

- Assisting all Ganga riparian states in the elaboration of RBMPs at District and State/sub-basin levels and promote lateral coordination and exchange among states and districts;
- Increased number of states involved with the addition of the tributary network include Madhya Pradesh, Rajasthan, Chhattisgarh etc. Therefore, SPMGs/SMCGs or any other suitable state level unit would be constituted in these states and the associated need for handholding/capacity building will emerge;
- Assisting State and District level institutions responsible for Ganga related activities to strengthen their institutional capacities (recruitment of adequately skilled staff, training in most important aspects like elaboration of Detailed Project Reports (DPRs), their role in the preparation of RBMPs);
- Preparation of RBMPs
- Further scaling up of existing projects;
- Taking up new projects on tributaries of Ganga River (about 48 tributaries, including increased activity on the Yamuna River);
- Increased focus on ecological development and wetland conservation, taking forward the work in biodiversity and afforestation;
- Greater involvement engaging the local community for spring and small water body rejuvenation;
- Ensure coordination between states, mutual learning, exchange of information.

The nature of the activities in the main stem and tributaries may be different and may require different skill sets and focus:

- The NMCG focus in areas on the main stem of Ganga may in future shift to operation and maintenance, non-infrastructure works and awareness raising as infrastructure construction may be getting complete. The focus on tributaries may be more on infrastructure works initially.
- It is important to recognise mandates of and the skills available in other organisations and institutions to ensure that there is no duplication or redundancy, or overlaps being created.

2.2 Evolution of the Organisational Structure of NMCG

The NMCG structure was established in-line with its initial role of being a Programme Management Unit (PMU / Implementing Agency) for the World Bank Programme. The top leadership structure has been subsequently strengthened substantially through AN 16.

The NMCG has now a strong two-tier management structure that is comprised of the Governing Council (GC), and the Executive Committee:

- The Director General, NMCG chairs both the Governing Council and the Executive Committee. Currently, the members from the relevant Central Government agencies together with the five basin states (along the main stem of River Ganga) constitute the Governing Council. It can be assumed that this structure will increase in the near future in order to gradually covering all 11 riparian Ganga states.
- Selected members of the Governing Council constitute the Executive Committee (EC) which is empowered for all approvals up to INR 1,000 crores. The EC should report to the Governing Council at least once in three months.
- At present, NMCG is headed by a Director General supported by five Joint Secretary level officers, one as Deputy Director General (DDG) and four as Executive Directors (ED's) for Projects, Technical, Finance and Administration related matters.

Figure 3 presents the current organisational structure of the NMCG regarding work distribution.

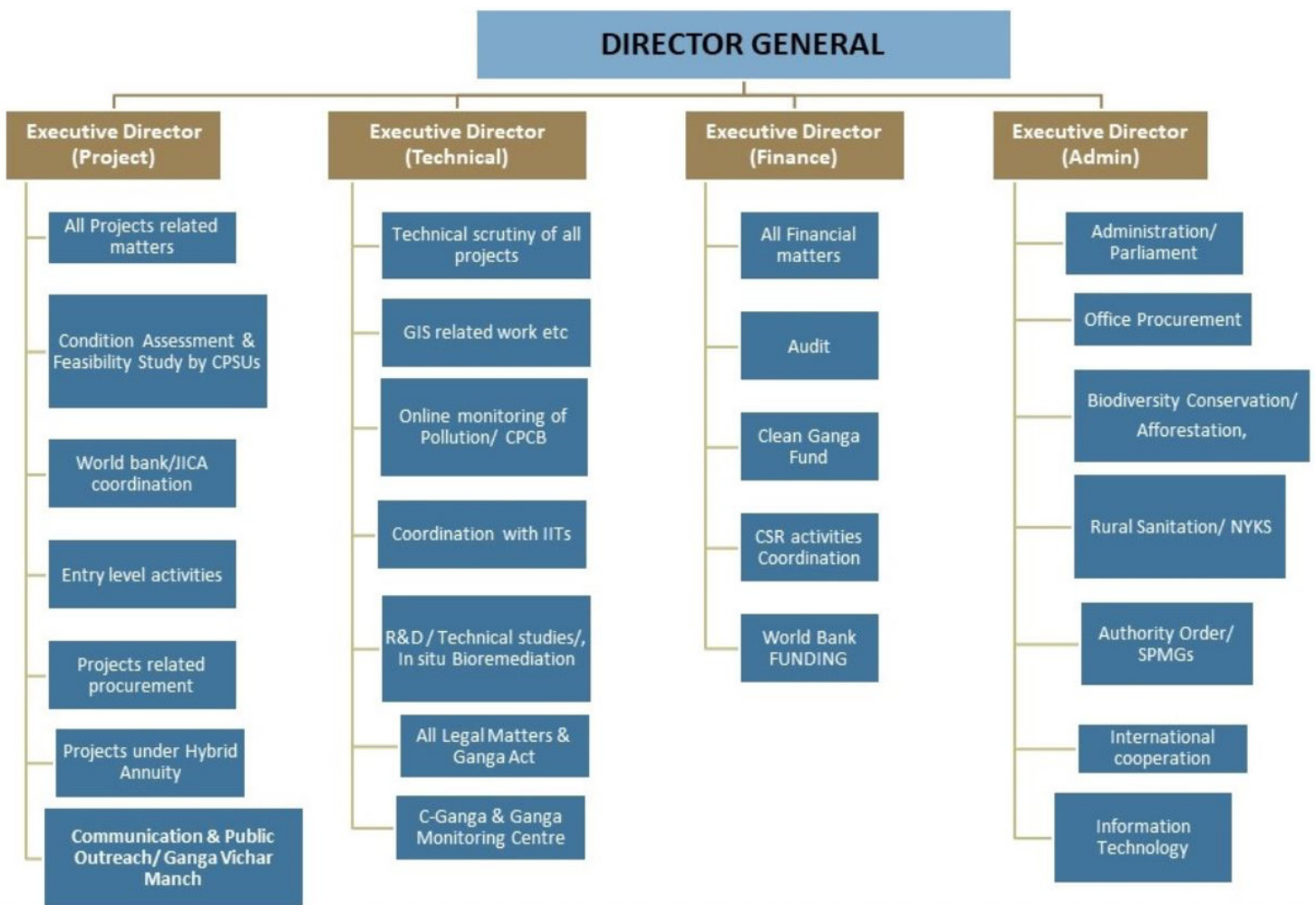


Figure 3: The current organizational structure of NMCG¹⁶

¹⁶ Source: National Mission for Clean Ganga | NMCG Accessed on 12 April 2023

However, the organisation structure of NMCG has not evolved keeping the increased scale and scope of work i.e. the rest of the structure and skills have been enhanced more on need basis rather than in a structured manner. Some overall observations include:

- Inconsistencies seem to have crept in terms of grouping of functions over time e.g. biodiversity conservation/afforestation is with ED-Administration, communication and Public Relations (PR) is assigned to the ED-Projects. This needs being re-examined in the present and future NMCG context;
- Currently, the focus seems to be more from the Namami Gange Programme perspective. It is obvious that from an organisation structure perspective, there seems to be no clear responsibility for managing the implementation or updating the GRBMP. This includes monitoring or assessing the effectiveness of the current plan to assist with adaptive management changes to the Plan. This is a key finding of this work and is, therefore, a further focus together with the need to provide the GRBMP with a PoM.
- The range and scope of NMCG's mandate includes financing/supporting the execution of projects of different nature such as wastewater treatment plants, Industrial effluent treatment plants (ETPs), River front development etc as well as 'regulatory' functions. This is, typically, not the responsibilities of international RBOs. This has been intensively discussed and there is need to involve and qualify States and District institutions as well as municipalities much more intensively in the implementation of projects. Furthermore, regulatory functions also require more focus within NMCG and would benefit from a clear separation from other NMCG functions related to project planning and implementation tasks.
- The organisation depends on personnel on contract basis and on deputation from other government organisations. The organisation also depends on various sets of PMU consultants to bring in the expertise required to carry out NMCG's day-to-day activities.

Discussions within NMCG's senior leadership indicate that there is a need for "more permanence" within NMCG rather than fully being reliant on contract and on-deputation staff. There are also skills required that need to be more aligned with the present and future role of NMCG.

2.3 Interfaces with Other Organisations

The institutional framework related to the roles of river cleaning and pollution abatement in context of the River Ganga is very complex. The River Basin runs across multiple states in the country and water is a state subject. Furthermore, several national ministries, their institutions and state departments have roles on different aspects in the River Basin, some of which are sometimes overlapping.

Apart from the NMCG and SMCGs, there are other organisations who have roles and activities related to the River Ganga and its sub basins. However, these roles are only one of the many activities which these organisations carry out, without a clear institutional focus on the River Ganga Basin activities per se (see Figure 4).

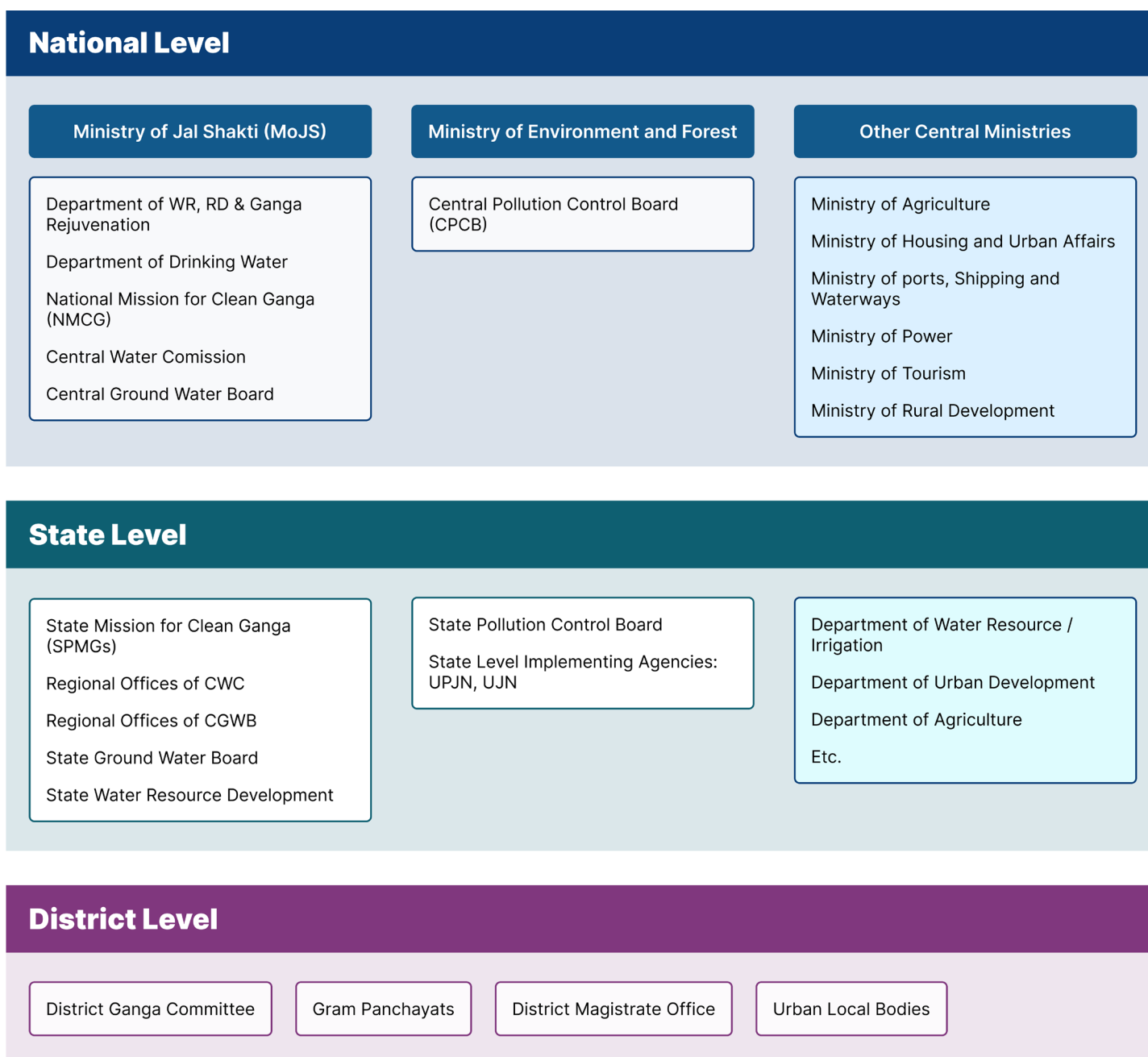


Figure 4: Indian Water-related ministries, institutions, organisations, and committees

A review of AO 2016 and discussions with key stakeholders indicate that there are interface areas where NMCG's role intersects with the roles of other stakeholders. This is understandable considering the construct of the institutional arrangement in the River Ganga Basin. The NMCG has been urging various ministries and entities to have nodal officers/sections for Ganga River related matters and reviewing progress of initiatives taken.

Existing Coordination Framework with Selected National and State Stakeholders

With reference to the AO 2016, NMCG is required to comply with a range of national and state bodies that are mandated on specific aspects relevant to AO 2016. These include the CPCB, CWC, MoHUA, CGWB as shown hereafter:

2.3.1 Central Pollution Control Board (CPCB)

The CPCB was established in September 1974. It is a statutory organisation of the Ministry of Environment, Forest and Climate Change (MoEFCC) at the national level, for the prevention and control of pollution. The key statutory functions of CPCB are as follows:

- Advise the Central Government on any matter concerning prevention and control of water and air pollution and improvement of the quality of air.
- Plan and cause to be executed a nation-wide programme for the prevention, control or abatement of water and air pollution;
- Co-ordinate the activities of the State Board and resolve disputes among them;
- Provide technical assistance and guidance to the State Boards, carry out and sponsor investigation and research relating to problems of water and air pollution, and for their prevention, control or abatement;
- Plan and organise training of persons engaged in programme on the prevention, control or abatement of water and air pollution;
- Organise through mass media, a comprehensive mass awareness programme on the prevention, control or abatement of water and air pollution;
- Collect, compile and publish technical and statistical data relating to water and air pollution and the measures devised for their effective prevention, control or abatement;
- Prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts;
- Disseminate information in respect of matters relating to water and air pollution and their prevention and control;

- Lay down, modify or annul, in consultation with the State Governments concerned, the standards for stream or well, and lay down standards for the quality of air; and
- Perform such other function as may be prescribed by the Government of India.
- Issue directions to SPCBs under Section 18, and can take over functions of SPCB, when needed;
- Issuing directions (directly) to industries under Section 5 of Environment (Protection) Act, 1986; and
- Coordinating role as per the rules framed under Environment Protection Agency (EPA).

In the context of River Basin Management and Planning, there are two core functions undertaken by CPCB and these are aligned with various divisions of CPCB:

Waste management

Implementation of solid waste management practices (as per the Solid Waste Management Rules, 2016) and industrial sector-specific waste management (solid/hazardous/ effluent) rules and guidelines for maintaining river water quality); and

Water Quality Management (WQM)

There are two divisions: WQM-I which looks after ambient water quality monitoring in the Ganga, and WQM-II which looks after the ambient water quality monitoring in the remaining select regions of the Country.

In terms of its interface with NMCG, there are three projects allotted by NMCG to CPCB:

- Pollution Inventorisation, Assessment and Surveillance (PIAS);
- Strengthening of Environmental Regulators (SER); and
- Water Quality Management (WQM).

A major portion of the funding is spent in the manpower engaged for these projects which are involved in the following:

- Quarterly inspection of Sewage Treatment Plants (STPs) in the Ganga front towns;
- Quarterly inspection of Common Effluent Treatment Plants (CETPs) located on Ganga main stem;
- Half-yearly monitoring of drains discharging into River Ganga;

- Annual inspection of Grossly Polluting Industries (GPIs) located in Ganga River Basin (through technical institutes such as IITs, NITs, AMU, JMI, CPPRI and PCRI);
- Monitoring of water quality of River Ganga at 97 locations (manual) and water quality monitoring at 36 stations (real-time); and
- Monitoring of 129 STPs and eight CETPs on quarterly basis.

At the Multi-stakeholder consultation meeting on 13 July 2022 held at NMCG it was mentioned that institutions such as CPCB have significant 'memory' which should be utilised by NMCG.

