

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

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As at

July 2023

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GIZ is responsible for the content of this publication.

On behalf of the

German Federal Ministry for Economic Cooperation and
Development (BMZ)

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Abbreviations

AO	Authority Order 2016	NGC	National Ganga Council
CGWB	Central Groundwater Board	NMCG	National Mission for Clean Ganga
CI	Conservation International	PoM	Programme of Measures
CPCB	Central Pollution Control Board	PR	Public Relations
CWC	Central Water Commission	RBM	River Basin Management
DG	Director General	RBMO	River Basin Management Organisation
DGC	District Ganga Committee	RBMP	River Basin Management Plan
DGP	District Ganga Plans	RBM-U	River Basin Management Unit
EG	Expert Group	RBO	River Basin Organisation
EU	European Union	SMCG	State Mission for Clean Ganga
GD	Guidance Document	SOP	Standard Operating Process
GEF	Global Environment Facility	TAC	Technical Advisory Committee
GIS	Geographic Information System	ToR	Terms of Reference
GIZ	German Technical Cooperation	WFD	Water Framework Directive
GRBMP	Ganga River Basin Management Plan	WWF	Worldwide Fund for Nature
GRBM-U	Ganga River Basin Management Unit		
HR	Human Resources		
ICPDR	International Commission for the Protection of the Danube		
ICPER	Elbe River Basin Commission		
ICPR	Rhine River Basin Commission		
IIT	Indian Institute of Technology		
ISRBC	Sava River Basin Commission		
IWRM	Integrated Water Resources Management		
KWMI	Key Water Management Issues		
NBI	Nile Basin Initiative		

Introduction

Based on a detailed review of the Authority Order (2016), individual interviews of key informants, several stakeholder consultations and taking into account the experience and functioning of international RBOs, a roadmap for the Institutional Development of NMCG in line with Authority Order (2016) has been developed. This roadmap was further deliberated upon with senior leadership from NMCG. The findings and recommendations of this exercise are available in two parts:

Part A: Strategic Framework including a proposed organigram for the Institutional Development of NMCG.

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

A total of four instruments have been developed with an aim to facilitate the implementation of the strategic framework. These instruments are explained in detail in the three Guidance Documents covering the following topics:

Guidance Document 1 on the Establishment of a River Basin Management Unit (RBM-U) within NMCG;

Guidance Document 2 on the Formation of Thematic Expert Groups (TEG);

Guidance Document 3 on Stakeholder Engagement and Participation.

Guidance Document 1: Establishment of a River Basin Management Unit within NMCG

The Guidance Document is an exemplary guide on how NMCG can best integrate a River Basin Management Unit (RBM-U) within its existing organisational structure. It draws on the experience of international RBMOs. RBM-U's main tasks would be preparing and updating the River Basin Management Plan (RBMP) for the Ganga and its sub-basins, coordinating and monitoring of implementation, as stipulated in the Authority Order (AO) 2016, following international best practices.

The work of this unit will be based on a Basin/Sub-Basin Characterisation and on inputs from all levels (national, state, districts) with contributions from the to be established Thematic Expert Groups (TEGs) and is aimed at leading to the RBMPs and a Programme of Measures (PoM).

This Guidance Document describes the approach as suggested and agreed with the NMCG's senior leadership and an outline of suggested personnel including the responsibilities and required qualifications.

Guidance Document 2: Formation of Thematic Expert Groups

River Basin Management requires effective coordination with a diverse set of stakeholders at multiple levels. As all the functions cannot be carried out by NMCG directly, it will be of immense value to form Thematic Expert Groups drawing upon internal and external expertise and experiences. These Groups will be assisting the planned RBM Unit and other units within NMCG to develop and monitor implementation of measures and to make adaptive management updates to the Ganga RBM-Plan/sub-basin plans. The composition, duration and functions of these Thematic Expert Groups would be defined in their respective ToR. The Guidance Document 2 describes the anticipated steps necessary to establish such groups and describes relevant examples.

Guidance Document 3: 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/sub basin RBMP through the active involvement of basin-wide stakeholders from 'community to cabinet'. The document provides a list of potential stakeholders relevant for establishing a Ganga/sub basin RBMP. 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.

1. Guidance Document 1: Establishing an RBM Unit within NMCG

1.1 Purpose of Guidance Document

This document provides a stepped guidance to establish a River Basin Management Unit (RBM-U) within NMCG. This RBM-U will be tasked with preparing and updating a River Basin Management Plan (RBMP), coordination and monitoring of implementation, as stipulated in the Authority Order 2016, following international best practices.

1.2 Background

The National Mission for Clean Ganga (NMCG) has carefully evaluated several options to further adapt NMCG's organisational structure better reflecting AO's requirements with regards to strengthening RBM planning, implementation and monitoring. Careful consideration of the possible options by the NMCG's senior leadership led to the identification and confirmation of establishment of a RBM-U as a preferred option.

The agreed approach utilises the concept of having Thematic Expert Groups¹ (TEG), drawn from NMCG and key partner organisations at National, State and District levels to plan and develop the RBMP for Ganga/sub basins, building on the experiences from the IIT's "eight missions" used in the 2015 Ganga River Basin Management Plan (GRBMP) and ongoing work of development of Ramganga RBM Plan.

NMCG acknowledges that the work of developing the basin-wide RBMP will require inter-ministerial, inter-departmental and inter-sectoral cooperation to ensure that organisations at all levels are represented and, where appropriate, chair expert groups to guide the process under the coordination of NMCG. All of these activities will make core functions of to be set up RBM-U.

1.3 Functions of the RBM-Unit

The RBM-U functions would encompass coordination of RBM planning, implementation and assessment based on the RBM Cycle approach as being deployed to develop Ramganga RBM Plan and as a concept which NMCG intends to further in future. RBM Unit may assist DG NMCG in formation of river basin specific committees for steering the process of development and approval of RBM Plans. Through the Thematic Experts Groups RBM-U would involve key partners of NMCG at national, state, district levels and other stakeholders to carry out the following:

- Developing overall RBM Plans for Ganga/sub basins based on RBM Cycle principles, RBM Handbook and RBM Toolbox and seek approval to implement. This includes:
 - Defining a clear governance and coordination structure having representatives from relevant departments

¹ Details of International River Basin Organisations (RBOs) and the use of Expert Groups are provided in the NMCG Strategic Framework Document

- Carrying out basin characterization to understand the baseline social, economic and environmental settings of the basin and assess existing pressures on water resources in the basin
- Identifying and agree on Key Water Management Issues (KWMI) in the basin and carrying out/ cause to carry out the pressure-impact analysis and risk assessment of each of the KWMI
- Developing a Programme of Measures (PoM) to address the risks identified in the basin and seek approval from DG/ competent authority to implement the same
- Devising a comprehensive mechanism for monitoring and review of the progress

Based on the gained experience and in close coordination with CWC, RBM-U will also continue to update the RBM Handbook, and RBM Toolbox.

- Taking Arth Ganga and possibly other upcoming initiatives into consideration and explore the integration of such initiatives in RBM Planning;
- Ensure the coordination between the District Ganga Plans, Sub-Basin Plans and Ganga Basin Plan
- Capacity building and training of personnel at appropriate horizontal and vertical levels;
- Knowledge management, communication, Public Relations (PR) and awareness generation related to RBM Planning:
- Stakeholder engagement for effective RBM Planning;
- Organising identification, selection, onboarding of and training as required for TEG members; and
- Maintaining database of potential experts from national, state, district organisations and other stakeholders.

All the above functions are anticipated to be performed by the RBM-U. However, it is recognised that NMCG's role is not to perform all these functions itself but to work collaboratively with key partners and other stakeholders to deliver the expected results and for DG NMCG to coordinate, the RBM Unit will be integral part of the NMCG in fulfilling its mandate as per the AO 2016.

