



River Basin Management Cycle Training Series

08 - Solutions through Exchange, Information Flow and Cooperation



Implemented by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

**GNANAMI
GANGE**



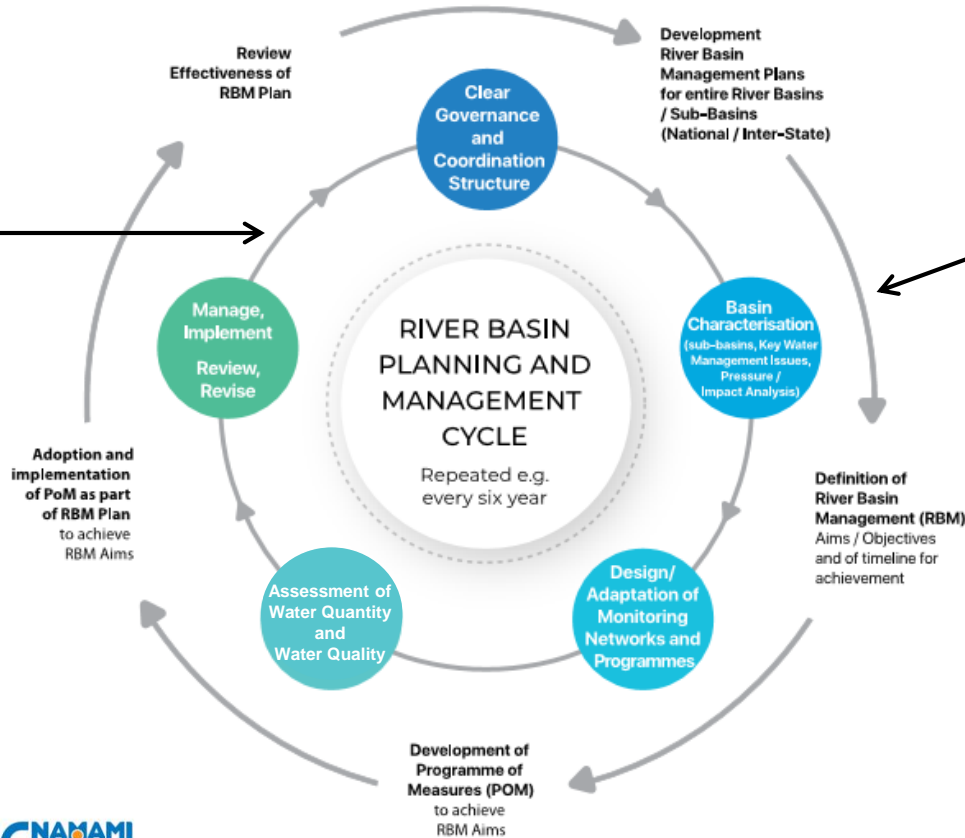
Outline

Unit	Topic
1	Introduction to River Basin Management
2	Clear Governance and Coordination Structure
	<i>Governance (legal aspects and framework)</i>
	<i>Basin Coordination Structures (basin institutions and stakeholder engagement)</i>
3	Basin Characterisation
	<i>DPSIR Assessment</i>
4	Determining Basin Vision and Objectives
5	Design/ Adaptation of Monitoring Networks and Programmes
6	Assessment of Water Quality and Quantity
7	Implementation of RBM
	<i>River Basin Plans and Programme of Measures (PoM), Financing and Review of PoM</i>
8	Solutions through Exchange, Information Flow and Cooperation

The River Basin Planning and Management Cycle

„Inner cycle“
Technical/
operational level“

„Outer cycle“
Planning and
decision making
level



8 Solutions through exchange, information flow and cooperation



Implemented by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

**GNAMAMI
GANGE**



Exchange, information flow and cooperation in River Basins

Forms of exchange and cooperation

▪ **Institutional cooperation (TM 2/3)**

- Basin organisations at different levels: sub-basin, basin, international basin
- Institutionalised workflows / processes for RBM

Institutions and
RBO(s) in
Ganga basin

▪ **Stakeholder engagement (TM 2/3)**

- Various institutions responsible for water management
- The “public”, the private sector, NGOs

Stakeholders in
sub-basins

▪ **Information flow, raising awareness**

- Information on RBM, access to monitoring and assessments
- Raising awareness – events, specific communication

Information and
communication

What information is needed for basin management?