Regulation in Context of Pollution Monitoring and Abatement (NMCG-CPCB)

Both CPCB and NMCG derive their powers from the EPA 1986. In terms of their regulation role in the River Basin, both organisations seem to have a jurisdiction in context of pollution abatement. However, the responsibilities to set the standards for water quality and industrial/STP discharge lie with CPCB.

NMCG and CPCB may clarify their collaboration, analyse and agree on the most practical share of workload between the two institutions.

It is relevant to note that the first step in cases of any perceived overlap or inconsistency in the roles of NMCG and CPCB would be to harmoniously reconcile the powers of CPCB and NMCG. However, in cases of potential conflict, the provisions of the AO 2016 would prevail over general provisions concerning the CPCB when it comes to matters pertaining to River Ganga because the AO 2016 is a special delegated legislation. This is consistent with the settled principle of statutory interpretation that general provisions yield to special provisions.

2.3.2 Central Water Commission (CWC)

The CWC is a premier technical organisation of India in the field of water resources and is attached to the MoJS's Department of Water Resources, River Development and Ganga Rejuvenation. The Commission is entrusted with the general responsibilities of initiating, coordinating and furthering in consultation with the state governments concerned, schemes for control, conservation and utilisation of water resources throughout the country, for purpose of flood control, irrigation, navigation, drinking water supply and waterpower development.

The following are some of its many functions:

- Appraisal of and monitoring of water resources (WR) projects: CWC is responsible for appraisal of preliminary/detailed project report pertaining to major inter-state project proposals.

- Basin planning and management: Responsible for coordination with states for establishing river basin organisations as per the National Water Policy, examination of project reports etc.
- Hydrology: Technical appraisal of hydrological aspects like water availability, design flood, sedimentation, diversion flood etc.
- Flood forecasting / hydrological observation: Responsible for monitoring of flood situations through Central Flood Control Room during monsoon period.
- Water management: Monitoring the water quality of rivers since late 1950s and presently its water quality network is spread all over India.

Environmental Flows (E-Flows) was notified for the first time in 2018, at the initiative of NMCG 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. CWC is the designated authority and the custodian of the data and responsible for supervision, monitoring and regulation of E-Flows in the river. It has formulated SOPs for the implementation of E-Flows in various seasons.

CWC and NMCG have roles and future plans related to:

Basin planning

CWC has a mandate for basin planning across various rivers. AO 2016 outlines the guiding principles for rejuvenation, protection and management of River Ganga which forms the basis for NMCG's operations and functioning. The AO 2016 is holistic and mandates to intervene in all aspects of basin such as hydrology, ecology, flows, water quality, social and community needs etc. The stakeholder meetings and interviews suggest that CWC may have a different approach toward, and what it considers to be a River Basin Plan. It is suggested that this needs to be considered while arriving at NMCG's organisation structure especially in context of a RBMP.

Water quality

Both CWC and CPCB have their systems for monitoring water quality. It is understood that NMCG relies on CPCB's water quality monitoring system. It is beyond the scope of this report to assess whether harmonisation of the different systems would be required or offer advantages.

E-Flows

As per notification 2016 of E-Flows for Ganga by NMCG, the monitoring of implementation of this notification is done by CWC who also send periodical reports to NMCG. Therefore, there are common interest points for both E-Flows standards and E-Flows monitoring in the River Ganga Basin.

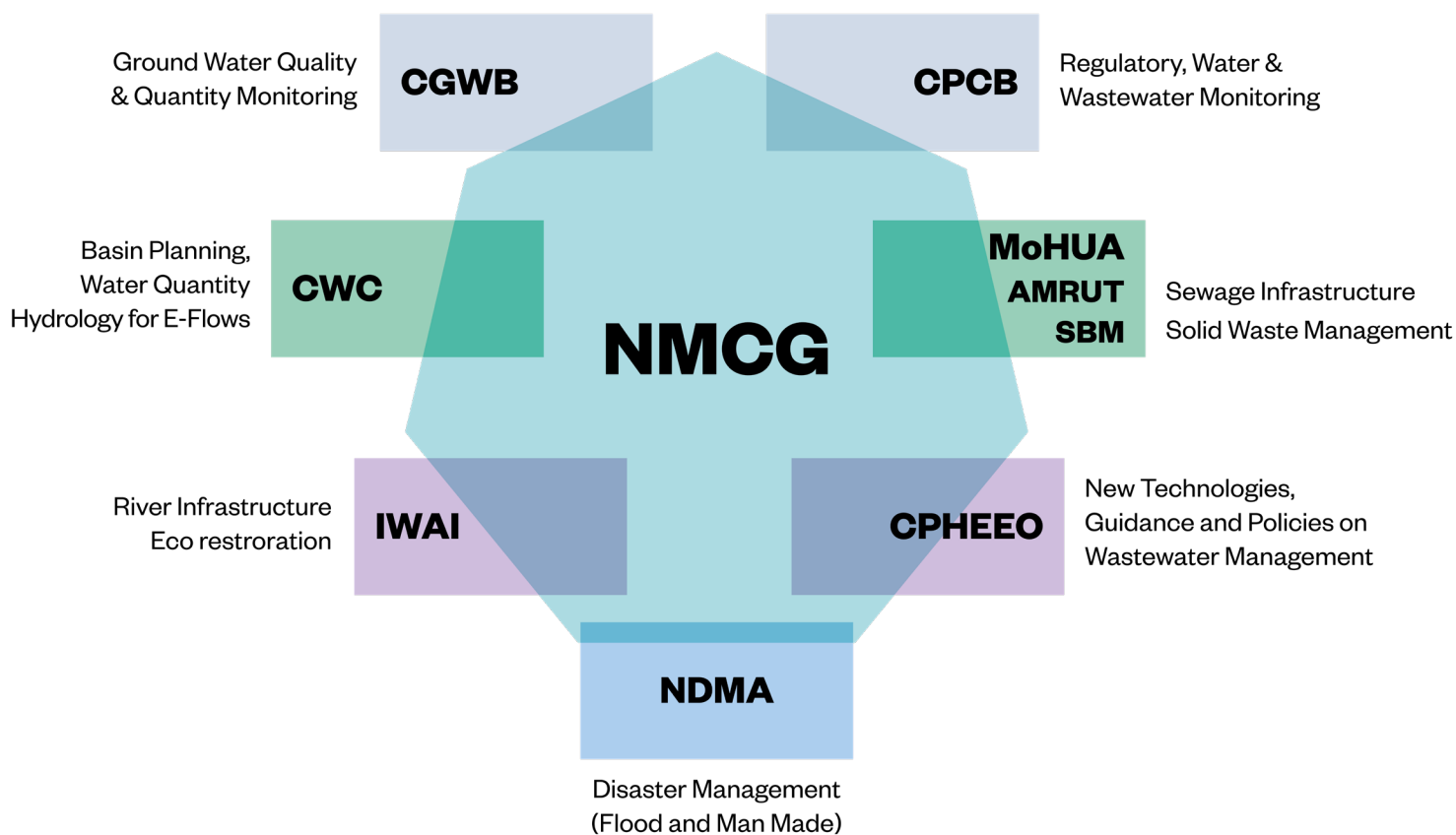


Figure 5: NMCG vis a vis other departments - overlap in responsibilities

2.3.3 Ministry of Housing and Urban Affairs (MoHUA)

The MoHUA administers the urban development programmes such as Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Swachh Bharat Mission Urban implemented by the Urban Local Bodies (ULBs). It is understood that untreated waste from cities/towns on the banks of the River Ganga have contributed significantly to the pollution load in the River. The responsibility for treatment of raw sewage also lies with the ULBs.

The Namami Gange Programme has taken responsibility for financing interception and diversion works and sewage treatment plants in various cities and facilitating the transfer to the ULBs after the Operation and Maintenance (O&M) period. However, many cities are expecting support for sewage network, as a part of the Namami Gange Programme, as well what is under the purview of ULBs and the Urban department and MoHUA. The support for sewerage networks are also availed under AMRUT of MoHUA and often in synergy with Namami Gange.

The issue of septage treatment and management has also been raised whereby the collection of septage is the responsibility of the ULBs. However, ULBs have limited capacity in the treatment and safe disposal of the same. Discussions with stakeholders concluded that there is a potential interface area between NMCG and ULBs. To address this issue of septage management, NMCG has also started the process to enable co-treatment of septage in its STPs.

NMCG has also initiated an innovative programme for developing river sensitive master plans , Urban River Management Plans (URMP) and River-City Alliance in association with National Institute of Urban Affairs (NIUA), a think tank of MoHUA. These initiatives are being taken forward even beyond Ganga Basin.

2.3.4 Central Ground Water Board (CGWB)

The Central Ground Water Board was established in 1970 as a subordinate office of the Ministry of Water Resources, today Ministry of Jal Shakti. Its mandate is “to develop and disseminate technologies and monitor and implement national policies for the Scientific and Sustainable development and management of India’s Ground Water Resources, including their exploration, assessment, conservation, augmentation, protection from pollution and distribution, based on principles of economic and ecological efficiency and equity”.

The vision of CGWB is “Sustainable Development and Management of Ground Water Resources of the Country”.

The key activities of CGWB are as follows:

- Monitoring of groundwater levels and water quality through a network of ground water observation wells;
- Special studies on various aspects of ground water sector such as ground water depletion, sea water ingress, ground water contamination, conjunctive use of surface and groundwater, water balance etc.;
- Publish scientific reports including State and District hydrogeological reports, guides/manuals/pamphlets on various aspects of ground water management;
- Capacity building activities for Central/State Government organisations engaged in various activities in ground water sector; and
- Mass awareness campaigns on the importance of water conservation and judicious ground water management.

It is headed by the Chairman and has four main wings, namely: (1) Sustainable Management and Liaison (SML), (2) Survey, Assessment and Monitoring (SAM), (3) Exploratory Drilling and Materials Management (ED&MM), and (4) Water Quality and Training and Technology Transfer (WQ&TT).

The board has 18 regional offices supported by 17 Engineering Divisions and 11 State Unit Offices for undertaking various field activities.

The Central Ground Water Authority (CGWA) is constituted under the Environmental (Protection) Act, 1986. It looks after various activities related to regulation of groundwater development to ensure its long-term sustainability in India.

At the Multi-stakeholder consultation meeting on 13 July 2022 held at NMCG, CGWB representative mentioned that CGWB has already mapped main aquifers and are now starting a second round to identify issues. CGWB has databases and suggests that NMCG should take up CGWB studies and is offering to open CGWB databases for NMCG. It was discussed that Ground Water Board could play an important role in river rejuvenation activities. As envisaged in the AO 2016, surface water and ground water both need to be incorporated in basin management plans. Hence, there is a scope for larger cooperation between NMCG and CGWB.

2.3.5 Inland Waterways Authority of India (IWAI)

The Inland Waterways Authority of India/IWAI was established in 1985 under the Inland Waterways Authority of India Act, 1985/IWAI Act to develop and regulate inland waterways in India for shipping and navigation purposes. As the Prayagraj-Haldia stretch of the Ganga-Bhagirathi-Hooghly Rivers is a national waterway, certain functions of IWAI overlap with those of NMCG.

Under the IWAI Act, IWAI has the power to carry out surveys for the development, maintenance and better utilisation of national waterways and appurtenant land for shipping and navigation. The IWAI may remove or alter any construction or impediment to national waterways which among other things, impedes safe navigation or endangers safety of infrastructural facilities. The IWAI also has the power to control activities such as throwing rubbish, dumping or removal of material, in or from the end of national waterways, in and so far as they may affect safe and efficient shipping and navigation. Further, IWAI is also vested with powers to regulate the construction or alteration of structures on, across or under the national waterways.

While there is some overlap between the powers of IWAI and NMCG regarding River Ganga, their perspectives and priorities are different. Notably, NMCG's powers comprehensively cover the entire River Ganga basin and are intentionally wide, whereas IWAI's focus is limited to inland waterways that may interface with River Ganga in select geographies.

Ministry of Ports, Shipping and Waterways is the parent department of IWAI. IWAI is headed by its chairman, and as an organisation, it has four wings – Traffic and Logistic Wing, Technical Wing, Finance Wing and Administration. These wings have further sub-divisions.

As IWAI has experience with regulating activities associated with national waterways across the country, there is scope for NMCG to benefit from IWAI's expertise to evolve holistic solutions for River Ganga and for both authorities to collaborate and coordinate their activities to the extent it relates to or otherwise affects River Ganga and its tributaries.

2.3.6 State Missions for Clean Ganga (SMCG)

The State Missions for Clean Ganga were also established at the same time as the NMCG. The institutional framework for the SMCGs differs across states and also have different names (i.e. SMCG in Uttar Pradesh / UP and SPMG in Uttarakhand / UK). In Uttarakhand, the State Project Management Group (SPMG) is under administrative control of the Department of Drinking Water and Sanitation, whereas in Uttar Pradesh, it is under the administrative control of the Department of Namami Gange and Rural Water Supply.

Even though there are certain experts position standardised for state missions based upon initial formulations under world bank assisted component, the administrative structure of the SMCGs/SPMGs vary from state to state. For e.g.:

The departments and units in state of Uttarakhand & UP are given below:

1. There are two departments in SPMG Uttarakhand: (1) Technical unit (headed by Technical Advisor), and (2) Finance Management (FM) and admin unit (headed by Finance Director). Both department heads report to Programme Director who reports to the Chairman.¹⁷
2. Whereas SMCG-UP has four units. The unit heads of (1) Planning and Knowledge Unit, and (2) Technical Unit report to Technical Advisor. Unit Heads of Financial Management (FM) unit, Procurement and Administration (ADM) unit, and Communications and Outreach unit report to Implementation Support Advisor. Both Technical and Implementation Support Advisor report to Additional Project Director who further reports to Project Director.¹⁸

2.3.7 District Ganga Committees (DGCs)

The AO 2016 requires that the “Central Government in consultation with the State Ganga Committee, by notification, constitutes in every specified District, abutting River Ganga and its tributaries in the States, the District Ganga Committees, for the prevention, control, and abatement of environmental pollution in the River Ganga. The constitution of the committee and the activities have also been well defined in the AO 2016.

¹⁷ <https://spmguuttarakhand.uk.gov.in>

¹⁸ <https://smcg-up.org/>

2.4 Summary and Conclusions

The role, scale and scope of NMCG has changed significantly over the years. The organisation structure does not fully reflect the needs of the present and future roles of the organisation. There are other organisations as well who have an important role pertaining to the Ganga River Basin.

The document analysis, meetings and interviews during this assignment revealed the following:

- Areas where there are possible overlaps of roles
 1. Pollution monitoring and abatement;
 2. E-Flows standards and monitoring;
 3. Water quality monitoring;
 4. Basin planning; and
 5. Flood management
 6. Enforcement of relevant acts and rules
- That it may be difficult to remove overlaps of roles. NMCG has recognised this and has started to build close partnerships with other organisations who are involved in the Ganga River Basin.
- These organisations indicated their willingness to be involved in all activities in the Ganga Basin whilst leveraging their available skills and expertise. This involvement would be extremely vital for establishing the GRBMP.
- Against this backdrop the alignment between these organisations and NMCG is one of the elements that has been considered when arriving at structural options for NMCG.

Otherwise, it is obvious that further clarification of these overlapping roles and responsibilities would clarify the working relationships between these major players, possibly save time and financial means and also facilitate communication. This, of course, is beyond the scope of this assignment.

The suggestions on the functioning of SMCGs and DGCs are presented in Chapter 4.

3. Inferences from International RBOs

The duties and responsibilities of an RBO are varied and specific to the basin. These have been well documented in the GIZ Technical Discussion Document (TDD)¹⁹. The Ganga River Basin has many similar characteristics to large international river basins (Rhine, Danube, Mekong, Nile, etc.) with the autonomy of the States being reflected in the member countries in an international river basin. International RBOs have evolved over time (for example the Danube Commission was established in the mid 1990s) with more stable country-funded secretariat and functions that reflect the changing demands of the parties to the commissions.

Within an international context the main functions of the most RBOs (e.g. Danube, Rhine) are on coordination of actions and harmonisation of approaches to ensure compatibility of, for example, water quality monitoring data. There are examples (e.g. Lake Chad, Niger River Basin, Lake Victoria) that also have roles in managing the implementation of specific projects/programmes. However, it should be noted that there are no specific examples of International RBOs that are implementing infrastructure projects along with regulatory functions that are a central feature of NMCG.