Furthermore, NMCG would adopt a Thematic Expert Group approach (see Guidance Document 2) benefitting from existing skills and expertise to actively involve key partners (for example the Central Pollution Control Board (CPCB), Central Water Commission (CWC), Central Groundwater Board (CGWB), etc.) and to maintain close cooperation with RBM approaches being developed at the State and District levels. The RBM Unit will also help in developing suitable dialogue with other international basins to learn from good practices with proper knowledge exchange and adaptations.

1.4 Agreed Approach and first steps

The Retreat with NMCG senior leadership confirmed an approach that would require NMCG to appoint a dedicated team to establish the RBM-U and agree on an overall plan to establish the necessary expert groups and their scope of work to deliver a RBMP. This work should be completed within six months and would work closely with Key Partners offering well defined comparative advantages to undertake specific work on the River Ganga and its sub basins. RBM-U will be directly attached to the DG Office.

The ongoing development of the Ramganga RBMP provides an excellent opportunity to make RBM-U operational. The personnel and RBM-U can immediately be involved in the process and get a hands-on experience towards RBM planning and coordination. Thus capacitated, RBM-U personnel will be able to take the approach in other sub-basins.

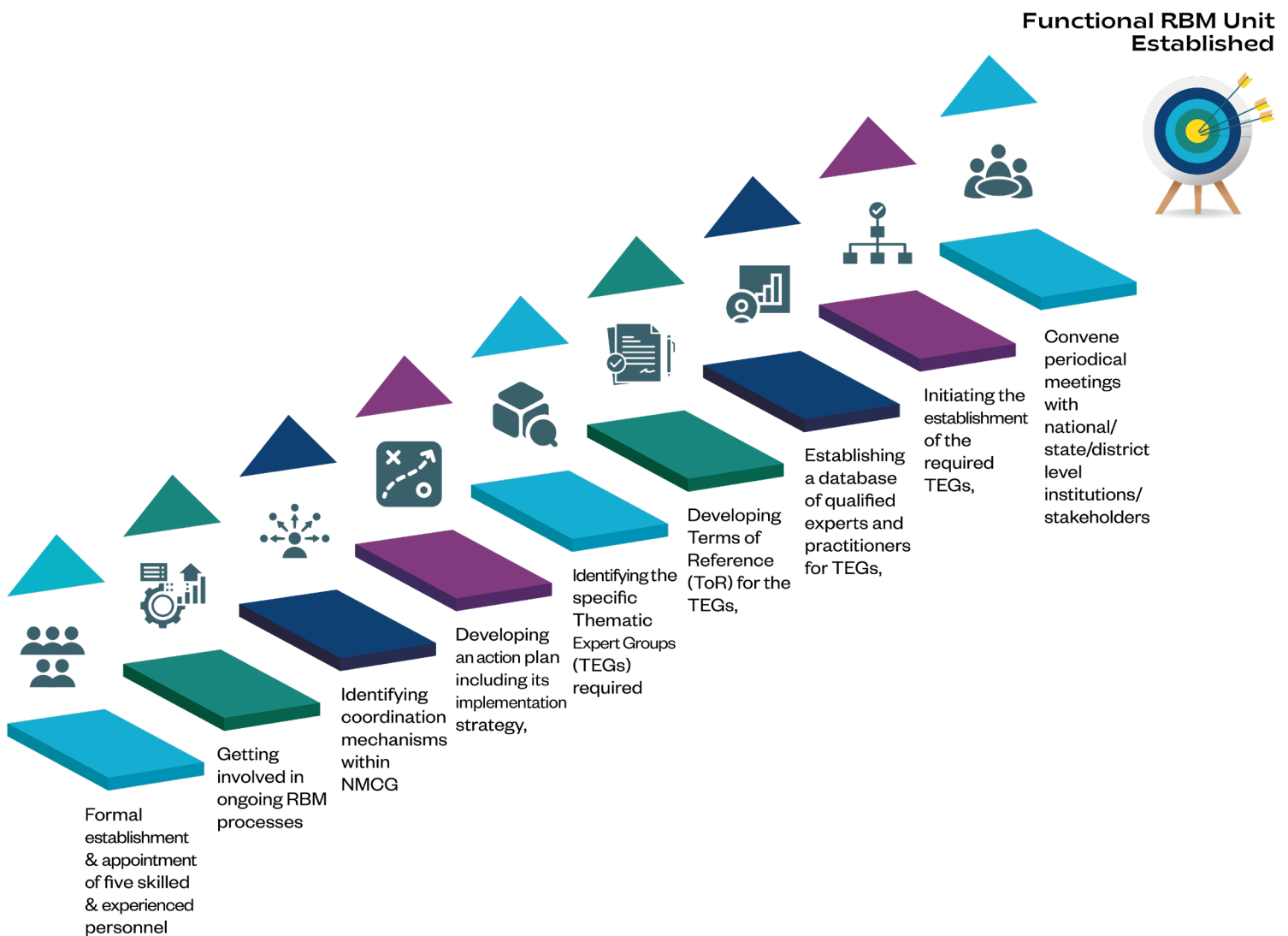


Figure 1: Steps to establish functional RBM Unit within NMCG

The expected steps required are:

STEP 1 Formal establishment & appointment of five skilled and experienced personnel

DG NMCG formally establishes the RBM-U at NMCG and appoints five personnel with the skills and experiences required (see Section 0 below outlining staff responsibilities and desired characteristics). It is of utmost importance that these personnel will have a clear mandate to work exclusively in/for the RBM-U and are not assigned that task on top of n number of other tasks.

The RBM-U will be supported by Thematic EGs. The TEGs will be composed of NMCG and experts drawn from other partner organisations. The representatives of these TEGs will be the direct interlocutors of the RBM-U. Depending on the nature of tasks, the TEGs can have more permanent or more temporary character.

STEP 2 Getting involved in ongoing RBM processes

The RBM-Unit gets involved in the development of Ramganga RBM Plan work (based on RBM Cycle approach) to understand the process related to basin planning i.e. basin governance, role of various experts, stakeholder engagement, and coordination mechanisms.

STEP 3 Identifying coordination mechanisms within NMCG

The RBM Unit identifies necessary coordination mechanisms between the RBM-U and the other departments of NMCG to deliver the RBMP avoiding redundancies with other services and support all necessary activities.

STEP 4 Developing an action plan including its implementation strategy,

By taking into account the ongoing work related to RBM planning (RBM Handbook, RBM Toolbox, and RBM Cycle training) and practical experience from being involved in Ramganga RBM Plan development, RBM-U will develop an action plan including its implementation strategy to achieve the goal of RBMP preparation together with the TEGs;

STEP 5 Initiate the establishment of the required Thematic Expert Groups (TEGs) by:

(also refer Guidance Document 2):

a. Identifying the specific Thematic Expert Groups (TEGs) required,

Identifying the specific TEGs required to fulfil the RBM-U's mandate (approaches adopted by other RBOs are presented in the Part A (Strategic Framework) and in Guiding Document 2 on the Formation of RBM TEGs).

b. Developing Terms of Reference (ToR) for the TEGs,

Developing Terms of Reference (ToR) for the Thematic Expert Groups as identified by the RBM-U to address the priority problems of the Gange River Basin/ sub basins. These TEGs² will support the NMCG's RBM-U (and other NMCG's services if appropriate) and oversee the process of preparing the RBMP (including skills required, tenure, selection processes, etc.) and nominate appropriate TEGs' chairs/ representatives (from NMCG, key partners and elsewhere).

c. Establishing a database of qualified experts and practitioners for TEGs,

c. Initiating the establishment of the required TEGs,

STEP 6 Convene periodical meetings with national/state/district level institutions/ stakeholders

The RBM-U will ensure that a common 'standard' approach will be applied by all levels involved, i.e. a manageable comprehensive table of content and in line with the RBM Cycle, the to be developed RBM Handbook and RBM Tool box in close coordination with CWC. The RBM-U will also work together with c-Ganga to ensure the integration of common standard approach of RBMP in Ganga 2.0

² Examples of Expert Group Terms of Reference are available on the ICPDR (Danube Commission) website ToR and Workplans | ICPDR - International Commission for the Protection of the Danube River

Assumptions:

NMCG would ensure management of the RBM-U with full-time dedicated staff. Furthermore, the governance arrangement in place for NMCG would apply and be sufficient and no additional supervisory board would be required.