Water information systems are the knowledge base to measure impacts on water resources. This “water information” is the basis for water allocation and for decisions regarding pollution policies. Also, the information is required to plan and implement measures in this basin.

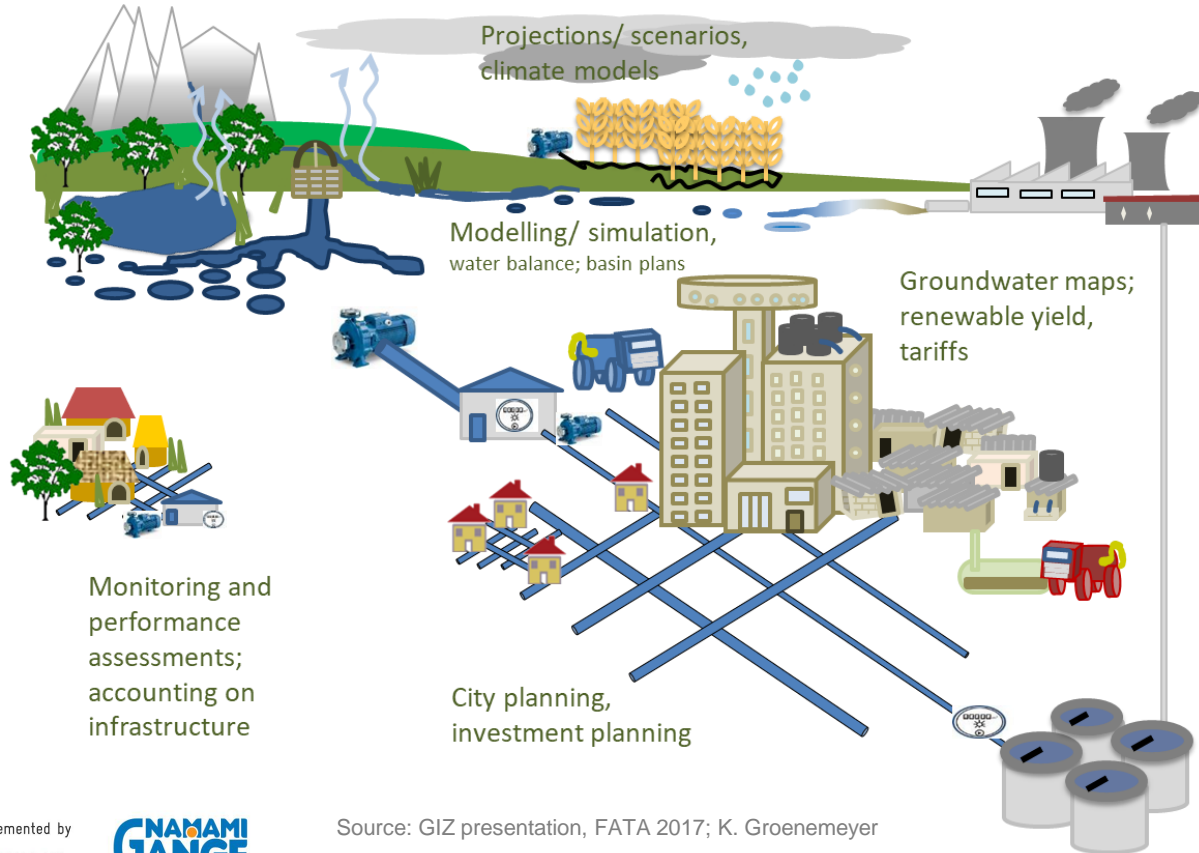
Without a functional water information system, regulation of water resources and implementation of measures cannot be effective.

Information includes:

- Hydrological conditions
- Climate regime and impacts of climate change
- Environmental characteristics and biodiversity
- Population characteristics and dynamics
- Economic and social situation in basin
- Water uses and water use interests
- Planned water uses/proposed projects
- Political situation in basin and riparian communities, states, countries



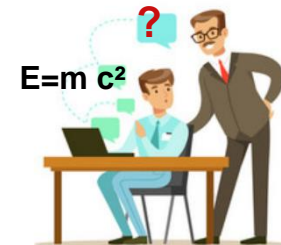
Analysis and Use of Water Information



Challenges around data and information for RBM

There are a number of challenges related to data and information management in the context of basin management

- Data and information is not available at all
- Data cannot be processed or analysed
- Data and information is not being shared between relevant stakeholders
- Data and information is not “translated” in policy guidance (“science-policy-link”)