Figure 6: Major river basins of the world²⁰

¹⁹ NMCG’s Way Towards a Functional River Basin Organisation, GIZ, November 2020

²⁰ The 28 of the World’s major River basins used by Werth and Güntner (2010) in their study used to calibrate the WGHM. The Tigris and Euphrates, as well as Ganges and Brahmaputra, have been grouped into single basins. (UNEP, 2008)

The Danube Commission has three key management objectives that are similar to those relevant to the Ganga:

A Cleaner Danube: this means reducing pollution from settlements, industry and agriculture;

A Healthier Danube: this means protecting rivers as ecosystems that provide a living environment for aquatic animals and plants, as well as services for people such as drinking water and recreation;

A Safer Danube: this means a safer environment for people to live without the fear of major flood damage.

The differences and similarities between international RBOs that have a more coordinating role rather than additional implementing roles are described in a review paper for the Mekong Commission²¹. **These differing roles are also reflected in the staffing resources required by RBOs** – for example the Danube and Rhine have less than 10 staff (largely responsible for coordinating activities undertaken by expert/working groups) whilst the RBOs with coordinating and implementing functions typically have over 100 staff (responsible for supervising implementation of projects/infrastructure changes).

High level governance and management mechanisms adopted by international RBOs are similar to structures in-place for the Ganga. However, **the majority of international RBOs make use of expert groups**, usually oriented to a theme within the RBMP, with members drawn from the participating countries and involving a broad range of stakeholder groups. This helps ensure the involvement and subsequent ownership of the work of the international RBO within the member countries.

Typically, international RBOs are responsible for:

- Organisation of meetings, preparation of documents, coordination with Working and Expert Groups etc.;
- Preparation of strategic documents to be approved by Committees and Councils;
- Harmonisation and guiding aligning water resource policies and laws;
- Information and data management harmonisation and collection;
- Coordinating monitoring functions including, regular and specific water quality and quantity monitoring, and reporting of activities to stakeholders;
- External relations functions including funding agencies, civil society organisations, national bodies, educational establishments, etc.;
- Information dissemination through public engagement and awareness raising; and
- Budgetary and internal administrative functions.

²¹ The Organisational Structure of River Basin Organisations: Lessons Learned and Recommendations for the Mekong River Commission. Schmeier, S. 2010

In addition, those international RBOs with additional responsibilities for implementation actions are involved with advisory, project management, financing and capacity building functions.

International RBOs typically facilitate the preparation of a River Basin Management Plan and monitor progress on basin-wide implementation which has a rolling set of activities spread out across different cycles.

- RBMPs are prepared with the help of Expert Committees including outline measures to address problems;
- RBMPs preparation are an elaborate periodic exercise involving all key stakeholders associated with the River basin and its activities;
- RBMPs get split into specific work programmes that have a clear action plan, timeline, responsibility assignment, budget and oversight mechanism; and
- International RBOs often have a major role in communication, outreach and engagement with civil society.

As emphasised earlier, **NMCG role as presented in AO 2016, exceeds the remit of other international basin organisations.** Where basin organisations have a role in “projects” (as indicated in the examples presented in the paper prepared for the Mekong Commission²²), these are typically to implement donor funded initiatives (studies rather than infrastructure) or to undertake joint studies on monitoring (for example). NMCG has a significant current role on implementing infrastructure actions and responsibilities on regulatory aspects which, in international basins, remain the remit of countries.

Three examples are given below showing the structure of the International Commission for the Protection of the Danube River (ICPDR), Lake Chad Basin Commission (LCBC – a larger organisation with project implementation activities) and the International Commission for the Protection of the Rhine (ICPR).

3.1 International RBO Examples

3.1.1 Example 1: International Commission for the Protection of the Danube River (ICPDR)

ICPDR’s main functions are coordinating the development and updating of the RBMPs and other associated transboundary plans (e.g. navigation). This work is allocated to Expert Groups with an expert coordinator within ICPDR secretariat and teams of national experts to support the coordinator. The organisational responsibilities of the ICPDR are divided across various bodies. These include:

²² The Organisational Structure of River Basin Organisations: Lessons Learned and Recommendations for the Mekong River Commission. Schmeier, S. 2010

Ordinary Meeting Group

- Taking the political decisions;

Standing Working Group

- Providing political guidance; and

Technical Expert Groups and Task Groups

- Preparing the technical background document.

Figure 7 presents the ICPDR organisational chart.

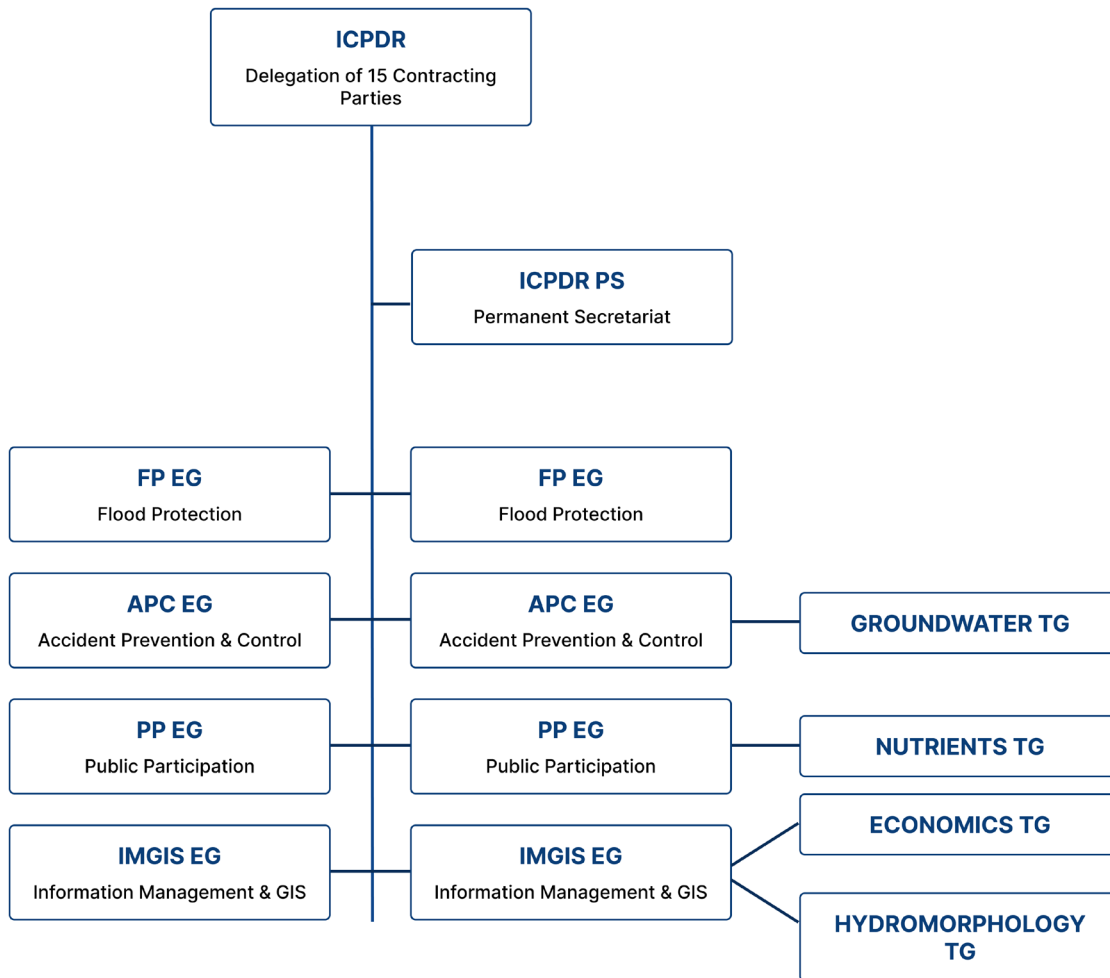


Figure 7: ICPDR organisational chart²³

3.1.2 Example 2: International Commission for the Protection of the Rhine (ICPR)²⁴

International cooperation draws upon the legal basis provided by the Convention on the Protection of the Rhine as well as various European directives and regulations requiring coordinated implementation in the entire watershed, such as the European Water Framework Directive, the European Flood Management Directive and others. As in the ICPDR, the technical activities are undertaken through Working Groups tasked with developing approaches to implement the work agreed by Heads of Delegation.

²³ Source: ICPDR website

²⁴ Source: ICPR website - Organisation(iksr.org)

The presidency of the Commission alternates every three years. The Plenary Assembly is staged annually together with the Coordination Committee Rhine. Decisions are taken in the Plenary Assembly. Technical questions are dealt with in working and expert groups with permanent or fixed-term mandates and passed on to the Strategy Group preparing the Plenary Assembly. Problems related to water quality and emissions, groundwater, ecology as well as floods and low water are discussed.

Expert groups support the working groups. Furthermore, work in the international working groups is prepared by national committees. Conferences of Rhine Ministers decide on important political issues. Their decisions are binding for the Governments concerned.

Figure 8 provides a graphical overview on the ICPR.

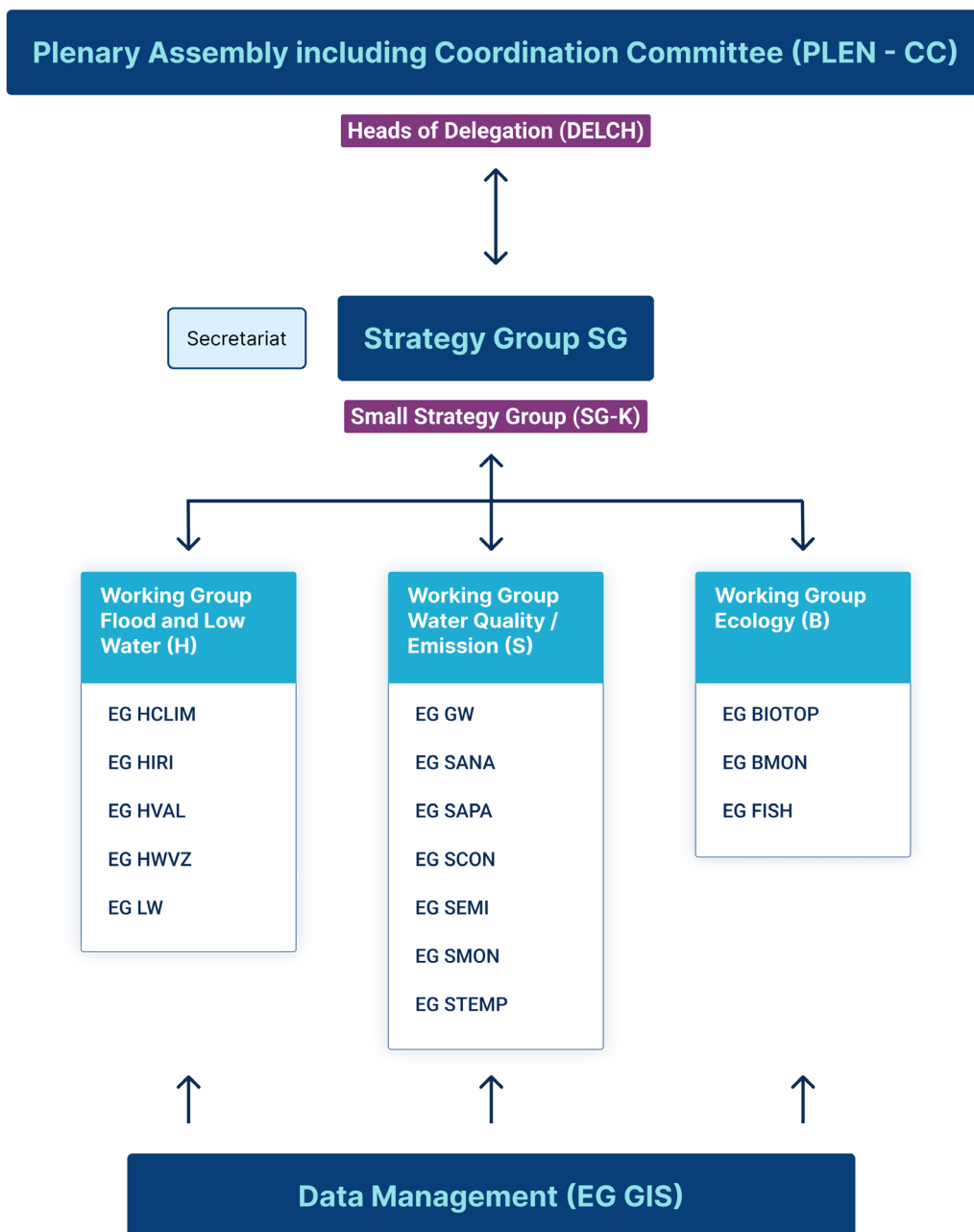


Figure 8: ICPR organisational chart

3.1.3 Example 3: Lake Chad Basin Commission (LCBC)

In addition to roles in developing, implementing and assessing basin management plans (as presented in a Global Environment Facility (GEF) funded Strategic Action Programme – equivalent to an RBMP, LCBC also takes responsibility for capacity development, technical and ecosystem assessment projects funded by multiple donor agencies. LCBC has also taken a significant role in coordinating regional security actions in the Lake Chad regions.

See Figure 9 for the LCBC organisational structure.



Figure 9: Lake Chad Basin Commission organisational structure²⁵

²⁵ Source: LCBC website

3.2 Key Observations from International RBOs

The following key aspects from international RBOs have been identified:

- **Involvement of a wide range of stakeholders** in the development of the Plan is essential to ensure broad acceptance of the objectives and planned mitigation measures.
- **A detailed PoM** (or management actions) is important to ensure the overall objectives of the Plan are met: to show priorities, attract necessary financing to implement mitigation measures and monitoring of progress.
- The **use of Expert Groups (EG) / Working Groups** drawn from partner organisations is beneficial to create wide ownership of the RBMP and to ensure sufficient skilled experts to contribute to developing, updating and assessing the progress towards the Plan's objectives.

Examples of the use of Expert and Working Groups for RBM coordination within International RBOs is indicated below.

At the Danube secretariat, seven Expert Groups²⁶ were formed on a range of basin-specific issues:

River Basin Management Expert Group

The Expert Group on River Basin Management defines and prepares tasks related to the implementation of the EU Water Framework Directive (WFD) in the Danube River Basin. This includes the Danube River Basin Characterisation and the development of the Danube River Basin Management Plans, as well as the cooperation with different water-related sectors and the coordination with sub-basin initiatives. Where need the RBM is supported by additional expertise through specific 'Task Groups' on hydro-morphology and economics.

Flood Protection Expert Group

The Flood Protection Expert Group was responsible for developing the Action Programme for Sustainable Flood Protection in the Danube River Basin and is currently overseeing its implementation at the national level. The EG also defines and prepares tasks related to the implementation of the EU Floods Directive in the Danube River Basin such as the development of flood hazard and risk maps and the Danube River Basin Flood Risk Management Plan.

Monitoring and Assessment Expert Group:

The Monitoring and Assessment Expert Group is responsible for issues concerning water quality assessment and classification, including assessment of the ecological and chemical status according to the EU Water Framework Directive.

²⁶ Expert Groups | ICPDR - International Commission for the Protection of the Danube River

The Expert Group supervises the operation of the Trans-National Monitoring Network including its analytical quality control and supports organisation of the Joint Danube Surveys.

Pressures and Measures Expert Group:

The Pressures and Measures Expert Group identifies the causes of pollution-related pressures and promotes measures to address them. The Expert Group facilitates the harmonisation of the ICPDR work with other water-related EU directives. This Expert Group develops the Joint Programme of Measures, which is part of the Danube River Basin Management Plan.

Accident Prevention and Control Expert Group

The Accident Prevention and Control Expert Group develops strategies to prevent or manage accidents. It works with pollution prevention and precautionary controls including inventories of accident risk spots, old contaminated sites in areas liable to flooding and mining sites. It supports the operation and development of the Danube Accident and Emergency Warning System, and the communication of alarm/warning messages in the event of accidents.

Public Participation Expert Group:

The Public Participation Expert Group supports ICPDR activities related to communication and participation issues. These include public consultation measures for the Danube River Basin Management and Flood Risk Management Plans, publications and outreach initiatives such as Danube Day or environmental education.

Information Management and Geographic Information System (GIS) Expert Group:

The Information Management and Geographical Information System Expert Group, develops and operates the Danube GIS and supports data collection and maps preparation on the level of the Danube River Basin for ICPDR reports. The Expert Group also supports the bilateral/multilateral activities related to the harmonisation of national datasets.