It is envisaged that the RBM Unit will be supported by an Integrated Expert (German/European RBM expert) hired by NMCG with support of GIZ under the India Integrated Expert Fund funded by BMZ.

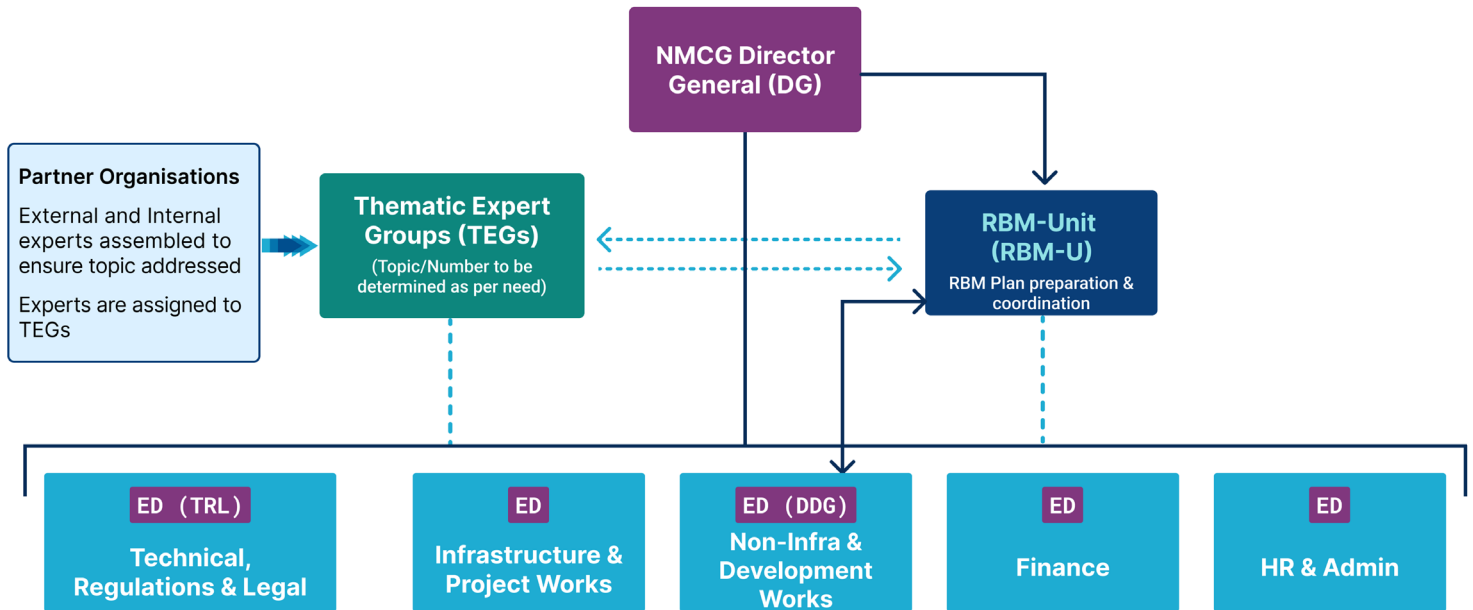


Figure 2: Positioning of RBM Unit in the proposed NMCG Organigram

1.5 RBM Unit Team Composition

The following are proposed job profiles along with the responsibilities, qualifications and suggested skills. These may evolve over time.

Depending on the number of RBMP for Ganga and sub-basins, the RBM Unit will be working on in parallel, the RBM-U may grow and also might take up further tasks. Accordingly, the mandate and functioning of RBM-U will evolve.

Team Leader



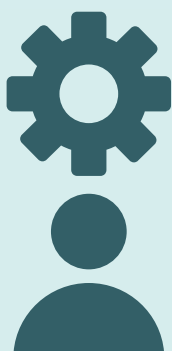
Qualifications and experiences

- Proven ability in delivering complex initiatives to time and budget;
- Ability to communicate effectively to a wide range of stakeholders at the highest levels with the necessary tact and diplomacy aiming at catering for the various and possibly contradictory institutional mandates and corresponding interests.

Responsibilities

- Overall team management delivering the plan for establishing the NMCG's RBM Unit leading to a detailed Ganga River Basin/Sub basins Management Plan;
- Liaising with Key Partners essential to NMCG's objective of delivering the RBMP;
- Identifying requirements enabling the RBM Unit playing a strong coordination role;
- Presenting to NMCG the recommended Thematic Expert Groups, coordinating and governance structure of the proposed NMCG RBM Unit; and
- Regular exchange with and reporting to senior leadership of NMCG.
- Steer the ongoing work of RBM-U, review the progress and provide inputs to different activities/deliverables
- Coordinate with other national and international basins for continuous learning through regular exchange of experience and knowledge.

Technical Specialist in RBM



Qualifications and experiences

- Strong team player;
- Experience in water and ecosystem management;
- Familiarity with river basin management concepts;
- Previous involvement in RBMP preparation desirable; and
- Ability to work in multidisciplinary teams.

Responsibilities

- Reporting to the Team Leader;
- To identify the needs for specific Thematic Expert Groups in discussions with stakeholders;
- Presenting the proposed Thematic Expert Groups and their Terms of Reference supported by a clear rationale for each TEG to NMCG management and Key Partners; and
- Identifying necessary interactions (what topics, who/ responsibility, when/frequency, communication channels) between NMCG-SMCG-DCGs and other main partners and drafting action plans, responsibilities related to these interactions together with the communication specialist.
- Work closely with TEGs to development and implementation of RBMPs and wherever required, revisit/ adapt the agreed RBMP's table of content to cater specific situations in respective sub-basin.
- Lead the coordination with national/state and district level organisations to ensure coherence and synergies among different level of planning (ex. district plans, and relevant state plans) to avoid conflict and duplication.
- Together with TEGs and Team leader, update RBM Toolbox and RBM handbook

Communication Specialist



Qualifications and experiences

- Previous role in communicating complex multi-disciplinary initiatives to a wide range of interested stakeholders / target groups;
- Familiar with awareness raising activities (PR, stakeholder engagement, web/social media-based applications);
- Strong team player; and
- A journalistic background is an advantage.

Responsibilities

- Previous role in communicating complex multi-disciplinary initiatives to a wide range of interested stakeholders / target groups;
- Familiar with awareness raising activities (PR, stakeholder engagement, web/social media-based applications);
- Strong team player; and
- A journalistic background is an advantage.

Capacity Development Specialist



Qualifications and experiences

- Previous experience in developing and delivering training programmes; and
- Strong team player.
- Strong knowledge of e-learning, digital tools for knowledge management
- Familiarity with topics and issues related to water resource management

Responsibilities

- Reporting to the Team Leader;
- Assess training requirements (e.g. RBM Cycle trainings) within NMCG and other stakeholders as basis for the intended training plan / schedule;
- Work closely with training institutions to chalk out the strategy and training calendar for the implementation of RBM Cycle trainings To work closely with RBM specialist to identify and liaison with RBM experts (national and international) for regular exchange
- Maintain and update e-learning platform on RBM Cycle training;
- To develop induction training programmes for NMCG staff and TEG members on RBM and the preparation of RBMPs that will be approved by the NMCG and the RBM TEG (when it has been formed);
- Preparing and presenting complementary material and guidance to state and district bodies established to facilitate their respective basin/sub-basin plans and contribute to the Ganga River Basin Management Plan (Gange 2.0); and
- Assess/monitoring training measures' achievements and adjust training plans accordingly.