Optional Action Learning Exercise

IT'S YOUR TURN

i) Communication across various stakeholders

- Conceptual drawings

ii) Cooperation to achieve a joint objective

- Avalanche (Hula Hoop)

The screenshot displays the India-WRIS website interface. The top navigation bar includes 'Water Topics', 'WRIS Tools', 'WIMS', 'Publications', 'Connect', and 'WRIS-Wiki'. The main content area is titled 'About WRIS' and contains the following text:

What is India-WRIS
 The generation of a database and the implementation of a web enabled Water Resources Information System (WRIS) was initiated through a Memorandum of Understanding signed on December 3rd, 2008 between the Central Water Commission (CWC), Ministry of Water Resources, River Development and Ganga Rejuvenation (now Ministry of Jal Shakti), and the Indian Space Research Organization (ISRO), Department of Space. This project was funded by the Central Water Commission.

Overlaid on the right side of the screenshot is a 'Real Time Water Quality Monitoring of River Ganga' dashboard. It features a map of the Ganga river in Uttar Pradesh, India, near the UP16 - Bridge SH21 d/s Kannauj. Below the map is a table with the following data:

Parameters	Criteria limit (River)	Observed Value
BOD	≤ 3 mg/l	3
DO	≥ 5 mg/l	7.75
EC	< 1000 µm/cm	
pH	6.5 - 8.5	7.91
Temperature	≤ 35°C	22.7
Ammonia	≤ 1.2 mg/l	0.82
Chloride	< 250 mg/l	
COD	< 10 mg/l	9
TSS	< 10 mg/l	9

„India-WRIS provides valuable water resources data and information in a GIS framework“
 (CWC, Ministry of Jal Shakti; ISRO)

Real time Water Quality Monitoring of River Ganga provides valuable data
 (MoEFCC-MoJS)



Implemented by
giz
 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



Information and communication in the Ganga Basin

National Mission for Clean Ganga (NMCG)

(nmcg.nic.in)

- Ganga River Basin Management Plan
 - Information about State and District Ganga Committees
 - Information about the status of Ganga, links to projects and to other institutions

Centre for Ganga River Basin Management and Studies (cganga.org, since 2016)

- Centre of excellence and comprehensive Think-Tank

The image shows two screenshots of websites related to Ganga basin management. The top screenshot is from the National Mission for Clean Ganga (NMCG) website (nmcg.nic.in). The page features the Indian national emblem and the text "National Mission for Clean Ganga (Registered Society, Under Act 1960) Ministry of Jal Shakti Department of Water Resources, River Development & Ganga Rejuvenation Government of India". A navigation menu includes "HOME", "ABOUT", "DIVISIONS", "GANGA BASIN", "GANGA COMMITTEE", "PUBLIC OUTREACH", and "RELATED LINKS". The main content area is titled "Ganga River Basin Management Plan" and contains a paragraph describing the plan's objectives: "A comprehensive River Basin Management Plan for Ganga is being prepared by the consortium of seven Indian Institutes of Technology (IITs) (Kanpur, Delhi, Madras, Bombay, Kharagpur, Guwahati and Roorkee). The Plan is being prepared with the objectives of taking comprehensive measures for restoration of the wholesomeness of the Ganga ecosystem and improvement of its ecological health, with due regard to the issue of competing water uses in the river basin. The wholesomeness of the river can be grasped in terms of four defining concepts: 'Aivral Dhara' (Continuous Flow), 'Nirmal Dhara' ('Unpolluted Flow'), Geologic Entity, and Ecological Entity." The bottom screenshot is from the Centre for Ganga River Basin Management and Studies (cganga.org). The page features the text "Centre of Excellence and Comprehensive Think-Tank" and "The Centre for Ganga River Basin Management and Studies (cGanga) was established at the Indian Institute of Technology, Kanpur (IITK) in 2016. The Centre is a Centre of Excellence for data collection, the creation and dissemination of knowledge and information for the sustainable development of Ganga River Basin. The centre acts in the". There are three main content blocks: "TECH ICON Award for 'Zero Discharge Toilet System (ZDTS)'" with a photo of an award ceremony, "STRATEGY FOR IMPROVING CONDITION OF WATER BODIES IN THE VICINITY OF PULP AND PAPER INDUSTRIES IN GANGA RIVER BASIN" with a circular graphic, and "Ganga Pollution: Pulp & Paper Industry" with a photo of a factory.