The experts are drawn from the countries of the basin and represent a wide range of stakeholder groups. This ensures that a small secretariat would have a wide access to technical and socioeconomic expertise as required to minimise staffing requirements. The ICPDR website reports that over 200 experts have been involved in this process.

Other examples cited in a review on organisational structures for a RBO prepared for the Mekong River Commission include²⁷:

²⁷ [MRC-Technical-Paper-Org-Structure-of-RBOs.pdf \(mrcmekong.org\)](https://www.mrcmekong.org/Technical-Paper-Org-Structure-of-RBOs.pdf)

- The Rhine Commission (ICPR) which identifies one Strategy Group and four Working Groups (Floods/low water, Ecology, Water Quality and GIS/Economy).
- The Elbe Commission (ICPER) which identifies three Working Groups (EU Water Framework Directive, Flood and Accidental Water Pollution) and 5 Expert Groups (Surface Water, Groundwater, Economics, Data and Hydrology).
- The Sava Commission (ISRBC) which identifies four Expert Groups (Navigation, River Management, Accident Pollution and Flood Protection).

3.3 NMCG vis-à-vis other RBOs

NMCG has similarities and differences with international RBOs.

The similarities include:

- Mandate to look at management of a river in an integrated manner;
- Role for implementation and execution of its work programmes through various stakeholder institutions;
- States have independent mandates to address water/environment related issues (similar to the national roles within international RBO).
- By definition, an International RBO involves multiple countries. Considering India's size/number of states, there are similarities to a multi-country context;

NMCG differences, on the other hand include:

- NMCG has a regulatory role including powers to direct and enforce regulations within the basin. This role normally does not reside in international RBOs as this is within the remit of national authorities;
- NMCG has a strong budget line and implementation of most of its work programme is financed by NMCG's federal budget;
- NMCG institutionally is a highly empowered organisation and therefore the accountability of the organisation to deliver results on the ground is very high. This therefore often influences its functioning and its relationship with other stakeholder organisations (like CPCB, CWC etc); and

NMCG has serious commitment for River Basin Management and is working to strengthen its capacity to develop and update River Basin Management Plans for Ganga and its sub-basins. NMCG has already initiated the development of a Ramganga River Basin Management Plan in cooperation with GIZ applying the internationally recognised RBM Cycle approach, that has been adapted to the Indian context. Previous chapters provide a detailed comparison between the AO 2016 paragraphs and selected international RBOs with similar responsibilities. Table 2 below offers a more detailed comparison between NMCG's mandate as stipulated in the AO 2016 and international RBOs.

Table 2: Comparison between selected international RBOs and AO 2016

AO 2016 paragraphs

Para. 4 - Principles to be followed for rejuvenation, protection and management of River Ganga

International RBOs with similar responsibilities

These principles stated in AO 2016 are also included in international RBOs (Rhine, Danube etc.). These have clear governance arrangements (e.g., Heads of Delegation to Convention, Secretariat, Expert Groups themed to issues associated with RBMPs). However, **a 'main' responsibility is to monitor the implementation of the RBMPs by the member states** including agreeing common approaches for navigation, infrastructure (hydropower, locks), flooding and floodplains, fish migration, etc.

The International RBOs analysed by the consulting team also take the lead of co-ordinating the development of the international RBMPs that were/are linked to national RBM Plans. These summarise the overall objective of the plans and what measures would be required to achieve the objectives. This co-ordination is essential to ensure the final agreement of e.g., which parameters are monitored (and when and where), what sampling and analysis methods are used, how ecological status is assessed, how flow is estimated, navigation issues, infrastructure, etc.

It is observed that NMCG is playing a strong role in coordinating activities related to Ganga rejuvenation.

The International RBOs analysed do not have regulatory powers (e. g. defining standards, imposing fines etc.) but work through consensus between their members. Regulatory functions are the responsibilities of, for example, national environmental agencies or inspectorates. (e.g., UK Environment Agency or US EPA).

International RBOs play an important role in raising awareness at all levels (schools to ministers) and help to ensure that other bodies that operate at a basin level – e.g., navigation/shipping are engaged. The current assessment indicates that NMCG has been implementing several activities in the area of public outreach and awareness creation. To this end it would be essential to have a systematic approach with clearly defined communication strategy. Possibly, it would be helpful establishing a specialised unit on communication, PR, awareness creation, education and reporting that also encompasses aspects of the Ganga/ sub basins Management Plans. International RBOs can play (e.g., Rhine, Danube) an important role in accident/emergency warning on chemical spills or floods acting as a conduit to disseminate warnings. Plus facilitating agreed hydrological modelling for flood prediction.

According to the AO 2016 NMCG and in case of “any poisonous, noxious or polluting matter is present or has entered into the River Ganga” ... NMCG shall take immediate action ... or direct for carrying out such operations by ... SGCs or DGCs or local authorities”. NMCG is also in the process to establish a well structured exchange and communication between different levels/authorities which includes not only communication during crisis but also holding regular meetings for updates coordination and safety audits by DGCs as mandated in AO 2016.

AO 2016 paragraphs

International RBOs with similar responsibilities

Para. 5 - Ecological flow of water in River Ganga to be maintained

International RBOs have a role in defining limits (based on the assessments of Expert Groups and agreed by the RBOs' governing bodies) and reporting on achievements on the quality and quantity - data usually provided by other bodies.

There are exceptions where (for example) the Danube undertakes a monitoring survey of the river (by boat) every five or six years. This also acts as a public awareness opportunity to highlight rivers and threats to them and to provide a mobile 'training unit' to assist on sampling and analysis along the river.

Para. 6 - Prevention, control and abatement of environmental pollution

RBOs (e.g., at the pan European level in response to EU Directives) assess data provided by other bodies to establish if the limits are met - and report these to their supervisory bodies. But any action is taken by other (national) bodies to enforce.

Para. 7 - Emergency measures in case of pollution of River Ganga

Emergency warning systems (ensuring reports of problems reported to all riparian authorities, modelling transport of pollutants, press releases etc.) are undertaken by Danube/Rhine RBOs. NMCG acts as facilitator for state and district level authorities and is providing support on technical level as well. An important part of this work is setting standards for procedures, workflows, equipment etc., that are followed by all involved institutions. This ensures smooth communication and comparable results.

Para. 8 - Power to issue directions

International RBOs would provide guidance only.

Para. 9 - Ganga safety audit

International RBOs would provide guidance on undertaking safety studies (pollutants, flood etc.) only

Para. 10 - Pollution in River Ganga and its tributaries to be monitored

International RBOs facilitate agreeing on monitoring sites between countries. Monitoring is undertaken by others according to local requirements. Data are provided (not in real time) to RBO.

Para. 11 - Constitution of National Council for Rejuvenation, Protection and Management of River Ganga

International RBOs have a high-level body for long-term strategy development (Council of ministers, Heads of delegation, Convention parties, etc.) with the responsibilities to undertake these devolved to the RBO's secretariat including the expert groups.

AO 2016 paragraphs

International RBOs with similar responsibilities

Para. 13 - Dissolution of National Ganga River Basin Authority

NGC has taken over these responsibilities thereafter. Most international RBOs are based on a convention or other agreement and are likely to include such a mechanism.

Para. 16 - Meetings of National Ganga Council.

Danube – Heads of Delegation (HoD) meet once a year with an interim meeting held by national representatives.

Para. 17 - Constitution of Empowered Task Force (ETF) on River Ganga as authority

Working Groups on Rhine/Danube meet 1-2 times per year - but may be more frequent if there are specific activities (e.g., updating RBMP, undertaking joint surveys)

Para. 18 - Functions and powers of Empowered Task Force on River Ganga

Not found in international RBOs (other than the HoD/Commission meetings and technical WGs). This would be a devolved function to countries.

Para. 25 - Monitoring of execution of plans and programmes of District Ganga Committees

Monitoring of RBMPs (or infrastructure development plans if different) under intl. RBO – To be reported to all parties and for public awareness. Public awareness of national RBMPs are the responsibility of national governments, International RBOs usually have a mandate to summarise this information at the 'basin' level, integrating the progress reported by countries

Para. 26 - Preparation of consolidated reports of all District Ganga Committees and taking remedial measures in respect thereof

RBMP sets the overall plan for a given basin which is then implemented through lower-level bodies (national or local). Typically, international RBMPs are based on national RBMPs and provide a basin-wide summary of the key issues and measures to address problems. By analogy, the Consultant sees an opportunity for NMCG to strengthen such bottom-up approach.

Para. 27 - Conducting of Ganga safety audit and submission of such audit reports by State Ganga Committees

Risk assessments are undertaken by member countries and RBO is informed of results. There is likely to be roles for International RBOs on assisting to harmonise approaches to risk assessments. Any resulting actions would be the responsibility of countries.

AO 2016 paragraphs

International RBOs with similar responsibilities

Para. 37 - Appointment of Director General and Executive Directors of NMCG

Heads of Delegation meetings and ministerial meetings - chair rotated annually. Head of Secretariat to commissions usually appointed for 3-6 years. Technical staff in RBOs are often on three-to-six-year appointments (although in the case of the Danube staff were able to reapply).

Para. 40 - Establishment of River Ganga Monitoring Centres at suitable locations along River Ganga and its tributaries

International RBOs would not have this responsibility. Countries are expected to agree on monitoring parameters and frequency. Data collected by national authorities and then reported to RBO (annually/quarterly). International RBOs would assist on harmonising approaches for monitoring and quality assurance. In the evolution of the Danube selected 'trans-national monitoring sites' were agreed as a subset of national programmes and these were used to provide the basin wide summary of the river quality

Para. 47 - Powers of National Mission for Clean Ganga to call for information, conduct inspection, publish reports, etc.

International RBO would publish reports on quality, navigation, sediment transport, biodiversity, wetlands, etc.

Para. 49 - Preparation of consolidated reports

Transboundary (basin wide) reports prepared by intl. RBO based on information provided by national authorities

Para. 50 - Annual report.

Yes, also under intl. RBOs.

3.4 Summary and Conclusions

The AO 2016 shows that the scope and responsibilities of NMCG is broader than international basin organisations developed to act as secretariats to conventions or other agreements. Specifically, NMCG has extensive responsibility for implementing infrastructure projects whereas those international RBOs implementing projects are typically responding to donor funded initiatives. In an international basin, implementing measures (management actions) identified in RBMPs are the responsibility of countries within the international basin. NMCG also differs from international RBOs by undertaking overall regulatory functions that remain the responsibilities of countries within an international setting.

4. Recommendation: NMCG's Proposed New Organisational Structure

4.1 NMCG's Organisational Structure Framework

Several options for a future organisational structure have been considered enabling NMCG to better reflect AO 2016 requirements with a particular focus on the development and implementation of Ganga and sub basins' RBMPs. The details of the options identified, their advantages and structures, were presented to the senior leadership from NMCG on 15 July 2022, and discussed in detail leading to an agreed proposed structure presented hereafter.

In summary, the NMCG's senior leadership agreed on the following strategic framework or envisaged the following aspects as a priority for the near future:

- A River Basin Management Plan would form the basis of developing its activities.
- There are important stakeholders at the National, State and District level which have significant skills and expertise with respect to River Basin Management. It is important to have a mechanism to co-opt their expertise in the functioning of the NMCG.
- Further strengthening and stakeholders' involvement at State and District levels is vital in order to ensuring stronger ownership and sustainability of NMCG's initiatives.
- There are needs to regrouping of functions at NMCG to better reflect the present and future role of NMCG.
- Regulatory functions- The regulatory functions of NMCG are seen by some stakeholders as a conflict of interest to the implementation and development roles of NMCG. Therefore, there needs to be an internal mechanism to address this with "clear separation" vis-a-vis the programme planning and implementation group.

The key recommendations for strengthening of the proposed NMCG organisational structure are as follows:

a) Establishment of a River Basin Management Unit (RBM-U)

To coordinate the activities of the River Basin Management Plan, NMCG is envisaged to create a River Basin Management Unit. Discussions with NMCG identified a preferred option to position a RBM Unit reporting to the NMCG DG's office directly to ensure that the RBMP gets the resources and priorities necessary as well as political support.

A phased approach to developing the capacity to prepare, monitor, assess and update RBMPs for Ganga and its sub basins has been recommended in the discussion with senior leadership from NMCG. It is also agreed that the RBMP Functions would encompass the coordination of RBM planning, implementation and assessment, involving key NMCG partners at national, state, district levels and other stakeholders, including the following:

- Information gathering and analysis on: Sustainable Agriculture, Ecological Restoration, Industry/Municipal impacts, Monitoring (water quantity and quality), Afforestation, Biodiversity, Wetlands Conservation, Groundwater protection, population change, water demand scenarios, socio-economic analysis, etc. (Basin Characterisation);
- Guiding the identification of measures to set up Programme of Measures (PoMs) addressing significant water management issues identified in the Basin Characterisation based on experiences from International RBOs and national examples;
- Considering Arth Ganga initiatives;
- Capacity building and training;
- Knowledge Management, communication, PR and awareness raising;
- Stakeholder engagement;
- Maintaining database of potential experts from national, state, district organisations and other stakeholders;
- Response to impacts of Climate change.

It is however recognised that NMCG's role is not to perform all these functions only on its own but to work with key partners and other stakeholders to deliver the expected results and for NMCG to coordinate the delivery of the RBMP.

b) Establishment of Thematic Expert Groups (TEGs)

The NMCG Retreat confirmed that the RBM Unit would adopt a TEG approach to actively involve key partners (for example, CPCB, CWC, CGWB, etc.) and to maintain close cooperation with RBM approaches being developed at the State and District bodies.

The steps discussed and agreed to at the NMCG senior leadership retreat are:

- Appointing a small team to initiate the process of the RBM Unit and deliver their outputs within six months. This team (five to seven people) would be responsible for:
 - Developing a detailed plan for the RBM Unit to deliver the Ganga/ Sub Basin Management Plan.
 - Reviewing existing RBMPs in the Ganga River Basin and beyond e.g. CWC river plans, Tapi river plan, Ramganga river plan to assess the level of detail and scope as possible input to RBM cycle approach driven RBM plans.
 - Confirming the overall objective and outcome expected by the NGC for the Plan.
 - Identifying the specific TEGs required to fulfil the RBM Unit's mandate.
 - Developing detailed Terms of Reference for the TEGs and identifying appropriate chairs (from key partners and elsewhere).
 - Establishing a database of qualified experts and practitioners to form the TEGs.
- Initiating related work in the SMCGs (two to three persons' team) to act as a State level body to contribute to both state and basin-wide Ganga plans.
- Establishing Thematic Expert Groups to elaborate, monitor, assess and update the Ganga RBMP.
- Appointing Chairs of the TEGs and confirm the membership of identified experts from key partners and other stakeholders to contribute to the Ganga and sub basins RBMPs.

At the NMCG Retreat, the DG mentioned that that NMCG had constituted Task Forces on various themes (Biodiversity, afforestation). These Task Forces were akin to the Thematic Expert Groups proposed by the Consultants. It was discussed that the Task Force would align its activities to the River Basin Planning approach going forward.

c) Separation of Regulatory functions within the NMCG organisation

According to approvals, monitoring²⁸, compliance to standards and legal aspects for regulatory actions etc. are outlined in several clauses of the AO 2016. It is suggested that the regulatory functions be separated from the programme planning and implementation functions of NMCG from a structure perspective. A group for Technical, Regulatory and Legal functions is suggested to be set up. The group amongst other activities outlined in the organogram diagram, shall include a legal cell which would be responsible for managing legal aspects of enforcing AO 2016, regulatory actions and NGT litigations. The group shall be headed by the ED Technical.

Within the regulatory division, a dedicated legal cell may be set up to manage key legal issues that may arise in the implementation of AO 2016. This legal cell shall be responsible for resolving queries and issues raised by any other central or state government body on the powers, functions and jurisdiction of NMCG. Further, the legal cell's role will include management of all litigation before the National Green Tribunal (NGT) where NMCG is a party as well as advising NMCG on any regulatory actions that it is required to take in discharging its mandate.

d) Non-Infrastructure development initiatives

In the future Non-infrastructure initiatives, which have aspects such as programmatic interventions of Afforestation, Biodiversity etc and cross cutting initiatives such as capacity building, knowledge management, technical-research coordination, technical new initiatives etc. will become very important for NMCG. This may also include emerging themes such as Arth Ganga etc. Therefore, a separate Non-Infrastructure group is proposed to be set up.

e) Infrastructure or projects related activities

Infrastructure or projects related activities of NMCG are likely to continue in the near future. Therefore, a group for Infrastructure and Project works is envisaged to continue.

f) Internal Services (Finance, and HR & Admin)

The internal services group would cater to various functions such as internal procurement, finance and accounting, HR (including gender), IT and analytics, which will be the backbone support to all other functions/groups (these functions are present within the finance and administration groups in today's structure as well).