Team Secretary



Qualifications and experiences

- Previous experience in secretariat role
- Know-how of digital tools for communication and knowledge management
- Strong team player.

Responsibilities

- Provide secretarial and logistical support to other personnel at RBM-U (support in organising different meetings, and round tables)
- Maintain the records of meetings, PR materials and other updates for a quick access
- Coordinate with NMCG's travel and financial desk for travel and budget related requirement

2. Guidance Document 2: Formation and Functioning of Thematic Expert Groups

2.1 Purpose of Guidance Document

This paper serves as a Guidance Document for NMCG and the River Basin Management Unit (RBM-U) to identify the required Thematic Expert Groups (TEGs) and the relevant institutions and experts to steer as well as participate in the TEGs. In addition, TEGs will be responsible for formulating their ToR, and oversee their functioning towards the development and implementation of RBMP for Ganga and its sub basins. International experiences on formation and functioning of TEGs have been considered while developing this Guidance Document.

2.2 Background

The preparation of River Basin Management Plans (RBMP), their implementation, review, and progress /assessment lead to an update of the RBMPs every five to six years in a cyclic approach following good international experiences.

Building on experiences from international River Basin Organisations (RBOs), TEGs play an important role in delivering RBMPs. They are beneficial to create wider ownership of the RBMP and to ensure that sufficient skilled experts contribute to developing, updating, and assessing the progress towards the Plan's objectives. TEGs are composed of experts drawn from and nominated by partner organisations and relevant institutions as standing members. Additional experts might be called for specific purposes.

The senior leadership of NMCG agreed on the establishment of a 'River Basin Management Unit' (RBM-U), reporting to the DG's office (see Guidance Document 1). This Unit should be responsible for identifying the specific TEGs required for delivering RBMPs and recommending and advising Director General (DG) in identifying expert institutions to chair and contribute to the TEGs. These expert institutions can include National, State and District partners. Where appropriate expertise can also be drawn from civil society, non-governmental organisations, academia, private sector, farmer associations, etc. Depending on the requirement, some TEGs may be created for a time-limited activity (task forces) and then dissolved after proper documentation of their work and recommendations. Other TEGs may require being established on a more permanent basis.

2.3 Functions of TEGs

- Each TEG should prepare periodic reports/proposals for approval by the RBM-U/ NMCG/Supervisory Board. The reports should highlight progress, problems encountered and means to overcome these. The reports can also include agreement on certain methodologies, standards, and data sharing mechanisms. TEG chairs would be required to present progress to RBM Unit and when necessary to the DG-NMCG on a pre-defined schedule towards delivery of the RBMP.

- Each TEG should contribute towards RBMP for Ganga/subbasins as per the tasks specified in their respective ToR
- Based on the pressures identified, each TEG should clearly identify potential solutions (at National, State and District levels) to mitigate the impacts of such pressures together with identifying costs and responsible organisations (this will form the Programme of Measures (PoM))
- Following approval of the RBMP, TEGs will be responsible for monitoring and assessing implementation of management actions presented in the PoM that will be targeting the pressures identified in the analysis of the basin. This analysis will guide the TEGs on identifying future updates of the RBMP.
- Where TEGs identify the need for additional expertise to address time-limited problems, TEGs can recommend to the RBM Unit the induction of additional experts.

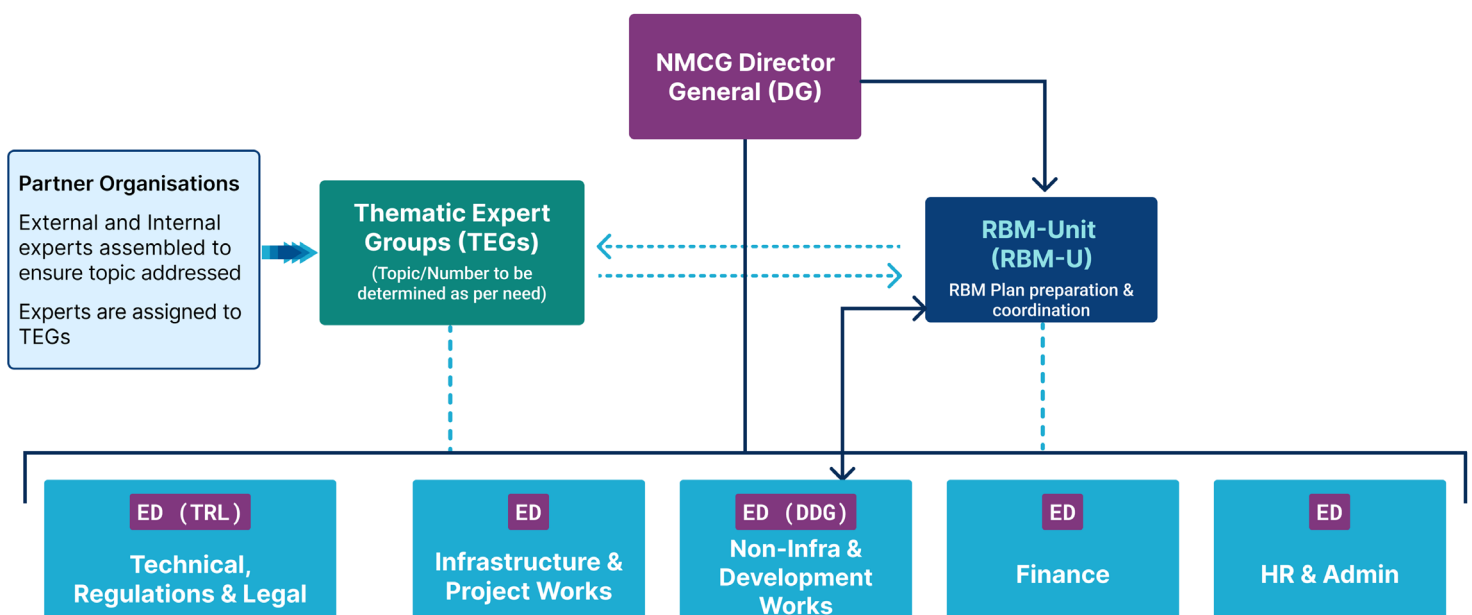


Figure 3: Positioning of the TEGs in the proposed NMCG organigram

2.4 Required steps for establishing TEGs

- The RBM Unit will identify the need for specific Thematic Expert Groups to deliver the Ganga Basin/sub basins RBMP. This will be done in discussions with key partners at national, regional and district level, and where appropriate engaging civil society, academia, private sector, etc.
- The RBM-U will prepare initial Terms of Reference (ToR) for these TEGs for review. Further elaboration may be required when the TEGs are established. Examples of ToR for TEGs can be found on the Danube¹ or Rhine² Commissions' website.

¹ <http://www.icpdr.org/main/publications/tor-workplans>

² Home (iksr.org)

- RBM-U will establish the required TEGs and in close consultation with members, will appoint a chair for each TEG. Each TEG, under the direction of the chair, will review the draft ToRs prepared by the RBM-U and recommend any modifications based on their detailed technical understanding of the specific tasks assigned to the TEG.
- Each TEG will prepare a detailed work plan (identifying milestones, specific budget issues, indicators of success and expected targets) leading to their contribution to the overall RBMP. The work plan will be agreed with the RBM-U and submitted to DG-NMCG for information.
- TEGs together with RBM-U will identify their modus operandi: e. g. frequency of meetings and how tasks will be undertaken within the TEG. For example, different members of the TEG will be required to fulfil different actions or if the TEG will undertake all actions together in plenary with collective responsibility to deliver tasks. The modus operandi will also be agreed with the RBM-U and submitted to DG-NMCG for information.

