MANAGEMENT OF URBAN WATER BODIES

Outcome Report for the
two-day technical workshop
on 17th-18th November 2022 in New Delhi

Outcome Report
for the
two-day technical workshop
on 'Management of Urban Water Bodies',
with consultants and practitioners from
Bhutan, Ethiopia, France, Germany, Nepal and Sri Lanka,
in Delhi on 17th-18th November 2022

Two-day Technical Workshop on

'MANAGEMENT OF URBAN WATER BODIES'

17th (Thursday) & 18th (Friday) November 2022

Hotel Royal Plaza, Ashoka Road, New Delhi

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Annexures

BACKGROUND

The importance of water bodies in an urban context cannot be over emphasised. Healthy water bodies provide a range of benefits to cities. They play an important role in maintaining and restoring the ecological balance, serve as an avenue for flood regulation, supply water for multiple uses, augment groundwater recharge, protect biodiversity, enhance socio-cultural connect, provide avenues for recreation and livelihood opportunities, and at the same time enhance the nutrient balance, micro-climate and air quality.

Despite these manifold benefits, the condition of water bodies in many cities across the globe has been deteriorating. Some are shrinking, some are getting polluted, and some are entirely encroached upon. In the last few decades, waterbodies have been under continuous and unrelenting stress, caused primarily by rapid urbanisation and unplanned growth. It is quite evident that cities are rapidly losing their water bodies. This decline in the quality and quantity of waterbodies is to the extent that their potential to render ecological, economic and social functions has reduced drastically.

Owing to these concerns, the protection of water bodies has been recognized in the agenda of a number of recently launched national and international missions, calling on cities to revive and rejuvenate their water bodies to enhance the overall water security of the city.

With this outlook, the National Institute of Urban Affairs (NIUA), National Mission for Clean Ganga (NMCG) and UNESCO New Delhi developed a web-based easy to use **'Urban Water Body Diagnostic Tool',** as a decision support system for cities to manage the water bodies within their jurisdiction. The tool is meant to help city officials in identifying and prioritising actions for rejuvenation of water bodies within their jurisdiction.

ABOUT THE WORKSHOP

With an objective of building an understanding and learning practical applications of the 'Urban Water Body Diagnostic Tool', a **two-day technical workshop on 'Management of Urban Water Bodies' was organised on 17th-18th November 2022, in New Delhi.** The purpose of this workshop is to introduce the participants from River Cities Alliance Cities as well as member nations of UNESCO New Delhi office (Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka) to the tool as a means for management of water bodies in their cities.

OBJECTIVE

The primary intent of this workshop was to

- Deliberate extensively on the effective assessment and holistic management of urban water bodies.
- Train the participants in the knowledge and application of the Urban Water Body Diagnostic Tool.
- Discuss the potential for adoption of nature-based solutions in management of urban water bodies.

The workshop equipped the participants with a scientific and technical method for evaluation of the status of water bodies within their city.

PARTICIPANTS

The workshop was attended by senior officials from the River Cities Alliance (RCA) member cities from Begusarai, Behrampore, Bhubaneshwar, Bijnor, Chennai, Farrukhabad, Gwalior, Hoogly-Chinsurah, Howrah, Lucknow, Maheshtala, Mathura-Vrindavan, Moradabad, Patna, Pune, Srinagar, and Vijayawada.

In addition, participants from Bhutan, Ethiopia, France, Germany, Nepal, and Sri Lanka also took part in the workshop.

The diverse cohort of participants included urban planners/ engineers/ architects/ environmentalists, who are engaged as consultants/ practitioners/ professors/ students, with government/ private/ academic institutions. A complete list of participants is enclosed as Annexure.