It was discussed at the NMCG senior leadership meet that it would be more appropriate to separate the Internal services group into Finance and Administration groups as is the case presently. As regards to HR management, NMCG needs to start addressing gender inclusiveness at the organisational structure level as well as gender mainstreaming covering all NMCG services. Figure 8 provides a schematic overview of the suggested NMCG organisational structure.

²⁸ Monitoring may not be seen as a regulatory function. However, it can be considered as an 'input' to the regulatory function. Sometimes the legal system needs a specific and authorised person to take samples for enforcement actions. This has largely been removed by the use of ISO standard methods and quality accredited laboratories (again ISO) etc.

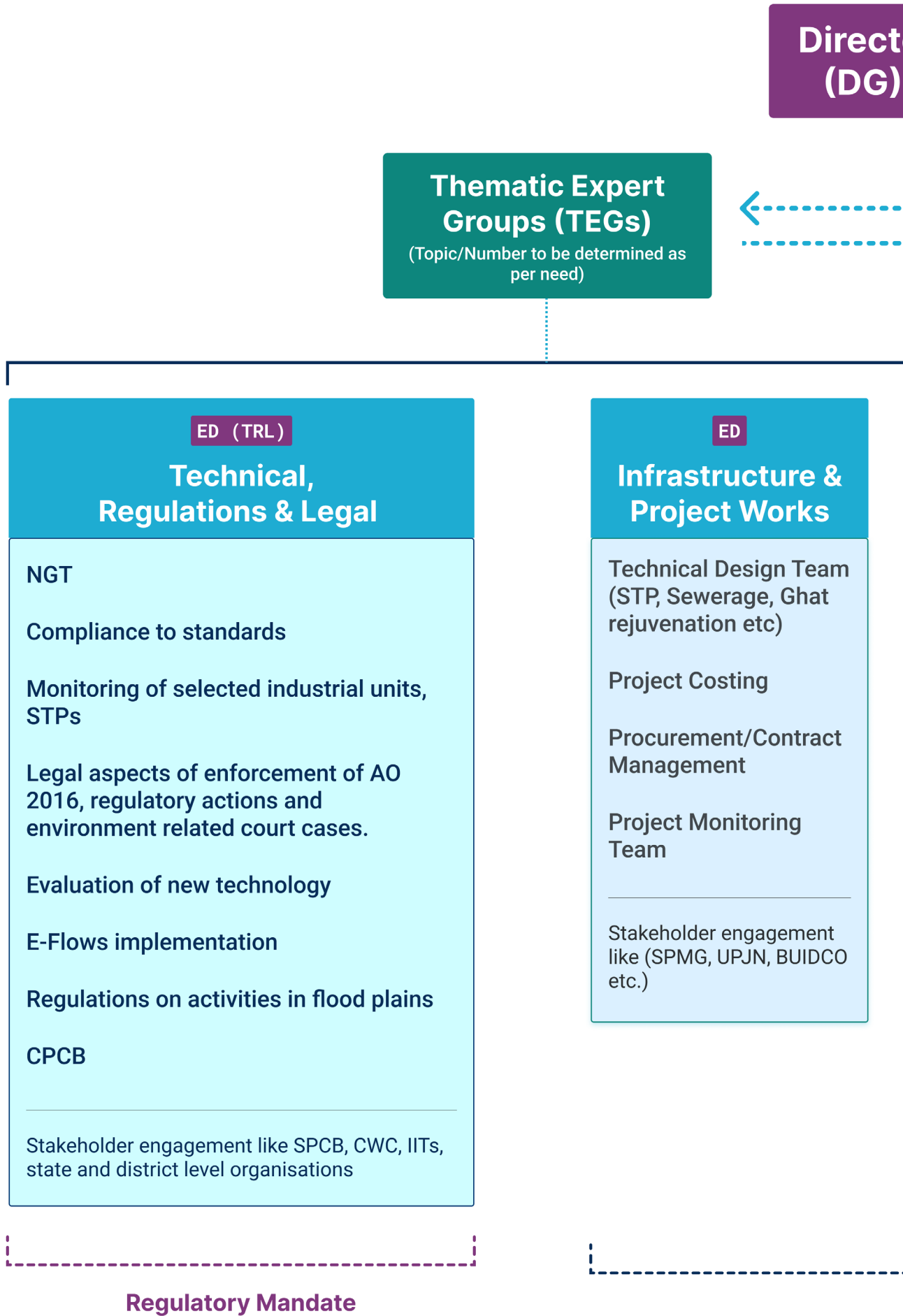
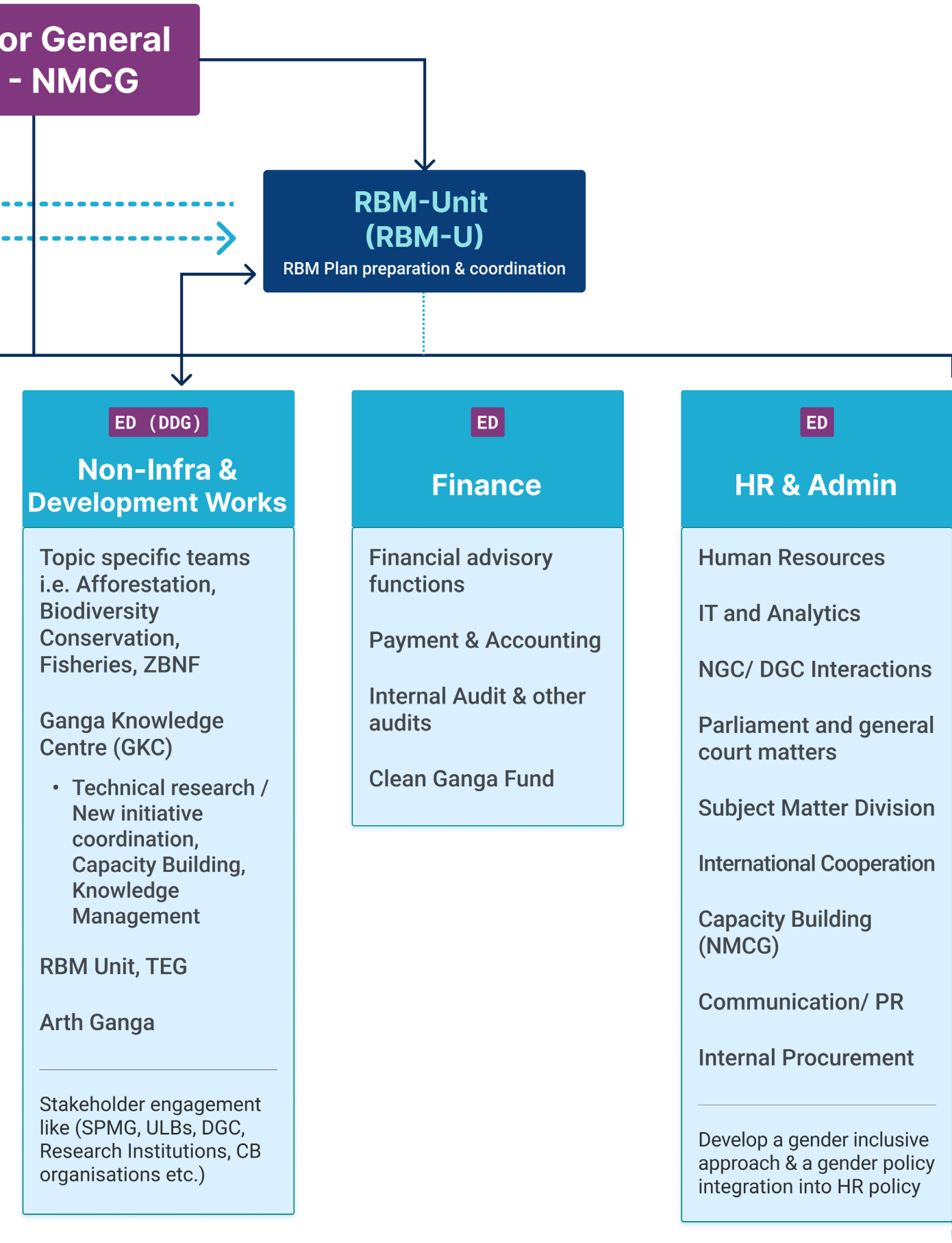


Figure 10: Graphic summary of the proposed NMCG organisational structure



Implementation and Coordination Mandate

4.2 Interface with Key Stakeholders

As outlined in earlier chapters, the interface with the following organisations- CPCB, CWC, CGWB and MoHUA are among the ones that would benefit from a more streamlined institutional platform. In this context, the following aspects need to be considered:

- CWC, CPCB and CGWB specifically have outlined their expectations to be consulted at all stages of River Basin Planning and Programme level preparation as well as more regular interaction during implementation.
- They have also outlined the need for their roles and expertise developed over several years to be considered.

In this context, the aspects/mechanisms how these organisations can be integrated in the NMCG activities can be seen as follows:

- **Thematic Expert Groups**
It has been suggested that NMCG constitute Thematic Expert Groups for both River Basin Planning and Management, as well as Regulatory functions. It is imperative that these organisations are well represented in these groups. This would facilitate inputs on all these aspects to be integrated in the planning, implementation and regulatory processes.
- **A formal Memorandum of Understanding (MOU)**
A formal Memorandum of understanding (MOU) be set up with clear roles and obligations by the partner organisations and the NMCG. A balanced MOU would clearly lay down the expectations from all sides concerned as well as a mechanism to monitor those. Any concerns on overlaps of roles may also be addressed in those.

4.3 Key Observations and Recommendations from SMCGs and DGCs

Some of the key aspects on SMCGs which need further deliberations are presented in Table 3

Observation

SMCGs do not find a clear reference in the AO 2016. Therefore, the organisation derives its roles and powers from being the secretariat to the State Ganga Council and the roles allocated by NMCG on a day-to-day basis. The same also has an implication on the leadership and the top management structure at the SMCG. Unlike NMCG which has full-time senior officials in the leadership positions, the SMCG leadership is not full-time and therefore not able to provide the direction that maybe required for the organisation

Consultant's recommendation

This aspect needs to be further discussed with concerned parties as to whether there needs to be a formal legal basis for the SMCGs in order to further strengthen their role going forward

SMCGs also depend significantly on budgetary support of NMCG and the state governments. Unlike NMCG which has a clear visibility on the budgetary support available for a five-year period, SMCGs do not have the same clarity and security

NMCG together with concerned parties may explore ways on how State and District level activities can gradually and increasingly be funded by the States and Districts.

SMCGs often see their roles as an implementing arm of NMCG. This therefore follows a "top-down-mission-mode" implementation that the Namami Gange programme has so far adopted.

- a. It needs to be discussed with concerned parties whether the programme would move towards a more bottom-up approach where the states based on contributions from District institutions would be required to play a significantly larger role in planning, funding and implementing of activities.
- b. There has been a suggestion by state level stakeholders to have an embedded representation of NMCG within the SMCG structure so as to streamline coordination and also strengthen the capacities at the state level. To be studied further and maybe piloted in one of the state missions.

Some of the key aspects on DGCs which need further deliberations are presented in Table 4.

Table 4: Some of the key aspects on DGCs which need further deliberations

Observation

The DGCs are essentially conceptualised as a committee and therefore its members are often ex-officio representatives of various departments / other bodies. Consequently, there is limited continuity in the participation of members in various meetings.

Unlike at national and state levels where there is a permanent secretariat there is no such structure available at the district level. At district level, there is an imperative need of subject matter experts.

Consultant's recommendation

Further study how to insure better continuity at DGCs level. The recent launch and implementation of Ganga District Performance Monitoring System (GDPMS) is a welcome and affirmative step towards this.

- a. Further explore what would be the most appropriate form of e. g. a 'support cell' to support and coordinate the district level planning processes. Having a team of such experts, in long term, will also capacitate the District Ganga Committees for effective execution of their roles and responsibilities as per AO 2016. Expertise is envisaged to include water resource management, pollution abatement, urban/environmental planning and good understanding of public financing and administration management.
- a. An immediate step could be to appoint a nodal officer for day-to-day coordination with the line departments/ stakeholders at district level and to facilitate the preparation of the DGPs until arrangement for 'support cell' are made.

Recommendation on coordination at district level: There have been suggestions from state and district level stakeholders to provide a coordinating role at the district level to the irrigation or any relevant department (based on DGC's discretion and geographic features) rather than only to the forest department which is presently the case.

The DG informed that a "DPO" position has already been created at the District to facilitate the functioning and activities of the District Ganga Committee.

5. Guidance Documents

The discussions with senior leadership from NMCG showed that Standard Operating Processes will be needed to make new organisational structure of NMCG to function optimally. A concept note has been prepared covering key aspects of SOPs²⁹ explaining that SOPs in the given context would be better seen as Guidance Documents. The document also provides possible areas for elaborating SOPs as well as a tentative outline suggesting key steps for establishing guidance documents. Following needs were identified together with the senior leadership from NMCG:

- Guidance Document on the establishment of an RBM Unit;
- Guidance Document on the formation of Thematic Expert Groups;
- Guidance Document on Stakeholder engagement and participation; and
- Guidance Document on planning, coordination and communication of RBMPs.

While these Guidance Documents are detailed in Part B of the study outcomes, an introduction of these Guidance Documents is given below:

5.1 Guidance Document (GD) on the Establishment of a RBM Unit

The purpose of this Guidance Document is to provide a stepped guidance towards setting up the RBM-Unit at NMCG which would be tasked with preparing and updating the River Basin Management Plan (RBMP) for the Ganga and its sub-basins, coordination and monitoring of implementation, as stipulated in the Authority Order (AO) 2016, following international best practices.

The instrument also describes the approach as suggested and agreed with the NMCG's senior leadership at the joint retreat on 15 July 2022 and a first outline of suggested staffing including the responsibilities and required qualifications.

5.2 Guidance Document on the Formation of Thematic Expert Groups (TEGs)

The purpose of this document is to form Thematic Expert Groups to guide the planned RBM Unit within NMCG for developing the Ganga RBM-Plan/sub-basin plans, using national and international experiences of Thematic Expert Groups to address key issues within the basin. The document describes the anticipated steps necessary to establish a number of Thematic Expert Groups and also describes examples of Thematic Expert Groups.

²⁹ Draft Concept Note for Selecting Standard Operating Processes (SOPs), May 2022

5.3 Guidance Document on Stakeholder Engagement and Participation

Stakeholder involvement is vital to ensure that their needs are addressed in an appropriate manner and, that potential conflicts are identified and reflected in form of manageable compromises. This guidance document aims at facilitating the development, implementation, and assessment of the Ganga and sub basins' RBMPs through the active involvement of basin-wide stakeholders from 'community to cabinet'. The document provides a list of stakeholders relevant for establishing Ganga and sub basins' RBMPs. It also describes steps that are anticipated to be taken by NMCG and key partners to develop and implement a Stakeholder Engagement and Participation Strategy.

6. Next Steps

Based on the Final Strategic Framework Document and Guidance Documents at hand and provided that the hereafter suggested activities have not yet been initiated by NMCG it is suggested that NMCG at the discretion of the Director General would carry out the following activities:

1. Initiate the internal reorganisation mainly by implementing the suggested new organigram. This would entail priority tasks:
 - i. Establishing the suggested River Basin Management Unit within NMCG.
 - ii. Bringing a River Basin Management focus on the functioning of the Task Forces established. In addition, facilitate the creation of other Task Forces/Thematic Expert Groups suggested in this report.
 - iii. Realign the existing Technical function to include Regulatory and Legal aspects as suggested in earlier sections of the report and clarify the responsibilities.
 - iv. Identifying qualified staff internally and/or recruitment of additional staff required to strengthen NMCGs staff capacities in light of these additional responsibilities.
 - v. Working to establishing new policies and directives e.g. on HR, gender, communication, PR.
2. Inform the Executive Committee (EC) and possibly the Minister MoJS on the recommendations summarised in the document at hand and implications on NMCG and other major stakeholders at national, state and district level as compiled in this final report.
3. NMCG may engage in reviewing collaboration with other main players at national, state and district level aiming at strengthening stakeholder engagement and involvement.