During the process of establishing and strengthening of the RBM Unit, NMCG should make appropriate arrangements to take above mentioned steps for the formation of certain TEGs. This is especially important and urgent in view of the ongoing process of development of Ramganga RBMP

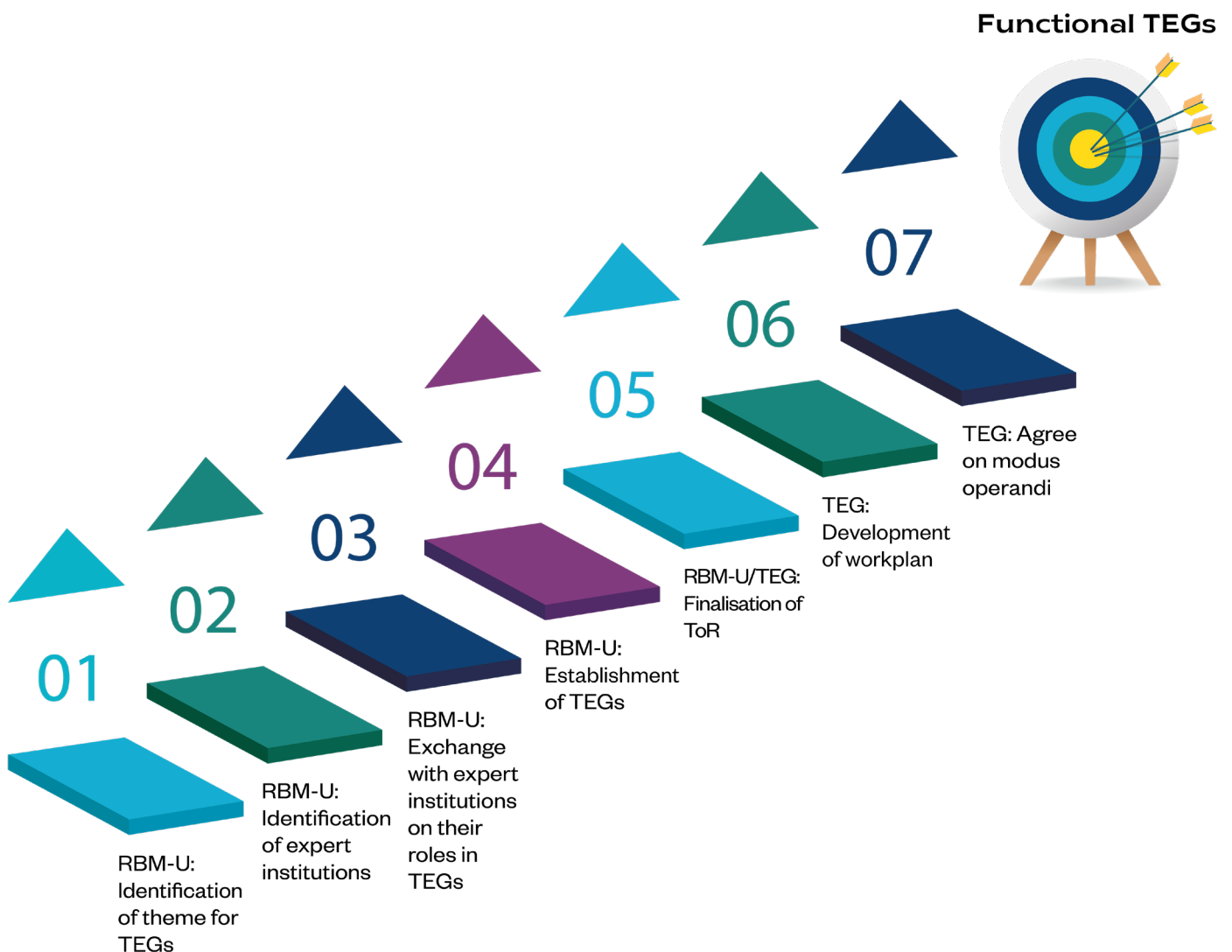


Figure 4: Steps to establish functional TEGs

2.5 Examples of Expert / Working Groups in International RBOs

Several international RBOs utilise TEGs to develop specific aspects of the RBMP (for example on pollution, flood risks, monitoring, stakeholder engagement). In the Danube Commission, seven EGs³ were formed on a range of basin-specific issues:

- **Monitoring and Assessment EG:** The Monitoring and Assessment EG is responsible for issues concerning water quality assessment and classification, including assessment of the ecological and chemical status according to the EU WFD. The EG 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 EG:** The Pressures and Measures EG identifies the causes of pollution-related pressures and promotes measures to address them. The Expert Group facilitates the harmonisation of the work International Commission for the Protection of the Danube (ICPDR) work with other water-related EU directives. This EG develops the Joint PoM, which is part of the Danube RBMP.
- **Flood Protection EG:** The Flood Protection EG 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.
- **Accident Prevention and Control EG:** The Accident Prevention and Control EG 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 EG:** The Public Participation EG 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) EG:** The Information Management and Geographical Information System EG, 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 EG also supports the bilateral/multilateral activities related to the harmonisation of national datasets.

The experts are drawn as standing members from the countries of the basin and represent a wide range of stakeholder groups. This ensures that a small secretariat has 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.

³ Expert Groups | ICPDR - International Commission for the Protection of the Danube River

Other RBOs have identified expert groups based on basin characterisations of the priority problems⁴, including:

- The Elbe Commission (ICPER) which identifies three Working Groups (EU WFD, Flood and Accidental Water Pollution) and five EGs (Surface Water, Groundwater, Economics, Data and Hydrology).
- The Rhine Commission (ICPR) which identifies four Working Groups (Floods, Ecology, Water Quality and GIS/Economy).
- The Sava Commission (ISRBC) which identifies four EGs (Navigation, River Management, Accident Pollution and Flood Protection).

2.6 Recommended Thematic Expert Groups for Ganga River and sub-basins

The need for the formation of different TEGs in the Ganga Basin will develop over time in consultation with the partner institutions as per the mandate of the NMCG and the emerging needs for the basin management. NMCG has taken several steps for management of water quality and quantity. This has also led to recognition of several technical issues which need to be addressed with the help of different expert institutions and global best practices.

In addition, some of these issues have also been found relevant during the ongoing development of the Ramganga RBM Plan. In view of these, it is suggested to consider forming the following TEGs to start with:

2.6.1 E-Flows assessment and monitoring TEG

Based on Para. 5 of Authority Order (AO 2016) this NMCG is mandated to determine E-Flows in different stretches of River Ganga and its tributaries and monitor its implementation by state governments or any other entity for ensuring uninterrupted and adequate flow in River Ganga and to ensure maintenance of the ecological health of the river.

This TEG will advise and support NMCG on following matters:

- Prioritizing the river stretches to take up the E-Flows assessment.
- Assist NMCG, through its recommendation, in formation of river specific technical teams to take up the assessment of E-Flows.
- Guide in application of standardised and appropriate methodology for E-Flows determination in the selected river stretch.
- Review of E-Flows assessment reports of the river specific technical team.

⁴ cited in a review on organisational structures for a RBO prepared for the Mekong River Commission [MRC-Technical-Paper-Org-Structure-of-RBOs.pdf](#) ([mrcmekong.org](#))

⁵ Guidance Document on E-Flows Assessment and Implementation recommends a choice of methodology based on level of complexities exhibited by the basin. E-Flows assessment done for Ramganga Basin can also be referred.

- Provide technical support in stakeholder consultation process, communication of outcomes & possible trade-offs, and accordingly seek agreement on the implementable measures to maintain determined E-Flows.
- Support NMCG to notify the E-Flows to be maintained.
- Advise on development of SoPs/structured mechanism/portal for monitoring of river specific E-Flows to be consistent with the agreed Programme of Measures (PoM) of river specific RBMP.
- Support in evaluation of impacts of maintenance of E-Flows on river health and ecosystem services to local communities.
- Advise NMCG in adaptation strategy in view of climate change scenario.