WISE: Water Information Systems for Europe



WISE - Water Information System for Europe is the European information gateway to water issues



[Site Map](#) | [Contact](#) | [Accessability](#) | [About](#) | [Links](#) |

[Legal Notice](#)

<http://water.europa.eu/>



Implemented by
giz
Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Information Platform for Implementing the EU WFD

EC CIRCABC on the EU WFD, includes library with all Working Group Documents „Implementing the Water Framework Directive and the Floods Directive“

CIRCABC → European Commission → Environment → under Public access, go to WFD CIRCA

<https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>

The screenshot shows a web browser window with the URL <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>. The page header includes the European Commission logo and the CIRCABC logo. A blue navigation bar shows the path: EUROPA > European Commission > CIRCABC > env > wfd. Below the navigation bar, there is a light blue box with a message: "The new user interface of CIRCABC has been released. Please click 'here' to start using it and don't hesitate to give us your feedback. Click 'here'". At the bottom, there is a section titled "WFD CIRCA: 'Implementing the Water Framework Directive and the Floods Directive'" with a dropdown arrow. To the right, there is a link "Http | Back" and a message: "WFD CIRCA: 'Implementing the Water Framework Directive and the Floods Directive' Welcome to the Interest Group 'WFD CIRCA: 'Implementing the Water Framework Directive and the Floods Directive'".

CIRCABC: Communication and Information Resource Centre for Administrations, Businesses and Citizens.

Data and information management in the Danube River Basin

In the Danube River Basin, data acquisition and analysis includes

- Danube Basin Analysis (state of the basin, human activities, impacts, economic water use)
- Identification of pressures in DRBMP – basis for identification of specific monitoring needs
- Trans-National Monitoring Network (TNMN) with specific parameters
- Specific monitoring efforts (Joint Danube Survey)
- Mechanisms for sharing data between ICPDR member countries (DANUBIS)
- Mechanisms for sharing analyses results with other actors and the general public

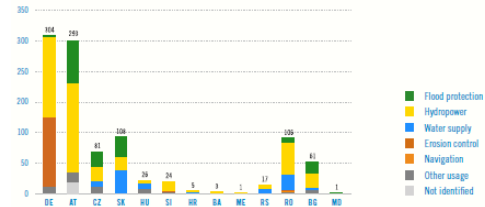
→ data and analyses are the basis for science-based and informed decision-making

Table 1: List of monitoring sites

No.	Country code	DEFF Code	New TNMN code	River	Name of site	Locations	x-coord.	y-coord.	River-km	Altitude	Catchment
1	DE	L2130	DE2	Danube	Jochernstein	M	13.703	48.520	2.304	200	17.096
2	DE	L2150	DE5	Danube	Dillingen	L	10.499	48.568	2.538	420	11.315
3	DE	L2150	DE3	Ilm	Kirchdorf	M	12.128	47.782	196	452	9.905
4	DE	L2180	DE4	Inn/Salzach	Laufen	L	12.833	47.940	47	300	8.113
5	AT	L2220	AT1	Danube	Jochernstein	M	13.703	48.521	2.204	200	17.085
6	AT		AT5	Danube	Enghagen	R	14.512	48.242	2.113	241	84.959
7	AT	L2160	AT3	Danube	Wien-Neusdorf	R	16.371	48.262	1.935	150	101.700
8	AT		AT6	Danube	Hamburg	K	16.983	48.154	1.876	130	130.158
9	CZ	L2100	CZ1	Morava	Lanzhot	M	16.869	48.687	79	150	9.725
10	CZ	L2120	CZ2	Morava/Dyje	Pohansko	M	16.885	48.723	17	155	12.540
11	SK	L1840	SK1	Danube							
12	SK	L1890	SK2	Danube							
13	SK	L1900	SK4	Vran							
14	SK	L1871	SK5	Danube							
15	SK		SK6	Morava							
16	SK		SK7	Ilron							
17	SK		SK8	Ipoly							
18	HU	L1470	HU1	Danube							
19	HU	L1475	HU2	Danube							
20	HU	L1490	HU3	Danube							
21	HU	L1420	HU4	Danube							
22	HU	L1540	HU5	Danube							
23	HU	L1604	HU6	Islo							
24	HU	L1610	HU7	Craka							
25	HU	L1770	HU8	Tisza/Sz							
26	RO	L1700	RO1	Danube							
27	RO	L1700	RO2	Danube							



Number of barriers and associated main uses

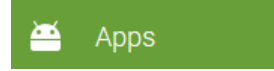


Water Information on River Water Tables

Various websites contain information on water related to rivers.