Annex 1: Bibliography

- This bibliography covers main documents analysed during the consultant's assessment and does not claim being exhaustive. Additional Web sources (URLs) are given in the footnotes in the main body text.
- NMCG Authority Order (AO) 2016
- Technical Discussion Document (TDD) on NMCG's Way Towards a Functional RBO: Key Aspects for
- Future Institutional Set-Up and Strategic Target Achievement (GIZ, 2020)
- Ganga RBM Plan 2015
- Report on Gender Analysis for SGR II (GIZ, 2021)
- NMCG Employees positions and roles
- Employees number and categories NMCG
- NMCG Job Description
- District Ganga Committees: A Decentralised Approach to Rejuvenate Ganga (Rajiv Ranjan Mishra et. al., 2021)
- Development and Implementation of a Modular Training Programme on the River Basin Management Cycle in India (GIZ Project number 14.2485.2-001.00). Documents reviewed: Project ToR, Rapid Training Needs Assessment Report (December, 2019), Mission Report on the Implementation of Module 3 in Pune (Target Groups II and III) (March, 2020)
- Extended Summary of the Ganga River Basin Management Plan (GRBMP) 2015 (Consortium of seven Indian Institute of Technology (IITs), January 2015)
- Namami Gange (PowerPoint Presentation for the India Water Week 2019), NMCG, Ministry of Jal Shakti (MoJS) (27 September 2019) SGR / Implementation of the India EU-Water Partnership
- Order on River Ganga Authorities, MoJS / Department of Water Resources, River Development and Ganga Rejuvenation / NMCG (New Delhi, September 2019)
- Arth Ganga Framework, NMCG, MoJS (July 2021)
- Namami Gange Annual Reports 2019-2020 and 2020-2021, NMCG
- Organisational Capacity Assessment, NMCG, GIZ India (Saiju Chacko, 2019)
- Final Draft: The Organisational Structure of RBOs Technical Background Paper – Lessons Learned and Recommendations for the Mekong River Commission (MRC), Paper Prepared for the Mekong River Commission (MRC) (Susanne Schmeier, Hertie School of Governance, Berlin-Germany, June 2010).

Annex 2-A: List of Stakeholder Consulted

Meeting with	Date
National level	
Institutional Working Group (IWG)	10/11/2021, 24/02/2022, 12/07/2022 and 02/05/2023
Mr. Rajiv Ranjan Mishra NMCG Director General (DG)	18/11/2021
Mr. Ashok Kumar Singh NMCG Executive Director (ED) Projects	17/11/2021
Mr. D P Mathuria NMCG ED-Technical	26/11/2021
Mr. Rozy Agarwal NMCG ED-Finance	03/12/2021
Mr. Binod Kumar NMCG ED-Administration and Coordination	10/12/2021
Mr. Pankaj Kumar Secretary, MoJS	09/12/2021
Mr. A K Vidyarthi Scientist, Central Pollution Control Board (CPCB)	22/12/2021
Mr. R K Sinha Chairperson, Central Water Commission (CWC)	25/01/2022
Mr. Avinash Mishra Advisor, NITI Aayog	10/02/2022
Mr G Asok Kumar NMCG Director General (DG)	08/06/2022
Meeting with senior leadership of NMCG (DG and all EDs)	09/12/2022
State and district level in Uttarakhand (UK)	
Programme Director, SPMG incl. division experts	02/03/2022
Mr. Ravi Pandey Nodal Officer, Urban Development Department (UDD)	02/03/2022

Meeting with	Date
Ms. Neelima Garg General Manager, Uttarakhand Jal Sansthan	03/03/2022
Mr. K K Rastogi Chief Engineer, Uttarakhand Pey Jal Nigam Please include name(s) General Manager, UKPJN	03/03/2022
Mr. S. S. Paul Chief Environment Officer, UKPCB	03/03/2022
Mr. Akshay Environment and Enforcement Coordinator, SPMG	02/03/2022
Mr. R.K. Singh District Level Representatives (Rishikesh), Project Manager, Uttarakhand Jal Nigam, Rishikesh City	23/03/2022
Mr. Harish Bansal District Level Representative (Rishikesh), Executive Engineer, Uttarakhand Jal Sansthann	28/03/3022
Mr. Anand Singh Mishawan District Level Representative (Rishikesh), Assistant Engineer, Nagar Nigam	28/03/3022
Mr. R.K. Jain District Level Representative (Haridwar), Project Manager, Uttarakhand Jal Nigam	29/03/2022
Mr. Ajay Kumar District Level Representative (Rishikesh), Executive Engineer, Uttarakhand Jal Sansthan	29/03/2022
Mr. Dayanand Saraswat District Level Representative, Municipal Commissioner, Haridwar Nagar Nigam	29/03/2022
Mr. M. L. Shah District Level Representative, Additional Municipal Commissioner, Haridwar Nagar Nigam	29/03/2022

State and district level in Uttarakhand (UK)

Mr Rajesh Pandey Additional Programme Director, SPMG incl. division experts	26/04/2022
---	------------

Meeting with	Date
Mr. Sanjay G. Bhartariya Central Ground Water Board - Lucknow	26/04/2022
Mr Anupam Prasad, Mr Ambrish Pal Singh and Mr Shivam Tripathi Central Water Commission – Lucknow	26/04/2022
Mr. D K Singh, and Mr Gopal Singh Central Water Commission – Lucknow	27/04/2022
Mr. Ajay Sharma State Pollution Control Board	27/04/2022
Ms. Rashmi Singh Urban Development Department	27/04/2022
Mr. Anjani Acharya, and Mr Ashish Tiwari Forest Department	27/04/2022
Representatives District Ganga Committee - Moradabad	28/04/2022
Representatives District Ganga Committee – Bareilly	28/04/2022
Face-to-face Meetings at Delhi and Manesar	
Mr. Rajiv Ranjan Mishra (former DG NMCG)	11/07/2022 in Delhi
Mr. G Asok Kumar (DG NMCG)	11/07/2022 in Delhi
State level stakeholders	12/07/2022 in Delhi
Multi-stakeholders (national organisations) and NMCG	13/07/2022 in Delhi (partly virtual)
1 st Retreat with NMCG senior leadership team	15/07/2022 in Manesar
2 nd Retreat with NMCG senior leadership, World Bank and Trilegal	27-28/10/2023 in Manesar

Annex 2-B: Example of Guideline Questionnaire

This is an example of a guideline questionnaire which has been adapted according to the institutions interviewed.

1. What are key mandated powers and functions of [your organisation] especially in context of water pollution abatement, river management etc.?
2. [] and [] are two core functions/departments. What are key priorities specifically in context of river basin management and planning?
3. What is the role and responsibilities, coordination, and scope of activities between [your organisation] and [your organisation] state representation, especially concerning water pollution?
 - Is the role focused on technical assistance and guidance, research studies, preparation of manuals/codes/guidelines and their dissemination (i.e., at overall level) or is also concerned with specific projects implementation/monitoring?
4. What is the interface of [your organisation] broadly with MoJS, and other water organisations (as applicable) and specifically with NMCG as of date?
 - Interface with MoJS and other ministry-level water (or related) organisations (e.g. CGWB, CWC, etc.) in terms of support in policy guidelines, governance, and implementation aspects
 - Interface with NMCG in particular
 - Interface with state governments (directly or through state boards (SPCBs) in UP and UK) concerning river management, and further (if any) with SPMG, SMCGs, Executing agencies such as UP Jal Nigam
 - Is the focus of engagement with the above stakeholders at an overall policy and regulatory level or also for specific project implementation
 - What are the key areas / activities involving engagement / coordination / partnerships with other internal and external stakeholders?
5. Broad organisation structure (focus on water / wastewater management aspects)
 - Total number of positions
 - Posts filled by personnel on deputation vs. contractual staff
 - Permanent staff / positions and policy thereof (as applicable)
 - Details on technical (engineering), policy and regulatory, research and development, finance, project management, etc. positions
 - Activities undertaken through in-house staff vis-à-vis external agencies (individual experts and/or consulting firms)
 - Recruitment rules – approvals required and recruitment process

6. What are the financing mechanism for various activities of [your organisation]
 - Funding sources and utilisation, mapped to project/programme/state level initiatives
 - Any other funding sources (e.g., corporates for trainings/publications, trade bodies, or through multilateral/bilateral funding institutions)
7. How do you see the role (current/evolving) of NMCG in the context of river basin management and environment pollution abatement?
8. What was [your organisation] involvement in the development of the GRBMP 2015?
9. How is [your organisation] involved with NMCG and other partners in trying to reach the GRBMP's Objectives?
10. Going forward, how do you see [your organisation]'s role in updating GRBMP and assisting with its implementation?

Annex 3: Approach and Methodology towards Development of Strategy Framework

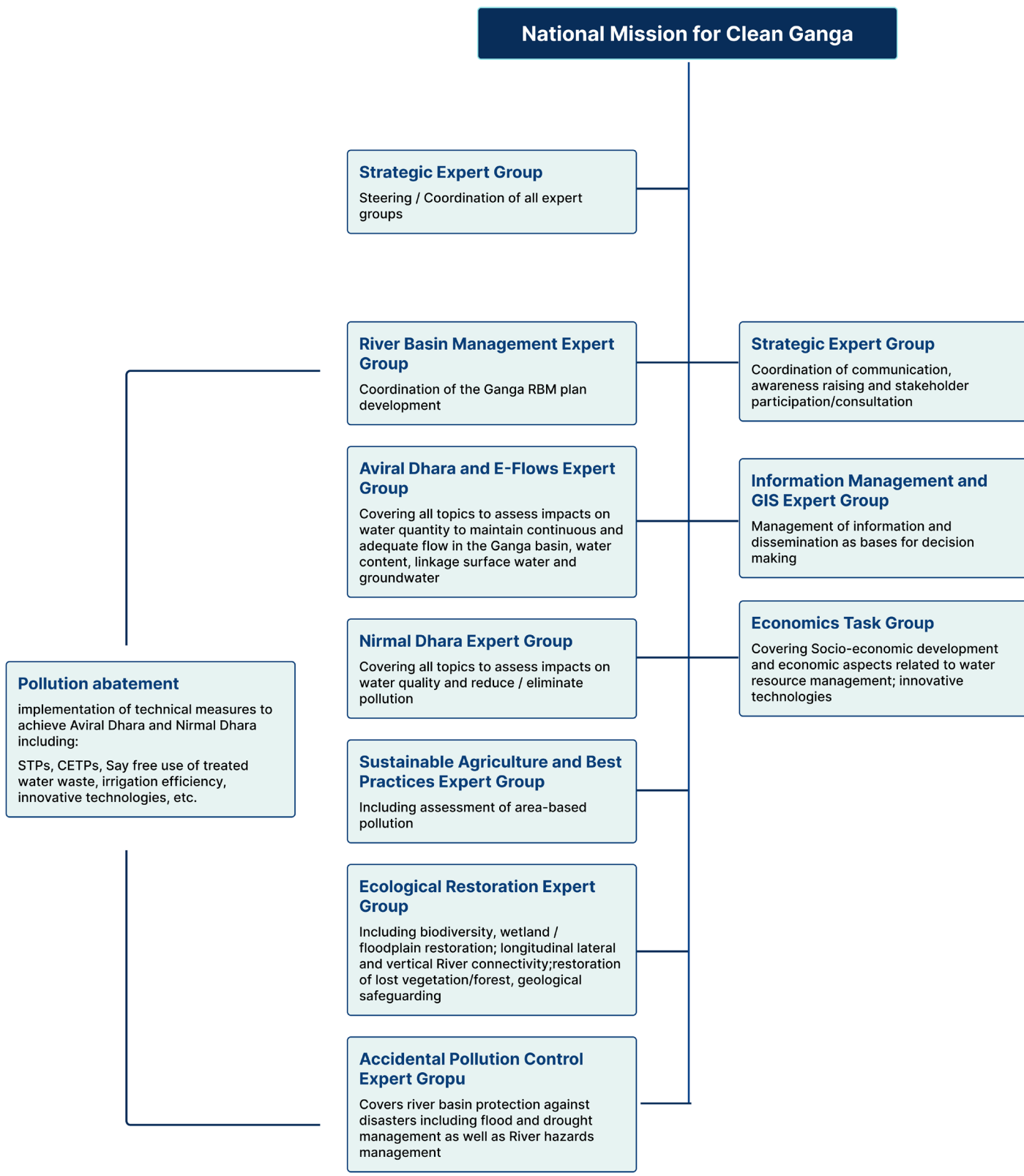
The following presents the study team's review of the Technical Discussion Document: NMCG towards a Functioning RBO. A Technical Discussion Document (TDD) 'National Mission for Clean Ganga's Way Towards a Functional River Basin Organisation: Key Aspects for Future Institutional Set-Up and Strategic Target Achievement' has been prepared by GIZ (2020). The TDD presented institutional and coordination structures appropriate for managing large river basins such as the Ganga through the establishment of a River Basin Organisation (RBO). The purpose was to provide suggested options to be considered by NMCG to facilitate the coordinated management of the Ganga learning by approaches adopted from international RBOs that are relevant to the Ganga and the context in India with the devolved responsibilities at the state level. The TDD's scope was focussed on describing the River Basin Management Cycle taking account of the current Ganga River Basin Management Plan (GRBMP) and to offer preliminary recommendations on how the NMCG could provide the functions common in international RBOs. The TDD provides a comprehensive description of the roles and responsibilities of RBOs, drawing on experiences from large international basin authorities and the governance mechanisms.

TDD's Suggested Structure towards RBO Functions

The TDD presents a suggested approach and scheme for future structure within NMCG to provide RBO functions. In essence, this proposed approach builds on the AO 2016, the GRBMP 2015 and on the RBM Cycle, drawing on experiences from international RBOs. The TDD further draws the main structural element from the GRBMP 2015 and the eight missions that were used to formulate the plan, concluding that "the NMCG structure should circle around these thematic missions through Thematic Expert Groups" (TEGs) as shown in the organigram in Annex Figure 1.

Team's observations include the following:

- It is assumed that the structure proposed for NMCG refers to just the management of the GRBMP and other existing function of NMCG (identified in the AO 2016) would continue;
- The use of Thematic Expert Groups (TEGs) to guide the main activities described in the GRBMP are commonly utilised within international RBOs. The figure proposed in the TDD (Annex Figure 1) is aligned with the eight missions adopted in the development of the 2015 GRBMP under the coordination of an overall River Basin Management Expert Group is appropriate. However, there are multiple options to arrange the topics for expert groups (e.g. pollution reduction addressing diffuse and point sources, monitoring to cover the basin assessment and flood events, public participation and awareness raising, etc.); and
- The TDD's structure is assumed to utilise existing NMCG services of Human Resources (HR) and financial management departments.



Annex 3 Figure 1: Proposed structure for NMCG circled around thematic missions through thematic expert groups (Source: TDD, 2020).

This is an illustrative list of possible Expert Groups which can be taken up depending upon need and priorities in phased manner

Overall Assessment of TDD Report

The TDD summarises the roles and responsibilities of RBO functions and offers a suggestion on how NMCG could provide these key elements, specifically related to the coordination of the GRBMP. It also highlights the detailed nature of the GRBMP and notes the omission of a clear Programme of Measures (PoM) that detail the planned actions to address the water quality and water quantity concerns in the Ganga River; the study team agrees with these comments.

The study team appreciates the TDD report and the messages that are conveyed in it, unfortunately the team has not been able to identify what impact this report has had on the work of NMCG or on any proposed management changes to consider or adopt the suggested approach to the coordination of the GRBMP in line with international best practices within RBOs.