AGENDA

Two-day Technical Workshop on
'MANAGEMENT OF URBAN WATER BODIES'

Date : 17- 18 November, 2022 | Venue : Hotel Royal Plaza, Ashoka Road, New Delhi

17th November 2022

09:30 AM Onwards	Registration
	SESSION 1: OPENING SESSION
10:30 AM - 10:40 AM	Introduction (Victor R. Shinde, Lead, Water and Environment Vertical, NIUA)
10:40 AM - 10:50 AM	Setting the Context (Benno Boer, Chief of Section-Natural Sciences, UNESCO New Delhi)
10:50 AM - 11:00 AM	Opening Address (Rajiv Ranjan Misha, Chief Technical Advisor, NIUA)
11:00 AM - 11:20 AM	Keynote Address (G Asok Kumar, Director General, National Mission for Clean Ganga)
11:20 AM - 11:25 AM	Launch of the web-based Urban Water Body Diagnostic Tool (All Dignitaries)
11:25 AM - 11:45 AM	Group Picture and Tea/Coffee Break
	SESSION 2: UNDERSTANDING THE URBAN WATER BODY DIAGNOSTIC TOOL
11:45 AM - 01:00 PM	Introduction to the Urban Water Body Diagnostic Tool (Nikita Madan, Sr. Environment Specialist, Water and Environment Vertical, NIUA; Neha Midha, Programme Officer, Natural Sciences, UNESCO New Delhi)
1:00 PM - 2:00 PM	Lunch
2:00 PM - 3:00 PM	Overview of the web-based Urban Water Body Diagnostic Tool (Anirudh Soni, Research Associate, Water and Environment Vertical, NIUA)
	SESSION 3: IMPROVING THE STATE OF URBAN WATER BODIES
3:00 PM - 4:00 PM	Maintaining healthy water bodies: The role of decentralized wastewater management (K.E. Seetharam, Professor, University of Tokyo, Japan; Srinivas Chary, Director, Centre for Urban Governance, Environment, Energy and Infrastructure Development, Administrative Staff College of India, Hyderabad)
4:00 PM - 4:30 PM	Tea/ Coffee Break
4:30 PM - 5:30 PM	Maintaining healthy water bodies: The role of nature-based solutions (Faduma Ali, Associate Programme Specialist - Science, UNESCO Paris)
5:30 PM	Wrap-up for Day-1

Two-day Technical Workshop on
'MANAGEMENT OF URBAN WATER BODIES'

Date : 17- 18 November, 2022 | Venue : Hotel Royal Plaza, Ashoka Road, New Delhi

18th November 2022

	SESSION 3 (continued) – IMPROVING THE STATE OF URBAN WATER BODIES
9:00 AM – 9:30 AM	Registration and Recap of Day 1
9:30 AM – 10:15 AM	Best Practices for management of Urban Water Bodies (Marc Breulmann, Director, Centre for Environmental Research – UFZ, Germany; Yohannes Zerihun, Director, Ecohydrology Directorate and Coordinator, African Regional Center for Ecohydrology u/a of UNESCO, Ethiopia)
	SESSION 4 – PRACTICAL APPLICATION OF THE URBAN WATER BODY DIAGNOSTIC TOOL
10:15 AM – 1:00 PM	Site Visits (selected water body in Delhi) (Ishleen Kaur, Sr. Environment Specialist, Water and Environment Vertical, NIUA; Jyoti Verma, Sr. Research Specialist, Water and Environment Vertical, NIUA)
1:00 PM – 2:00 PM	Lunch
2:00 PM – 3:00 PM	Applying the Urban Water Body Diagnostic Tool for the site visited (Rahul Sachdeva, Sr. Program Specialist, Water and Environment Vertical, NIUA)
3:00 PM – 3:15 PM	Tea/Coffee Break
	SESSION 5 – CLOSING SESSION
3:15 PM – 4:00 PM	Group Discussion – Opportunities/challenges in application of nature-based solutions for management of urban water bodies (Faduma Ali, Associate Programme Specialist – Science, UNESCO Paris)
4:00 PM – 4:30 PM	Reflections from Participants (Victor Shinde, Lead, Water and Environment Vertical, NIUA)
4:30 PM – 5:00 PM	Certificate Distribution, Conclusion and Way Forward (Benno Boer, Chief of Section-Natural Sciences, UNESCO New Delhi)
5:00 PM	Wrap up followed by Tea/ Coffee

GLIMPSES FROM THE EVENT


RCC Drain
Pond


Pond

SESSION-WISE DISCUSSION & DELIBERATION

TRAINING APPROACH

The technical workshop was spread over two days.

The first day covered an overview of urban water body diagnostic tool and its web-based application. This was followed by presentations on the role of decentralised waste water management and nature-based solutions for maintaining healthy water bodies.