In Germany, the water tables at gauges are published daily for important measuring points. This is particularly important for ships.

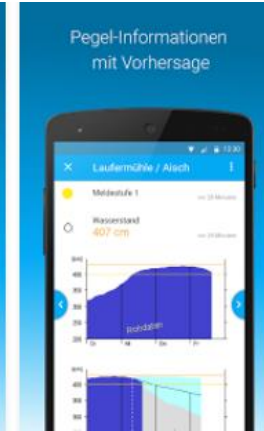
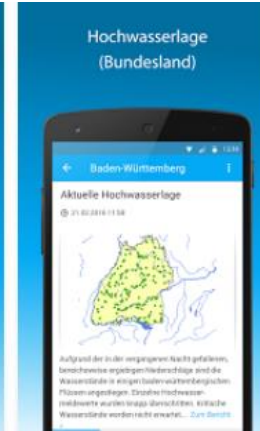
The App “MeinePegel” shows water tables in rivers including projections into the future.



National flood situation

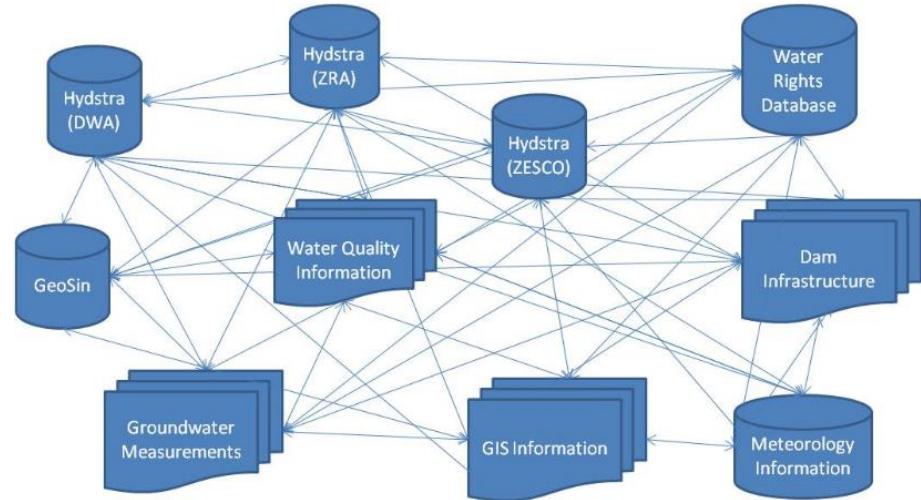
Flood situation by region

Water level information and scenario



Water Information Systems

- Water information systems are often very complex.
- Water information systems require resources for their maintenance. They need to be linked to the tasks of institutions.
- Water information systems are there to support management processes, not to replace or automate them. Therefore, the processes need to be clear before an information system can be designed.
- It is not practicable to unite all systems into one system.
- Web Portals and Apps can be solutions to improve access of the public and of planners to available information.



Source: GIZ (2014) Water information systems, Zambia

Raising Awareness among the Public

- Namami Gange Programme, 2014
Prime minister Modi declares Ganga clean-up and rejuvenation a national priority
- Holy Ganga: Religious importance and festivals along the Ganga
- Fasting for cleaning up and preserving the Ganga
(Dr. Agrawal died in 2018 aged 86)
- Celebration of World Water Day (22 March)
- Celebration of National Ganga Day (4 November proposed in 2019)
- Prime Minister Modi Chaired the first meeting of the National Ganga Council on 14 December 2019



Priority of all top ministers: Ganga clean-up

Modi's priority is clean Ganga: Gadkari

NEW DELHI, DECEMBER 05, 2018

YouTube - Jun 9, 2014



Reinforcement of Ganga Basin Identity by Celebration



Objective: Celebration involving the entire Ganga Basin

Ganga Quest
Annual quiz competition on Ganga

'Ganga Utsav' - Ganga Festival
Opportunities for outreach for attitudinal and behaviour change in school children in a festive environment