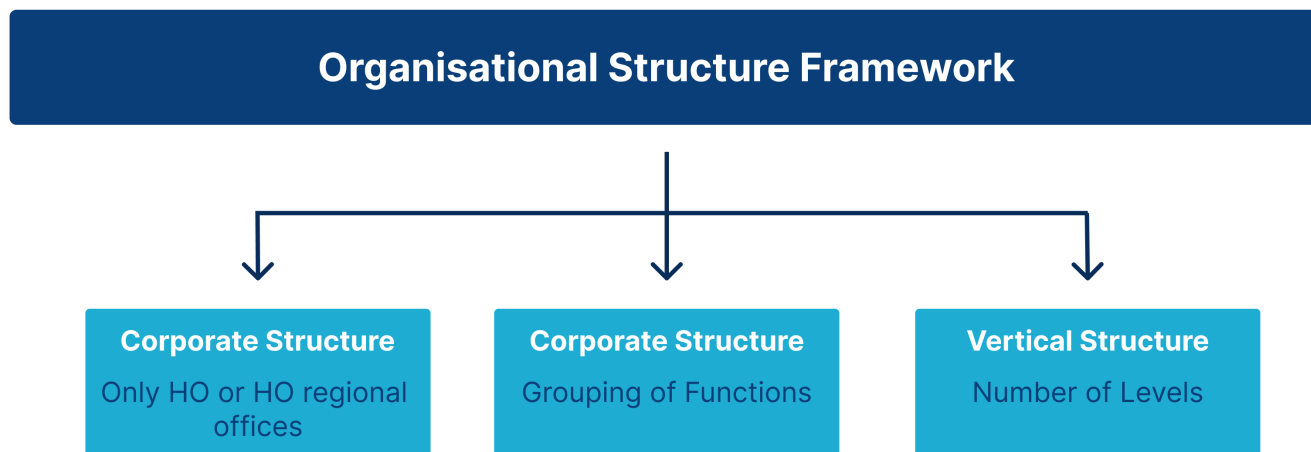
The TDD's recommendation of the development and supervision of RBMPs through expert groups is agreed with by the study team. Such expert groups could involve personnel drawn from national, state or district organisations to guide the formulation and revision of the RBMP, supported by academic expertise from ITTs and civil society representatives.

In conclusion, the study team endorses the approach of coordinating the RBMP activities through the use of EGs with constituents drawn from a variety of national, state and district bodies, including academics (e.g. ITTs) and civil society. This approach is recommended and presented in subsequent chapters of this Strategic Framework. Alternative scenarios for an effective RBO function within NMCG include:

- Distributing the RBMP coordination functions across NMCG. Whilst this would result in least changes to NMCG the lack of a focus on the RBMP is considered as less effective.
- Distributing the RBMP functions across multiple national and state bodies. This would require a very effective coordination unit (two to three experts) within NMCG to ensure all the actions are undertaken and clear willingness by other bodies to complete tasks within a specified time. An advantage of additional input from state/district level would be increase the ownership of the development and implementation of the Plan at these levels.

Annex 4: Organisational Structure Framework

The options and elements given hereafter were presented in the Draft Strategic Framework Document and discussed with the NMCG's senior leadership during the retreat. Chapter 4 of this document describes the final structure which is a modified version of option 1 (chapter 4a) presented in this Annex. The framework elements which the study team considered while designing an organisation structure are summarised in the Figure below).



Annex 4 Figure 1: Elements of organisation design

1. Horizontal Structure

There could be different bases for grouping of functions at NMCG. However, the grouping of functions only can take place after NMCG's role focus is clarified, synergies with other institutions will have been explored, and collaborations are defined to minimise or avoid possible conflicts of interests and/or redundancies. The following options could be considered.

a) Sub-Option 1

Related to the horizontal structure, this sub-option 1 presents four main groups as follows:

- Infrastructure or projects related - part of the Basin Management Function (already existing within the present NMCG structure).
- Non-Infrastructure development initiatives - Which has aspects such as capacity building, knowledge management, technical-research coordination, technical new initiatives etc. (also present in different groups in the existing structure). This may also include developing themes such as Arth Ganga etc.

- **Regulatory functions** - According approvals, monitoring²⁹, and compliance to standards etc. as per AO 2016 (not explicitly present in the existing structure and therefore, is an addition to the existing structure; however AO 2016 and discussions with NMCG bring this area to be strengthened). The regulatory functions are seen by some stakeholders as a conflict of interest to the implementation and development roles of NMCG. Therefore, this has been carved out as a separate group with a “clear separation” with the programme planning and implementation group.
- **Internal Services** - The internal services group would cater to various functions such as internal procurement, finance and accounting, HR, IT and analytics, and court related matters which will be the backbone support to all other functions/ groups (these functions are present within the finance and administration groups in today’s structure as well). If NMCG considers appropriate, the Internal services may be split into Finance and Administration groups as is the case presently.

There is a need to bring focus on “River Basin Management” as a central guiding theme and continue to build future work programmes based on the guiding principles outlined in AO 2016. In this context the following are additional features:

- **Lean River Basin Management Unit** - as a part of the DG’s office . In this sub option, the River Basin Management Unit is the centre would be a lean unit
- **Thematic Expert Groups** - Various Thematic Expert Groups would be constituted to support
 - ✓ **RBMP-related (Aviral Dhara/Nirmal Dhara, Information** - Knowledge Management, PR and RBM Training, Technical: Sustainable Agriculture, Ecological Restoration, River Hazards, Protection Against Disasters, Economics etc.), and
 - ✓ **Regulatory related** - (standards for E-flow and other aspects).
 - ✓ **Any other topic** - as deemed necessary by NMCG.

b) Sub-Option 2

In this sub-option, the main groups are presented as follows:

- **Infrastructure or projects related** - part of the Basin Management function (already existing within the present NMCG structure) (same as Sub-Option 1)
- **Regulatory functions** - (same as Sub-Option 1)
- **Internal Services** - (same as Sub-Option 1)

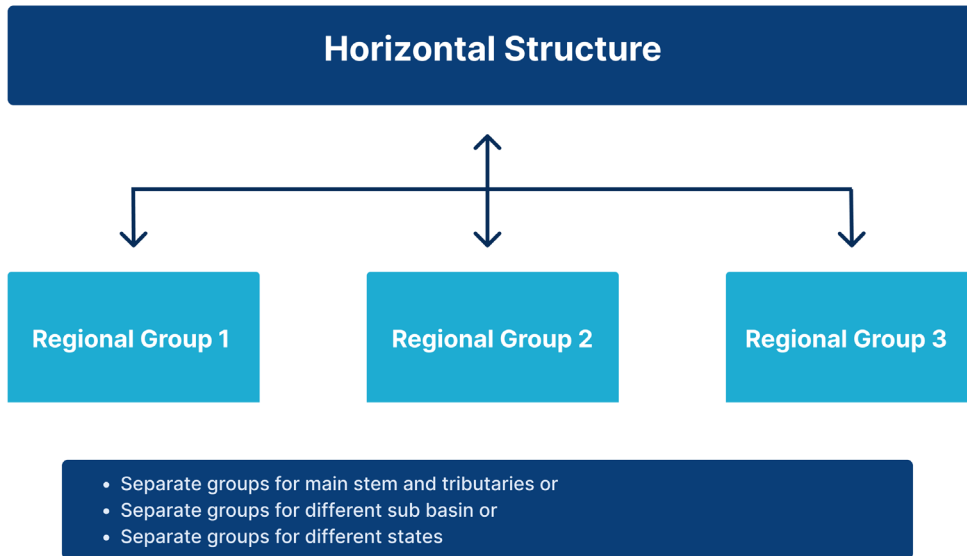
²⁹ Monitoring may not be seen as a regulatory function. However, it can be considered as an ‘input’ to the regulatory function. Sometimes the legal system needs a specific and authorised person to take samples for enforcement actions. This has largely been removed by the use of ISO standard methods and quality accredited laboratories (again ISO) etc.

- **River Basin Management Group** - In this sub option, it is proposed to have a full-fledged RBM Group which will carry out:
 - ✓ Coordination of the preparation and revision of the plan;
 - ✓ Coordination of Sustainable Agri-Ecological Restoration Industry/Municipal Economics, Monitoring (quantity and quality), Afforestation, Biodiversity, Wetlands conservation, Spring rejuvenation;
 - ✓ Knowledge Management, Capacity Building, technical-research coordination, technical new initiatives etc. may also get subsumed in this group.
 - ✓ Drive initiatives related with Arth Ganga in form of a new sub group for sub option 2)
 - ✓ Assistance in various aspects of a River Basin management Plan in form of thematic expert groups on:
 - Information: Knowledge Management (KM), Public Relations (PR);
 - RBM training;
 - Technical-related: Sustainable agriculture, ecological restoration, river hazards, protection against disasters, economics etc.); and
 - Regulatory related: Standards for E-Flow and other aspects.
 - Any other topic as deemed necessary by NMCG

- **Internal Services** - The internal services group would cater to various functions such as internal procurement, finance and accounting, HR, IT and analytics, and court related matters which will be the backbone support to all other functions/ groups (these functions are present within the finance and administration groups in today's structure as well). If NMCG considers appropriate, the Internal services may be split into Finance and Administration groups as is the case presently.

c) Sub-Option 3

Sub-Option 3 considers the division of NMCG's functions in terms of geographical boundaries e.g., separate groups for main stem and tributaries, separate groups for different sub basins, or separate groups for different states.



Annex 4 Figure 2: Presentation of the horizontal structure for Sub-Option 3

This option would be helpful if there are characteristics in specific geography groups which are different from other geographies and therefore, the nature of activities in different geographies need to vary. This prima facie does not seem to be the case at least to justify the need to use this sub-option at the first level. At the operational level, this however can be one of the criteria.

2. Corporate Structure

The various options that may be possible in terms of the corporate structure/ arrangement are as follows:

- NMCG to continue as a single central entity (the present case); or
- NMCG has a Head Office (HO) and a regional setup (alternative option); or
- NMCG continues as a single central entity and establishes a desk or nominates its representatives at the SPMG/SMCG level or even some districts for specific functions or roles.

Presently, both models exist amongst existing Indian institutions:

- **Examples of a single central entity:** such as NITI Ayog, National Water Mission act as single central entities and do not have branch offices or regional offices..
- **Example of head office cum regional officers:** The CPCB, CWC and the Central Ground Water Board have a central office as well as regional offices. Similarly, the National Highways Authority of India (NHAI) too has central, regional and project related offices.

- **Example of desk at the SPMG/SMCG:** It is understood that NMCG at an earlier date had appointed procurement experts in SMCGs/SPMGs. This is an example of the third model.
- **Internal Services** - The internal services group would cater to various functions such as internal procurement, finance and accounting, HR, IT and analytics, and court related matters which will be the backbone support to all other functions/groups (these functions are present within the finance and administration groups in today's structure as well). If NMCG considers appropriate, the Internal services may be split into Finance and Administration groups as is the case presently.

3. Vertical Structure

The last element of organisation design is the vertical structure, i.e. how many levels of roles/designation would be present in the organisation. The vertical structure would need to reflect the required skills and experience also for showing the career potential within the organisation (see Annex 4 Figure 3).



It may be noted that hierarchy of levels do not necessarily mean reporting relationships. In each of the role levels, there may be one or more designations. Since NMCG is expected to be a relatively lean organisation, in terms of operational hierarchy, it would be leaning towards a flat organisation. However, it is important to provide “promotion opportunities” for staff and therefore an appropriate balance needs to emerge. It must be noted that this part relates to Human Resources (HR) management and is beyond the scope of this study.

4. Proposed Organisation Structure Options for NMCG

Rejuvenation of River Ganga is very complex and to be seen as a multi-sector-end objective. As such NMCG being the nodal agency for the nationwide implementation of the Authority Order's provisions has the role of a prime mover in developing larger systems with multiple linkages. The reports show that NMCG is mastering this challenge very extensively until today although following largely a project-oriented approach.

Arguably, all NMCG's work is related to RBM in the broadest sense. However, in the past and until the time of this study it seems that NMCG is giving inadequate focus on the RBMP itself (either the current plan or any updates).

Against this backdrop the objective of a new and sharpened organisational structure is to strengthen NMCG's effectiveness and efficiency further by giving the RBM approach a more central place in NMCG, sharpening also other departments' responsibilities (e. g. regulatory functions) as well as addressing collaboration between main stakeholders and national level (mainly NMCG, CWC and CPCB) as well as giving more authority and responsibilities to the state and district level organisations.

This chapter presents two options based on various criteria discussed in the previous two chapters. The chapter also discusses on potential mechanism to address the interface of select roles between NMCG and select other organisations.

a) Option 1

This section presents the key features of Organisation Structure Option 1 for NMCG.

Horizontal Structure

The NMCG would be headed by a Director General (DG) as is the present case. The DG would be supported by the following groups each headed by an Executive Director (ED) (or equivalent position)

- **Infrastructure or projects related directorate** – Part of the Basin Management function (already existing within the present NMCG structure)
 - ✓ Tasks: Coordination the implementation of all infrastructure and projects related work irrespective of the mode of implementation (EPC or PPP). The team would coordinate for project identification, DPR preparation, structuring of the project, procurement of EPC contractor or PPP operator, appointment of Independent Engineers, contract monitoring and adherence to service agreements etc.
 - ✓ Skills and sub-teams: The sub-teams and skill sets required in this group include the following:
 - Technical Design team;
 - Financial / Business Modelling/PPP;

- Procurement/Contract Management; and
- Project Monitoring team.
- ✓ Internal stakeholder interface (indicative):
 - Legal team – for monitoring of contracts;
 - Finance team – for timely availability of funds;
 - Communication and Awareness, Social and Rehabilitation, Environment Issues – Project beneficiary level;
 - Capacity Building and Knowledge Management; and
 - DG office – RBM Planning
- ✓ Key External Stakeholders for Interface (indicative): This group would interface closely with the Project Implementation Units at the state and district level, design consultants, transaction advisors, independent engineers, legal consultants etc.
 - SPMG/SMCG; DGCs
 - PIUs such as UP Jal Nigam, Uttarakhand Jal Nigam, Uttarakhand Jal Sansthan, BUIDCO etc.
- **Non-infrastructure development initiatives directorate**
 - ✓ Tasks: Capacity building, knowledge management, communication, social & environmental issues, technical-research coordination, technical new initiatives etc. (also present in different groups in the existing structure). This may also include developing themes such as Arth Ganga etc.
 - ✓ Skills and sub-teams: The sub-teams and skill sets required in this group include the following:
 - Capacity Building team;
 - Knowledge Management team;
 - Communication;
 - Social and Environment;
 - Technical Research Coordination team; and
 - Technical New Initiatives.
 - ✓ Internal stakeholder interface (indicative):
 - Legal team;
 - Finance team- timely availability of funds;
 - Infrastructure team;
 - DG office-River Basin Planning and Management;

- ✓ Key external stakeholders for interface (indicative)
 - SPMG;
 - ULBs;
 - DGC;
 - Research institutions;
 - Capacity building organisations; and
 - Community Based Organisations (CBOs)/NGOs etc.

- **Regulatory functions directorate**

- ✓ Tasks: According approvals, monitoring³⁰, compliance to standards etc. as per AO 2016
- ✓ Skills and sub-teams: The sub-teams and skill sets required in this group include the following:
 - Compliance to standards team – Standards related to flows, pollution and other aspects outlined in AO 2016;
 - Monitoring team – Compliances related to AO 2016; and
- ✓ Legal team – Legal and regulatory aspects related to compliances, Internal stakeholder interface (indicative) – This group will work more independently of other groups within NMCG to avoid any perceived conflict of interest issues. It may contribute by providing inputs to the River Basin Management unit.
- ✓ Key external stakeholders for interface (indicative):
 - CPCB and its regional offices;
 - CWC;
 - SPCB; and
 - Regional Offices of CWC.
 - IWAI

- **Administration and Internal Services directorate:**

- ✓ Tasks: The internal services group would cater to various functions such as internal procurement, finance and accounting, HR, IT and analytics, which will be the backbone support to all other functions/groups (these functions are present within the Finance and Administration groups in today's structure as well). If NMCG considers appropriate, the Internal services may be split into Finance and Administration groups as is the case presently.

³⁰ Monitoring may not be seen as a regulatory function. However, it can be considered as an 'input' to the regulatory function. Sometimes the legal system needs a specific and authorised person to take samples for enforcement actions. This has largely been removed by the use of ISO standard methods and quality accredited laboratories (again ISO) etc.

- ✓ Skills and sub-teams: The sub-teams and skill sets required include the following:
 - Internal procurement team,
 - Finance and accounting team,
 - Human Resources team,
 - IT and analytics team
 - Communication team
 - Social and Environment team

- **DG Office RBM-Secretariat - Coordination with the other groups within NMCG and the thematic groups.**

This option would encompass establishing a specialised secretariat within the DG office.