Possible members:

- Central Water Commission
- State department(s) of water resources/irrigation
- Central Ground Water Board
- Wildlife Institute of India
- Central Inland Fisheries Research Institute
- Experts from academia in the river specific region
- Any other based on river specific requirement (NIH, WWF-India etc.)

2.6.2 Flood plain protection and flood management TEG

Under para. 4 and 42 of AO (2016), NMCG is entrusted with responsibility to keep the flood plains of Ganga and its tributaries free from construction, mining and other such activities which may hinder the natural functioning of these flood plain areas. The Ganga River Basin Management plan (GRBMP) also identifies two missions such as protection of river basin from natural disasters (including floods) and river hazard management. Hon'ble NGT, in its order, has also included protection and rejuvenation of flood plains as one of the important action agendas of state governments' river rejuvenation plans.

Flood hazards, being closely linked with several anthropogenic activities (encroachment, mining etc), are integral part of River Basin Planning and Management. Risks associated with flood events could be a Key Water Management Issue for certain rivers. For such rivers, while developing RBMP based on the RBM Cycle approach, TEG can advise in carrying out the Risk Assessment and defining & implementing the Programme of Measures (PoM).

TEG will advise and support NMCG on following matters:

- Demarcation of flood plains and development & utilisation of LiDAR maps and other suitable technological tools.
- Advise on methodologies to carry out Risk Assessment of flood events including potential pressures from encroachment and sandmining activities.
- Advise to ensure integration of flood hazard and management into RBMPs and implementation of PoMs for flood plain protection and flood management.

- Advise on developing an effective flood monitoring mechanism.
- Review of state governments' flood plain notification and zonal plans
- Advise and support NMCG on giving approval(s) to construction activities (Ghats, bridges, hydraulic structures, embankments)
- Assist NMCG to prepare and issue advisories & guidelines to states / ULBs on matters related to protection and rejuvenation of flood plains, the water bodies etc
- Assist NMCG in developing several non-structural measures in the catchment area of rivers such as protection of wetlands, riparian forests, rainwater harvesting, buffer zones for groundwater natural recharge.
- Assist NMCG in developing adaptation strategies in view of impacts of climate change on discharge scenarios, erratic rainfalls with heavy and low water situations..

Possible members:

- Central Water Commission
- Ganga Flood Control Commission
- Central Ground Water Board
- National Disaster Management Authority
- State department(s) of water resources/irrigation
- State department(s) of Urban Development/ Town and Country Planning
- Inland Waterways Authority of India
- State department(s) of mining
- Any other expert/institution based on specific requirement (NIH, academia etc.)

2.6.3 Water Quality Monitoring and Assessment TEG

Water Quality Monitoring and Assessment is a critical aspect for NMCG to fulfil its mandate towards ensuring unpolluted flow in Ganga (Nirmal Dhara). There are multitude of agencies collecting data on water quality which leads to generation of large volume of information/data. The emerging technologies for water quality monitoring coupled with emerging contaminants require a dynamic and reliable system to continuously review the methods, discharge/quality standards and monitored parameters. A realistic risk assessment of water quality is also an important aspect of development of RBMP for all rivers.

TEG on Water Quality Monitoring and Assessment will advise and support NMCG on following matters:

- Review of data collection and monitoring locations along the rivers from the point of view of adequacy as well as suitability.
- Assess and check plausibility of the data collected by different institutions like CPCB, CWC, CGWB.
- Analyze, present the collected data in coherent, cartographic, and synoptic manner. This will help in making water quality monitoring more effective.
- Assisting NMCG in compiling the water quality report periodically.

- Advise NMCG on emerging pollutants and introducing methodologies to monitoring.
- Advising on monitoring of the industrial effluents quality at ETPs/ CETPs and performance of sewage treatment plants (STPs).
- Advising NMCG on the necessary monitoring mechanisms for long-term changes arising due to Climate change, for example changes in water temperature and suggesting adaptation strategies.

Possible members:

- Central Pollution Control Board
- State Pollution Control Boards
- Central Ground Water Board
- Central Water Commission
- Central Public Health and Environmental Engineering Organisation (CPHEEO)
- Parastatal agencies like Jal Sansthan. Jal Nigam
- Department(s) of agriculture and fisheries
- National Water Informatic Centre (NWIC)
- Specific experts from academia based on specific requirements

2.6.4 Stakeholder Engagement TEG

Further details on the relevance of stakeholder engagement and participation in the Ganga Basin and the roles of a TEG on this theme is described in Guidance Document 3 “Stakeholder Engagement and Involvement”.

3. Guidance Document 3: Stakeholder Engagement and Involvement

3.1 Purpose of Guidance Document

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 adjustments. This Guidance Documents aims at facilitating the development, implementation, and assessment of the Ganga River Basin/sub basins Management Plan (RBMP) through the active involvement of basin-wide stakeholders from community to cabinet. This GD also provides a short overview on experiences in organising stakeholder engagement and involvement from international RBOs, namely the Mekong River Commission, the Nile Basin Initiative, the International Commission for the Protection of the Danube River, and others.

3.2 Background

NMCG's senior leadership have accepted the need to include a River Basin Management Unit (RBM-U) within NMCG to facilitate the development, implementation and revision of future River Basin Management Plans (RBMPs) addressing water resource management within the Ganga River Basin. This Unit will coordinate the work of a number of Thematic Expert Groups (TEGs) that will guide the RBMP development, including an expected "Stakeholder Engagement and Participation" TEG.

This Guidance Document highlights the main steps required and potential sources of information, including examples of stakeholder engagement handbooks and strategies from international river basins (Mekong, Nile, Danube Rivers). This Guidance Document is not a plan, strategy or handbook to involve stakeholders in the Ganga River Basin. It is therefore still important that strategies and handbooks will be prepared by those who are most familiar with the issues of the basin and the interests of the many and varied stakeholders working and living there.

3.3 Main Ganga River stakeholders

Stakeholders in the Ganga River Basin include all those with a 'stake' in the river or the ecosystem services it provides and include all from 'communities to cabinet'. Groups are likely to include:

- Government ministries and authorities at National, State, District and Urban levels, including bodies with responsibilities for the Ganga and its sub basins;
- Civil society;
- Farmers' groups;
- Agricultural representatives;
- Industry representatives;

- River transport representatives;
- Hydropower authorities;
- Wastewater treatment companies;
- Water supply companies;
- Women’s groups;
- Schools and academia;
- Religious interest representatives;
- Wildlife conservation, environment and forest;
- Others

The below infographic shows the political and administrative institutions at national, state and district levels in more detail.