The second day, commenced with a session on best practices across countries for the management of urban water bodies. This was followed by a site visit to a selected water body in Delhi for a practical experience of application of the tool. In the end, the participants reflected on the potential for application of this tool in the context of their regions.

In order to ensure hands-on learning, the sessions were structured in the form of:

- Presentations: The key topics were presented by experts working in the domain. These lectures shared detailed insights with the participants about the subject.

- Moderated Discussions: The presentations were followed by moderated discussions, wherein the participants were expected to brainstorm, discuss, deliberate and share relevant practical experiences. This way, a number of unique ideas and practices were shared throughout the event.

- Group Activities: The entire programme was designed to ensure maximum participation and learning. The participants were divided into eight teams to experience the usage of the web-based tool. There were multiple group activities and exercises, to ensure exchange of ideas and a better understanding of the participants.

- Site Visit: A site visit to an urban water body in Delhi was organised to ensure hands-on experience of the application of the tool.

Details of each individual session are described in the following section.

Discussion on Nature-based Technologies adopted across cities for wastewater treatment in ponds

SESSION DETAILS

The training began with an introduction and an ice-breaker session for the attendees to get to know one another, followed by 3 technical sessions spanning over two days, and concluded with a closing session with the invited dignitaries. Interesting energisers related to the theme of the training, were conducted post lunch to engage the participants.

The sessions were as follows:
Session 1: Opening Session
Session 2: Understanding the Urban Water Body Diagnostic Tool
Session 3: Improving the State of Urban Water Bodies
Session 4: Practical Application of the Urban Water Body Diagnostic Tool
Session 5: Closing Session

A brief description of each session and the key takeaways from the discussions are shared below.

Session 1: OPENING SESSION

At the onset, Dr. Victor Shinde from NIUA set the tone by introducing the role of urban water bodies and the need for their management. He also briefly introduced the urban water body diagnostic tool and its application.

Mr. Benno Boer, Chief of Section-Natural Sciences, UNESCO New Delhi shared some insights into the multiple initiatives undertaken by UNESCO for management of water bodies.

Sh. Rajiv Ranjan Misha, Chief Technical Advisor, NIUA briefed the participants about the work done by NIUA in the field of water management. He reflected upon the frameworks developed by NIUA for river management, and also shared details of the engagement and capacity building initiatives of the team.

Sh. G Asok Kumar, Director General, National Mission for Clean Ganga, delivered a keynote address. He addressed the participants and about the initiatives undertaken by NMCG in this regard.

Post the introduction and opening remarks, the Urban Water Body Diagnostic Tool and its web-based application were formally launched by Sh. Asok Kumar, Sh. Rajiv Ranjan Misha, Mr. Benno Boer and Sh. Himansu Badoni (Executive Director-Projects).

The session ended with a group photograph with all the dignitaries and participants.

Launch of the Urban Water Body Diagnostic Tool

SESSION 2: UNDERSTANDING THE URBAN WATER BODY DIAGNOSTIC TOOL

Ms. Nikita Madan from NIUA and Ms. Neha Midha from UNESCO gave an overview of the tool. They elaborated on each of the 10 indicators of the tool and explained the complete process for evaluation of the status of water bodies. They also described the calculations behind evaluation of the water bodies and interpretation of the scores. They concluded by sharing experiences of application of this tool in Visakhapatnam.

PHYSICAL DIMENSION

Indicator 1
Visible surface algal bloom and floating macrophytes

Indicator 2
Odour

Indicator 3
Solid waste in the water body

Indicator 4
Solid waste in the buffer

WATER QUALITY DIMENSION

Indicator 5
Dissolved oxygen

Indicator 6:
pH value

WATER QUANTITY DIMENSION

Indicator 7:
Change in surface area of the water body

MANAGEMENT DIMENSION

Indicator 8:
Extent of built-up in the buffer

Indicator 9:
Vegetation in the buffer

Indicator 10:
Management protocols

Mr. Anirudh Soni from NIUA explained the step-by-step process of using the web-based tool. He also explained how this tool can support in preparing a water body database for any city.