- ✓ Tasks: The DG secretariat would oversee all River Basin Management Coordination functions i. e. ensuring coordination with the other groups within NMCG and the Thematic groups.
- ✓ Thematic Expert Groups- Various thematic expert groups would be constituted to support
 - River Basin Management Plan related aspects (Aviral Dhara/Nirmal Dhara),
 - Information: KM, PR,
 - RBM Training,
 - Technical: Sustainable agriculture, ecological restoration, River Hazards, Protection against disasters, Economics,
 - Any other topic as deemed necessary by NMCG.

Corporate Structure

In this structure, NMCG would continue to a single national/central level entity. This option however envisages a decentralised model for River Basin Planning and Management, i.e. the districts and the states would prepare their respective River Basin/sub basin Management Plans and that would roll into or feed into an overall River Ganga Basin Management Plan.

During the exchange with stakeholders in Uttarakhand, it was observed that the capacities presently available at the state level suggest that the organisation structure might not enable/support this endeavour (at least not in the short term).

It is therefore envisaged that in this option, NMCG would establish NMCG RBM desks in various states which are embedded in the SMCG/SPMG. The desk would comprise of one to two experts who can help the states and the districts to prepare these plans and help them implement the action plans.

Vertical Structure

The vertical structure proposed for NMCG has to have a fine balance between facilitating a flat organisation and still providing growth opportunities for professionals who chose to build their careers with this organisation.

Key Guiding Principles

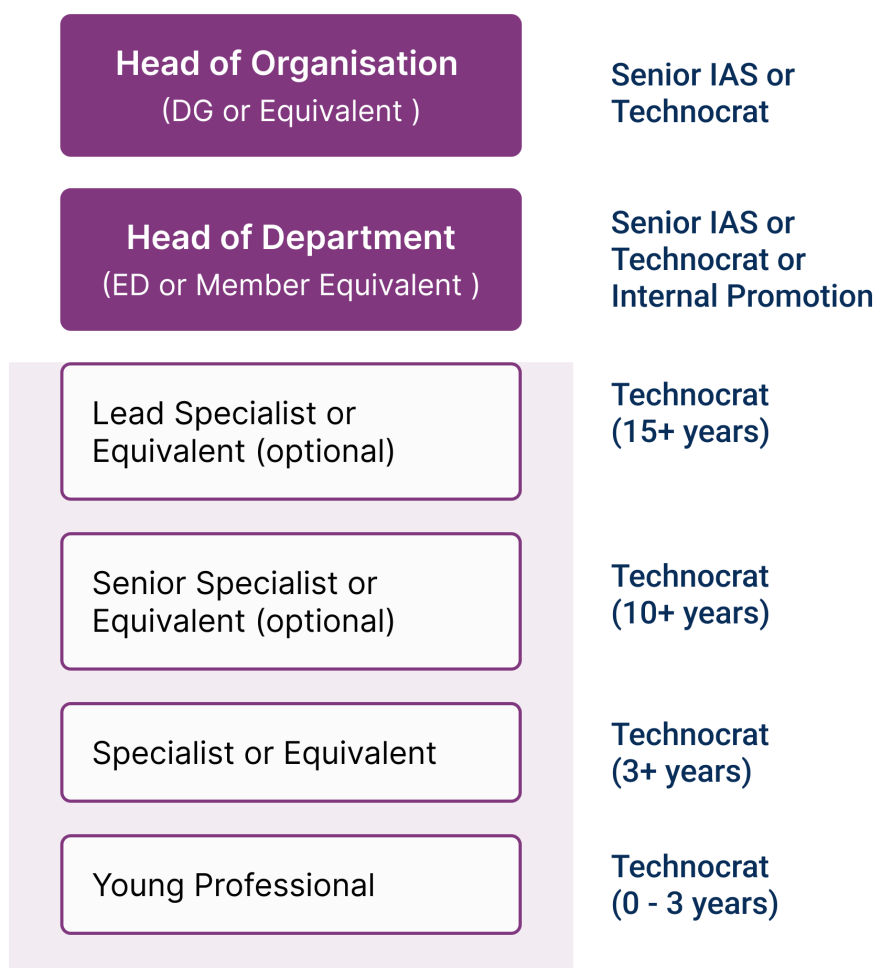
Some of the key guidelines for the suggested vertical structure are presented below:

- The hierarchy is not a reporting relationship. There could be instances where there are no Specialists but multiple Senior Specialists. This is akin to many scientific/academic institutions as well as international funding agencies where there is a need for specialists but by design the organisation has to be flat;
- Initial tenure for any position may be on fixed term contract;
- Senior level professionals can be on longer term contracts or permanent positions;
- NMCG may explore the possibility of short to medium term deputation positions to other international RBOs – through twinning arrangements. This would open up deputation opportunities for its staff. Deputation not only helps bring good practices into an organisation, but they also provide exposure and mobility opportunities which is a very important motivator;
- Similar opportunities for deputation may be provided between NMCG and the SMCGs;
- Performance appraisal system needs to be institutionalised and replicated not only within NMCG but all SMCGs as well in a uniform manner.

Key Features

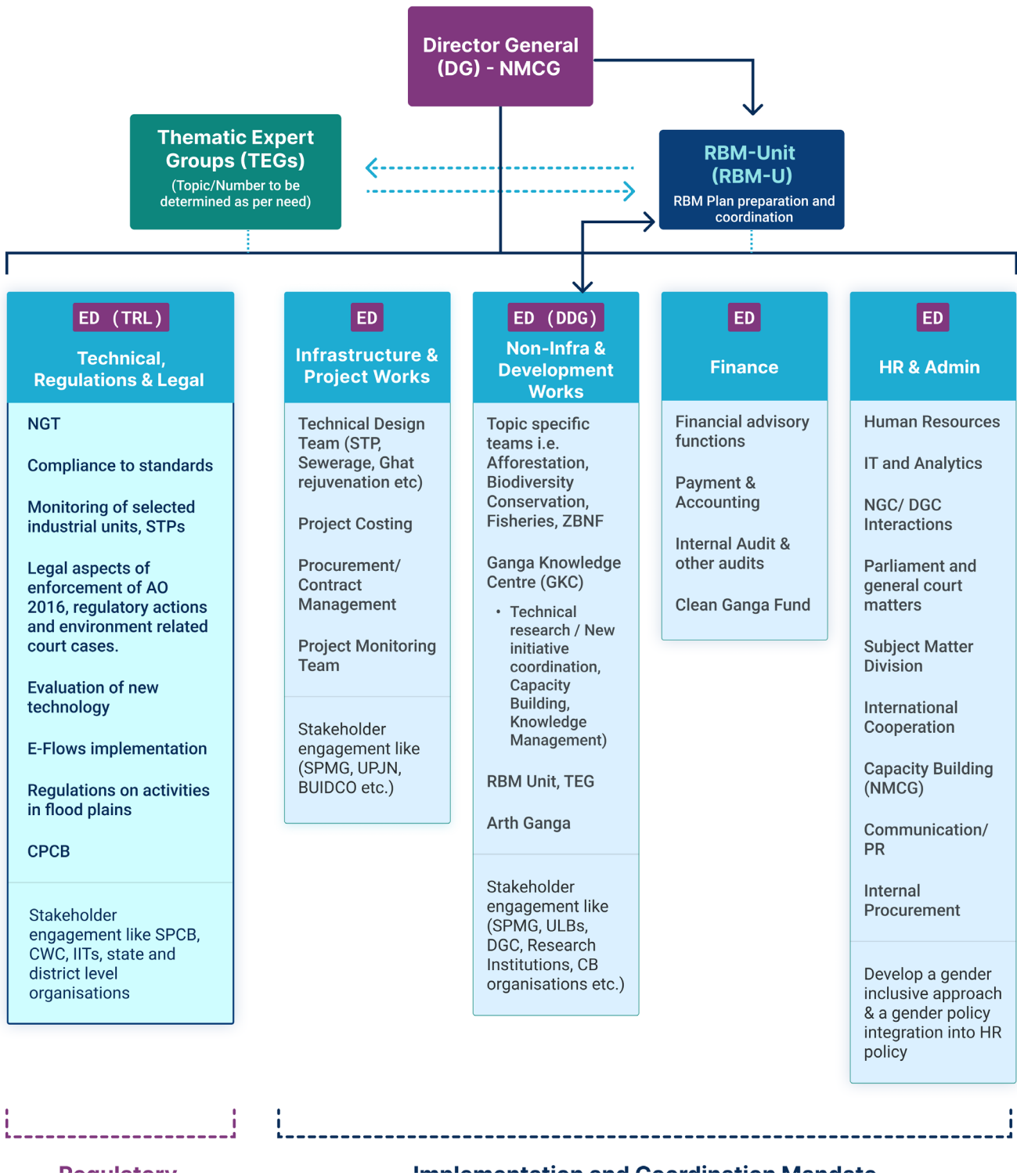
Annex 4 Figure 4 presents the vertical hierarchy that NMCG may consider.

- The entry level position is that of a Young Professional. The Young Professional would typically be only a contractual position;
- A Specialist could be a direct entry (from the market) or a promotee from a Young Professional. A Specialist may start as a contract position for a tenure of two to three years and then be made permanent depending on requirement and performance;
- A Senior Specialist could be a promotee from Specialist, or a direct entry from the market or on deputation from another government organisation;
- The Lead specialist position is an optional provision which may be activated only on an exception basis to provide a promotion avenue to a Senior Specialist;
- The Head of the Department could be a promotee from the Senior/Lead Specialist, a direct entry from the market or on deputation from another government organisation. This position may be a technocrat or an administrative service position;
- The Director General or the Head of the Organisation would be appointed by the Government of India as is the current case.



Annex 4 Figure 4:A proposed vertical structure for NMCG

A graphic summary of Option 1 is presented in Annex 4 Figure 5.



Annex 4 Figure 5: Graphic summary of the proposed NMCG organisational structure under Option 1

b) Option 2

Many aspects of Option 2 are the same as in Option 1. Only the key differences are presented in the following paragraphs. The vertical structure remains the same in both the options.

Horizontal Structure

The following groups in the Horizontal structure in Option 2 remains the same as in Option 1. These are:

- Infrastructure or projects related part of the Basin Management function (already existing within the present NMCG structure)
- Regulatory functions: According to approvals, monitoring³¹, compliance to standards etc. as per AO 2016 (not explicitly present in the existing structure and therefore is an addition to the existing structure; however AO 2016 and discussions with NMCG bring this area to be strengthened). The regulatory functions are seen by some stakeholders as a conflict of interest to the implementation and development roles of NMCG. Therefore, this has been carved out as a separate group with a “clear separation” with the programme planning and implementation group.
- Internal Services: The internal services group would cater to various functions such as internal procurement, finance and accounting, HR, IT and analytics, which will be the backbone support to all other functions/groups (these functions are present within the finance and administration groups in today’s structure as well). If NMCG considers appropriate, the Internal services may be split into Finance and Administration groups as is the case presently.

In Option 2, it is assumed that the River Basin Planning and Management function would be carried out primarily at the National level. Therefore, there is a full-fledged River Basin Management Unit. This also subsumes the functions of the Non-Infrastructure And Development Initiatives Group shown in Option 1.

The River Basin Management Group would have the following features:

- Tasks:
 - ✓ Coordination of the preparation and revision of the plan;
 - ✓ Coordination of Sustainable Agri Ecological Restoration Industry/Municipal Economics Monitoring (quantity and quality), Afforestation, Biodiversity, Wetlands Conservation, Spring Rejuvenation;

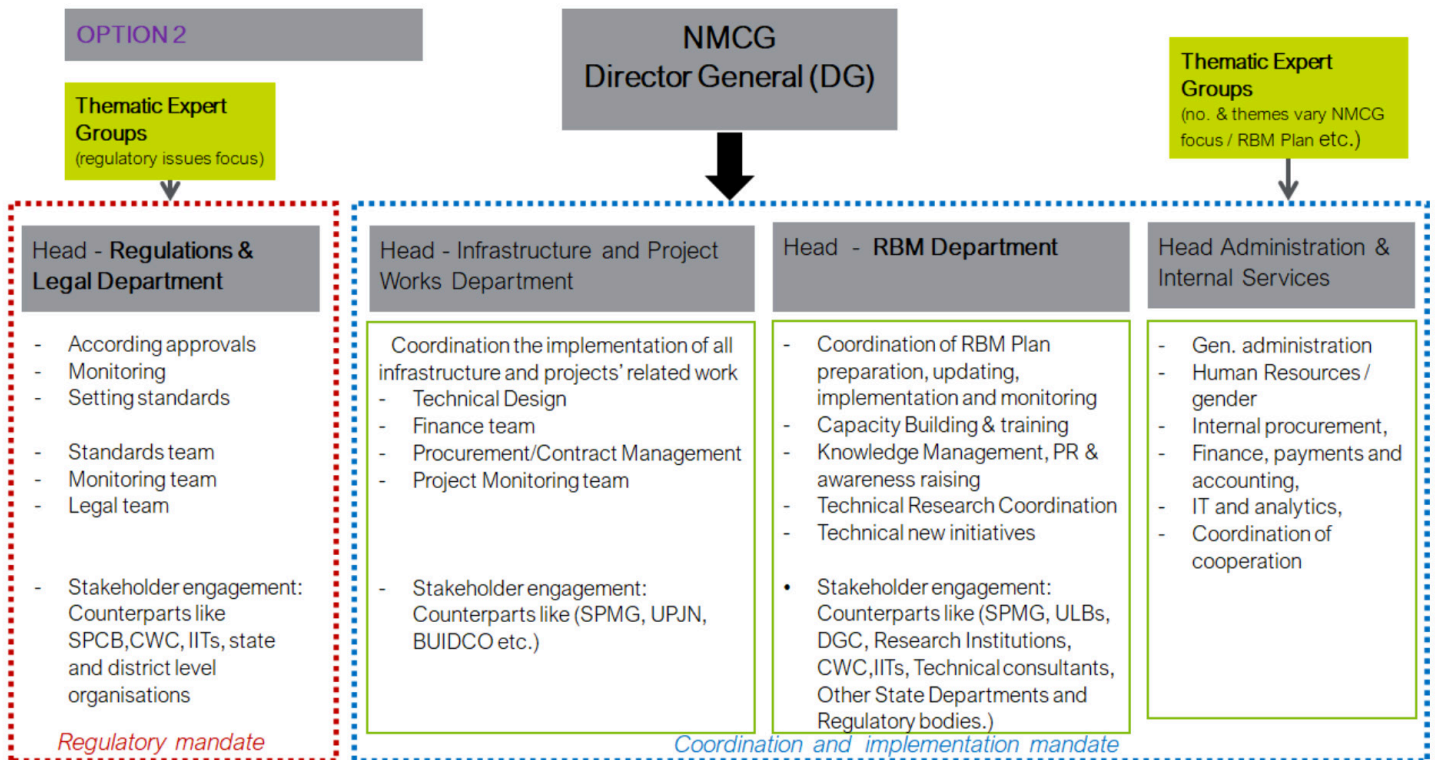
³¹ Monitoring may not be seen as a regulatory function. However, it can be considered as an ‘input’ to the regulatory function. Sometimes the legal system needs a specific and authorised person to take samples for enforcement actions. This has largely been removed by the use of ISO standard methods and quality accredited laboratories (again ISO) etc.

- ✓ Capacity Building, Knowledge Management, Communication, Social and environmental issues, technical-Research Coordination, Technical New Initiatives etc. (also present in different groups in the existing structure). This may also include developing themes such as Arth Ganga etc.
- Skills, themes and sub-teams: The sub-teams and skill sets required in this group include the following:
 - ✓ Capacity Building team
 - ✓ Knowledge Management team
 - ✓ Communication
 - ✓ Social and Environment
 - ✓ Technical Research Coordination team
 - ✓ Technical New Initiatives
- Internal stakeholder interface (indicative):
 - ✓ Regulatory and Legal team;
 - ✓ Finance team for timely availability of funds; and
 - ✓ Infrastructure team.
- Key external stakeholders for interface (indicative):
 - ✓ Thematic Expert Groups;
 - ✓ SPMG;
 - ✓ ULBs;
 - ✓ DGC;
 - ✓ Research Institutions, Technical Institutions;
 - ✓ Capacity Building Organisations; and
 - ✓ CBOs/NGOs etc.

Corporate Structure

In this structure, NMCG would continue to a single national/central level entity. There is no decentralised desk at the State or District level per se. All the support related to this aspect would be provided centrally from the National level unit.

A graphic summary of option 2 is presented in Annex 4, Figure 6



Annex 4 Figure 6: Graphic summary of the proposed NMCG organisational structure under Option 2