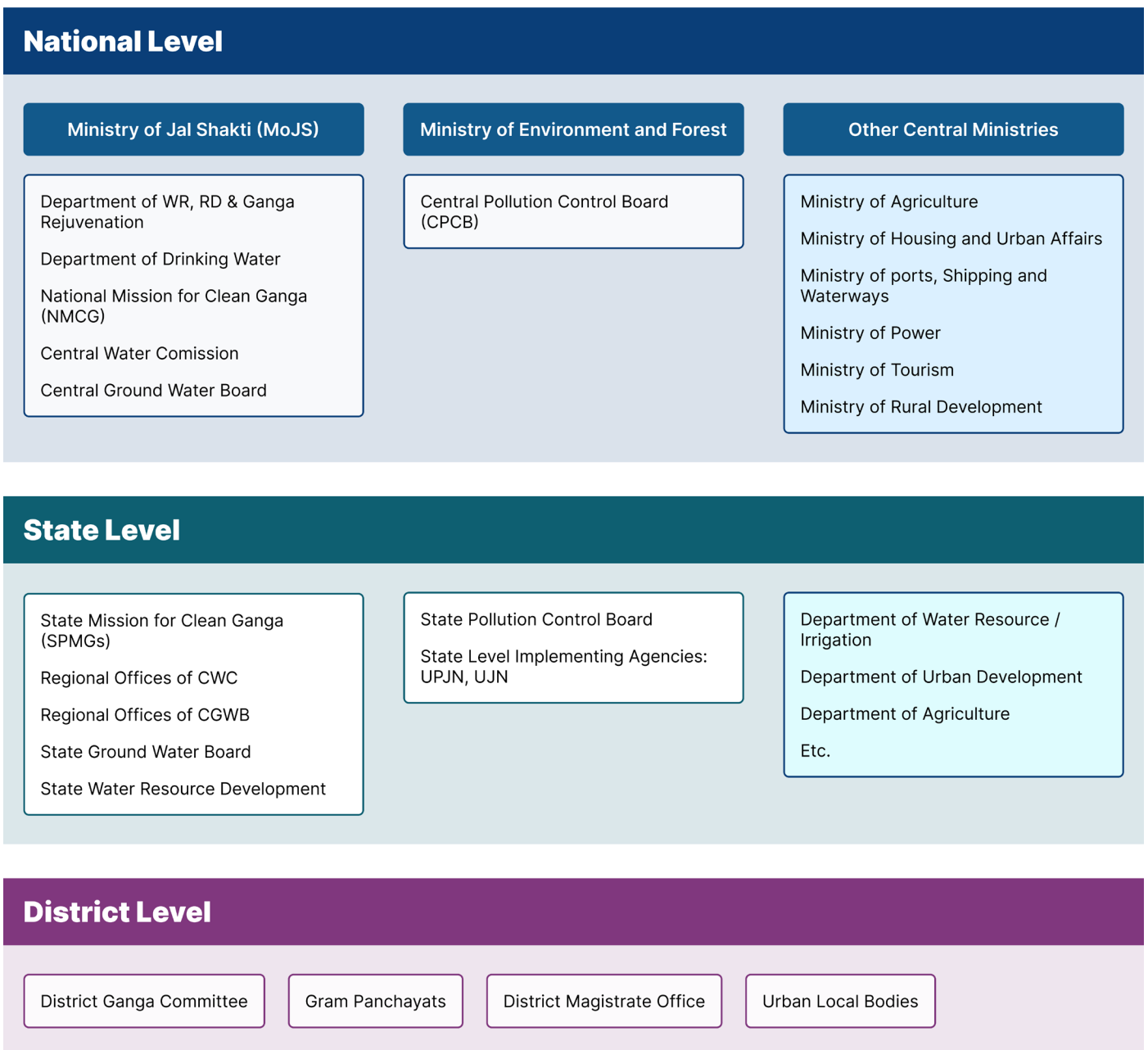


Figure 5: Indian Water-related ministries, institutions, organisations, and committees

3.4 Steps towards a Stakeholder Engagement and Participatory Strategy

It is important that experts involved in the formulation of the Ganga River Basin Stakeholder Strategy have an intimate knowledge of the basin and the stakeholder groups to ensure that the strategy is specific to the people and the sub-basin. To develop and implement a Stakeholder Engagement and Participation Strategy, the following steps are anticipated to be taken by NMCG and key partners:

- To develop Terms of Reference (ToR) for establishing a TEG within the proposed RBM-U to guide and manage stakeholder engagement at national, state and district levels. The TEG would be responsible for coordinating all actions to develop a basin-wide strategy;
- To define and confirm the objectives of a stakeholder engagement and involvement strategy with NMCG/NGC;
- To undertake a basin-wide stakeholder mapping and analysis of the interests of different stakeholder groups;
- To prepare an outline costed plan for approval by NMCG for a five-year programme of stakeholder engagement;
- To develop a basin/sub basin-wide strategy to engage stakeholders within the context of the expected RBMP. This strategy should ensure that all stakeholders have an opportunity to guide the development, implementation and evaluation of the RBMP;
- To develop a 'Stakeholder Engagement and Participation Handbook' specific to the Ganga River Basin to guide actions at national, state and district level. Examples of such handbooks can be found below in Section 3.2.3 (Mekong River Commission, the Nile Basin Initiative, etc.);
- To supervise and guide the implementation of the stakeholder plan, coordinating public awareness events, identifying outreach needs, develop a communication and media strategy, facilitating school awareness material, informing industry, senior government, etc.;
- To provide feedback from stakeholders to guide future iterations of the Ganga RBMP;
- To actively promote the success of the Ganga/sub basin RBMP widely across India and highlight the achievements internationally; and
- Reporting of the Stakeholder Strategy to annual meetings of NMCG.

3.5 Expert Group Skills and Experiences

Skills and experiences required by the Stakeholder TEG are likely to include:

- Previous experience in working with wide range of stakeholders;
- Public Relations experience;
- Communications – especially with regards to water management, environment, agriculture, industrial and urban pollution, climate change, gender relations;
- Experience of engaging and working with marginalised groups; and
- Event management.

3.6 Examples for Stakeholder Involvement

3.6.1 Mekong River Commission

The Mekong River Commission has extensive material on stakeholder engagement including a basin-wide handbook for engagement of stakeholders:

- Mekong River Commission – Handbook for Stakeholder Engagement at the Mekong River Commission⁶; and
- Mekong River Commission – Stakeholder Engagement and Communication⁷.

MRC Partners and Stakeholder Engagement Platform

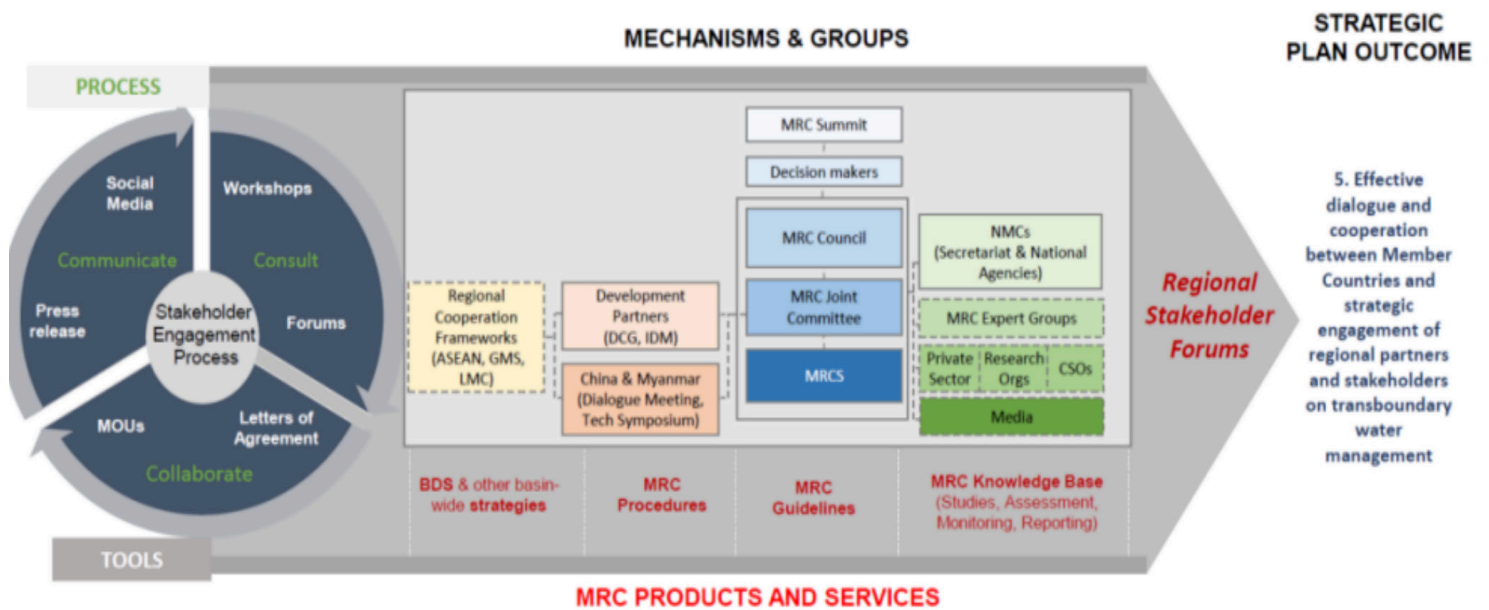


Figure 6: MRC Partners and Stakeholder Engagement Platform

⁶ <https://www.mrcmekong.org/assets/MRC-Stakeholder-engagement-handbook-Dec-2020f.pdf>