'Bal Ganga Mela'
Childrens' fair

'Ek shaam Ganga ke naam'
An evening dedicated to the Ganga

Declaration of Ganga as a National River



2020

Basin wide celebration
involving all stakeholders

2020

National online quiz:
Bilingual (Hindi and English) awareness raising initiative

2019

Festival:
Over 3000 people directly + 500+ via street-plays and 2000+ more across the basin

2018

Children's fair: Over 500 children, over 500 adults

2017

A cultural evening with a small number of people in Delhi

2008

Raising Awareness: The Danube Day, Danube box

The **Danube Day on 29 June** is celebrated every year along the river. Celebrated since 2004;
→ highlights why it's important to look after Danube rivers;
→ shows successes what can be achieved;
→ looks to the future to face upcoming challenges; → mobilises people to take action for the Danube.



The **Danube box** is an educational toolkit that can be ordered for example by school teachers.

www.danubebox.org

“The Danube Box - an education toolkit available in several languages and country versions - assist teachers in bringing the Danube closer to the minds of future generations.”

The material can also be downloaded in several languages at the website.



Ganga Box – interactive educational material for schools

- Learning modules to motivate children to inculcate responsible behaviours including participatory activities, games and interactive tools to educate and inculcate responsible behaviour and attitudes in children.
- Box for schools in Uttarakhand and Uttar Pradesh: pilot version under review in 2020; final version by spring 2021.
- Ganga Box Teachers’ trainings – “City Sanitation Planning” is a citywide planning document for the entire sanitation sector to achieve improved service delivery and selection of suitable projects

Ganga Box training

Module 1. Teacher’s training participatory and use of innovative tools

Module 2. School roll-out handholding support for implementation in schools

Module 3. Advanced training to create a state resource pool of Trainers

Module 4. Dissemination workshop involving all stakeholders

Module 5. Remote Coaching support to teachers



Discussion: Exchange, information flow and cooperation

IT'S YOUR TURN

Discuss in a small group the following questions and assess

What is good 👍 ?

What should be further developed and how 🙋🏻 ?

- available **information** for River Basin Management (in Ganga basin/ in your sub-basin) required for RBM plans, programmes of measures and their implementation
- **cooperation of institutions** for RBM in the Ganga Basin/ sub-basin
- **awareness of stakeholders including the public** with regard to the challenges of Ganga RBM

Discussion: Exchange, information flow and cooperation

IT'S YOUR TURN

	GOOD 👍	(HOW) TO BE DEVELOPED 📌📄
Available information		
Cooperation of institutions		
Awareness of stakeholders		

Coming to the end of the training

- Review of your group work results (separate presentation)
- Evaluation (forms to be distributed)
- Feed-back round

THANK YOU FOR YOUR ACTIVE PARTICIPATION!

Good Luck with River Basin Management at the Ganga River!



Continued engagement pre and post webinar

1. For queries and related engagements contact GIZ colleagues:

Delhi Office:

- Dr. Sumit Gautam (sumit.gautam@giz.de)
- Ms. Chhavi Sharda (chhavi.sharda@giz.de)

Uttarakhand (Dehradun) Office:

- Mr. Merajuddin Ahmad (merajuddin.ahmad@giz.de)

2. E-Learning platform - <http://78.46.247.119/>

(Temporarily hosted on AHT servers and will be transferred to the servers of training institutes.)

Contact: Rania - taha@aht-group.com/ Rebecca - roblick@aht-group.com

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by:

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn

India office:

GIZ Office New Delhi
46 Paschimi Marg, Vasant Vihar
New Delhi 110057

Postal address:

Support to Ganga Rejuvenation
B-5/2, Safdarjung Enclave
New Delhi 110 029
India

E: [martina.burkard@giz.de/](mailto:martina.burkard@giz.de)
[chhavi.sharda@giz.de/](mailto:chhavi.sharda@giz.de)
sumit.gautam@giz.de

Author/Responsible/Editor, etc.:

AHT Group AG Management & Engineering

Design/layout, etc.: GIZ

Photo credits/sources: N.A.

URL links:

Responsibility for the content of external websites linked in this publication always lies with their respective publishers. GIZ expressly dissociates itself from such content.

On behalf of

German Federal Ministry for Economic Cooperation and Development (BMZ)
Support to Ganga Rejuvenation, Competence in Motion,
New Delhi, GIZ India

GIZ is responsible for the content of this publication.

In cooperation with:



Implemented by
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