⁷ <https://www.mrcmekong.org/our-work/functions/stakeholder-engagement-and-communication/>

3.6.2 Nile Basin Initiative (NBI)

The Nile Basin Initiative has a detailed strategy for stakeholder engagement and illustrates the approach in the following diagram (Communication and Stakeholder Engagement Strategy 2018 – 2023).⁸



Figure 7: Overview of NBI's Communication and Stakeholder Engagement Strategy

3.6.3 International Commission for the Protection of the Danube River (ICPDR)

The Danube has a long history of engaging stakeholders and has formed an “Expert Group” to guide and coordinate actions undertaken within the basin, including celebrations across the whole basin on ‘Danube Day’ (the date of the convention signing). Information on the ICPDR's website includes:

- Terms of Reference for ICPDR Public Participation EG; and ⁹
- General publications and awareness raising documents (including lessons from the Danube on transboundary river basin management).¹⁰

⁸ https://www.nilebasin.org/images/docs/NBI_Communication_and_Stakeholder_Engagement_Strategy_2018-2023.pdf

⁹ <http://www.icpdr.org/flowpaper/app/#page=2>

¹⁰ <http://www.icpdr.org/main/publications/general-publications>

3.6.4 Worldwide Fund for Nature (WWF)

The Worldwide Fund for Nature (WWF) has extensive experience in environmental activities and have developed a detailed publication on undertaking stakeholder analyses and subsequent participation of stakeholders.¹¹

3.6.5 Conservation International

Conservation International (CI) have also developed a number of publications to assist with understanding and engaging stakeholders in environmental programmes.¹²

3.6.6 Global Environment Facility (GEF) IW:LEARN

The GEF IW:LEARN Programme has supported international basin projects over the last 20+ years with guidance and experiences to deliver Integrated Water Resources Management (IWRM) actions and address issues within international large marine ecosystems and groundwater bodies. Specific guidance has been developed for stakeholder engagement identifying¹³ four key stages that are required:

- Mapping, assessing and engaging stakeholders;
- Engaging stakeholders in planning and strategy development;
- Involving stakeholders in implementation; and
- Working with stakeholders on M&E.

The four-phase Stakeholder Engagement Cycle as per the IW:LEARN Stakeholder Participation in Environmental Policy Toolkit¹⁴ is presented in the figure below.

¹¹ Cross-Cutting Tool Stakeholder Analysis https://awsassets.panda.org/downloads/1_1_stakeholder_analysis_11_01_05.pdf

¹² Stakeholder Mapping Guide <https://iwlearn.net/resolveuid/d20fc335-aa29-440b-ae14-f94f37321427>

¹³ Stakeholder Participation in Environmental Policy Toolkit <https://iwlearn.net/manuals/stakeholder-participation-in-environmental-policy-toolkit>

¹⁴ <https://iwlearn.net/manuals/stakeholder-participation-in-environmental-policy-toolkit>

- Determine stakeholders, their interest, relative power dynamics, and how to involve them in the initiative

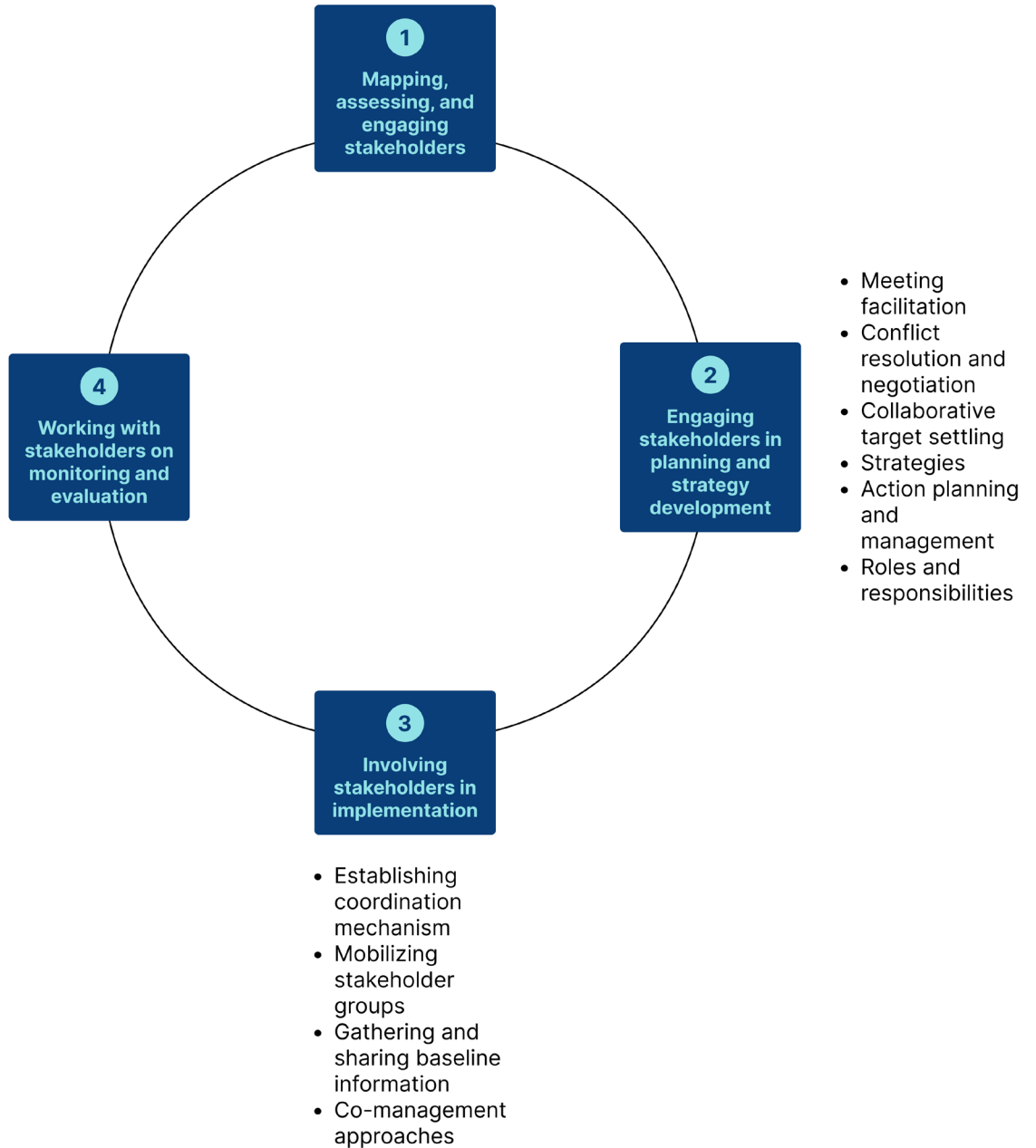


Figure 8¹⁵: Four-phase Stakeholder Engagement Cycle (IW:LEARN Stakeholder Participation in Environmental Policy Toolkit)

The examples briefly described above from the international RBOs provide an overview of different strategies for effective stakeholder engagement and involvement. NMCG after due to customization to its need, may develop its own strategy to engage with stakeholders in Ganga River Basin.

¹⁵ Stakeholder Mapping Guide <https://iwlearn.net/resolveuid/d20fc335-aa29-440b-ae14-f94f37321427>