Nikita Madan from NIUA and Neha Midha from UNESCO introducing the Urban Water Body Diagnostic tool

Anirudh Soni from NIUA explaining the working of the Web-Based Urban Water Body Diagnostic Tool

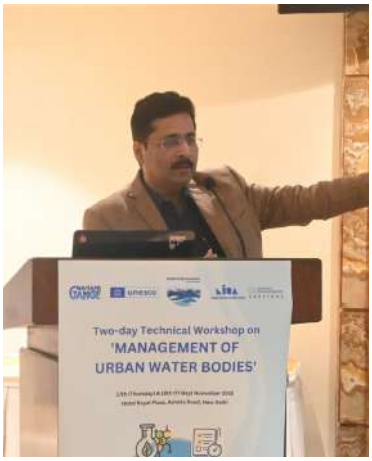
SESSION 3: IMPROVING THE STATE OF URBAN WATER BODIES

Professor K.E. Seetha Ram from the Asian Development Bank Institute, University of Tokyo, Japan talked about the role of decentralised waste water management in maintaining healthy water bodies. He shared case studies from Johkasou in Japan, Changsu, Chongming and other Japanese experiences.

Mr. Srinivas Chary from the Centre for Urban Governance, Environment, Energy and Infrastructure Development, Administrative Staff College of India, Hyderabad also shared experiences of decentralised waste water management applicable in Indian cities.

Ms. Faduma Ali from UNESCO Paris talked about the role of nature based solutions for maintaining healthy water bodies. She shared how eco-system based approaches can help in Disaster Risk Reduction.

Day 2 of the workshop began with Mr. Marc Breulmann from Centre for Environmental Research – UFZ Germany and Mr. Yohannes Zerihun from Ecohydrology Directorate and Coordinator, African Regional Center for Ecohydrology u/a of UNESCO Ethiopia. They shared best practices for management of urban water bodies.

Professor K.E. Seetha Ram, Srinivas Chary and Faduma Ali speaking sharing their experiences

Marc Breulmann and Yohannes Zerihun sharing best practices for management of urban water bodies

SESSION 4 – PRACTICAL APPLICATION OF THE URBAN WATER BODY DIAGNOSTIC TOOL

Participants were distributed in groups and taken to a water body site in Delhi which falls under the jurisdiction of the Delhi Development Authority. Ms Ishleen Kaur and Ms Jyoti Verma explained the complete process of water body data collection. The participants were then asked to diagnose the status of the water body using the tool. Participants evaluated the 'Physical Dimension' score based on visual assessment and also calculated the 'Water Quality Dimension' score using the readings of the pH and DO testing meters.

In the next presentation, Mr Rahul Sachdeva guided the participants for entering the data from site visit in the online web-based tool. This hands-on exercise was widely appreciated.

SESSION 5 – CLOSING SESSION

In the last session, participants shared their feedback about the water body diagnostic tool and its web based application. Some reflections from the participants are listed below:

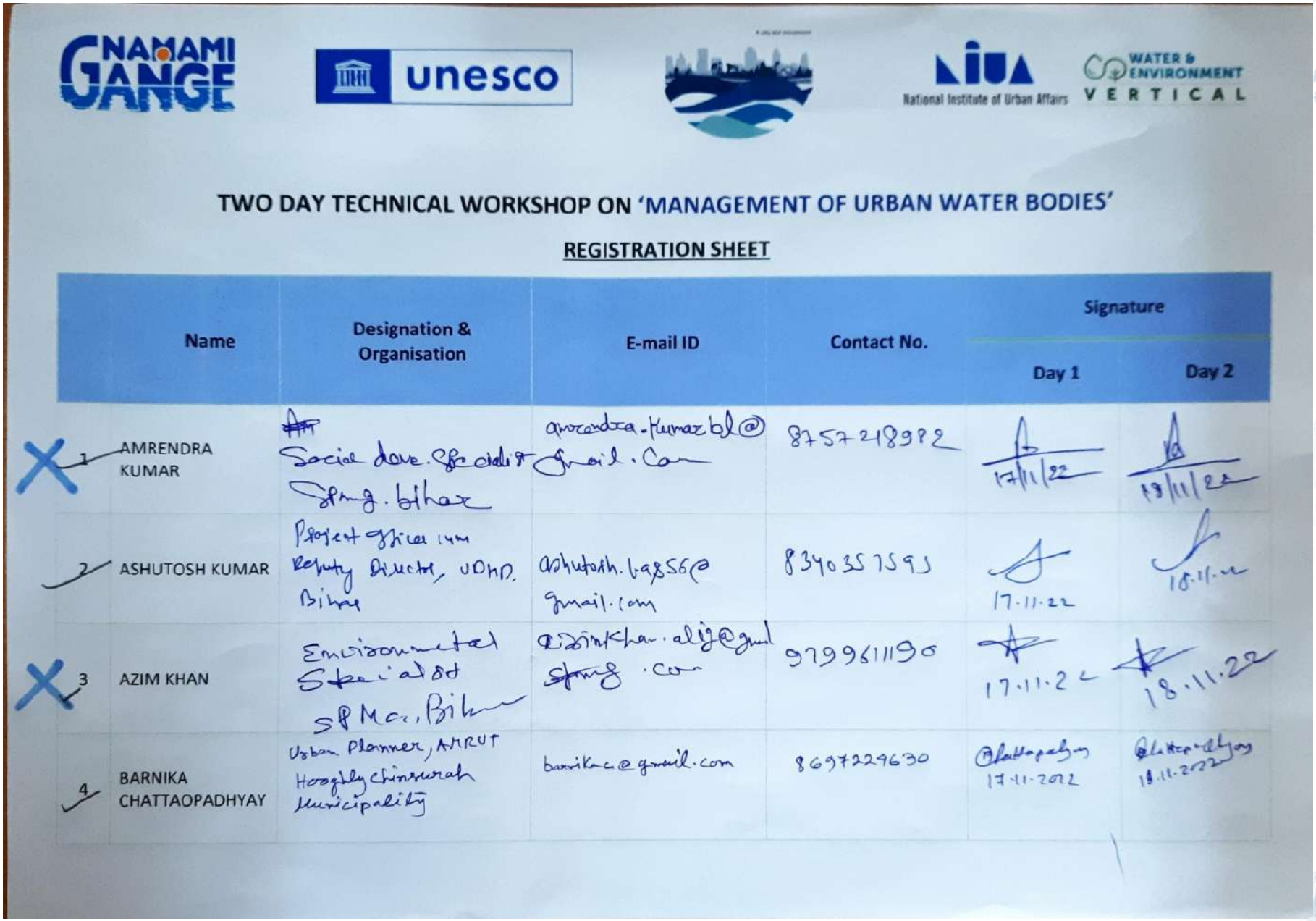
- Representative from Odisha suggested that they can take-up the application of this tool under AMRUT.
- Representative from Pune said that this tool is applicable to all the five proposals under AMRUT Sarovar. He also suggested a plan to engage with students for application of this tool.
- Representative from Bijnor mentioned about their plan for rejuvenation of two water bodies, and stated the possibility for application of this tool for documentation.
- Representative from Gwalior suggested the application of this tool for collecting data in a scientific manner.
- Representative from Vijaywada sought support in providing solutions for solving the problems identified by the tool. He also suggested the possibility of application of this tool in the city.
- Representative from Bhutan appreciated the simplicity of the tool and its indicators.
- Representative from Sri Lanka stated that she will share the tool with professionals working on water bodies.
- Representative from Nepal appreciated the repacking of basic indicators into a comprehensive decision support system.

At the end, some participants also shared their experiences of rejuvenation of water bodies in an urban context.

This was followed by certificate distribution and closing remarks.

Participants sharing reflections

ANNEXURE: PARTICIPANT LIST



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TWO DAY TECHNICAL WORKSHOP ON 'MANAGEMENT OF URBAN WATER BODIES'

REGISTRATION SHEET

	Name	Designation & Organisation	E-mail ID	Contact No.	Signature	
					Day 1	Day 2
1	AMRENDRA KUMAR	Social dev. Specialist Sfmg. bihar	amrendra.kumar.bl@gmail.com	8757218982	17/11/22	18/11/22
2	ASHUTOSH KUMAR	Project officer cum Deputy Director, UDHD. Bihar	ashutosh.bgs56@gmail.com	8340357595	17.11.22	18.11.22
3	AZIM KHAN	Environmental Specialist SPMC, Bihar	azimkhan.alig@gmail.com	9799611190	17.11.22	18.11.22
4	BARNIKA CHATTAOPADHYAY	Urban Planner, AMRUT Hooghly Chinsurah Municipality	barnika@gmail.com	8697229630	17.11.2022	18.11.2022

	Name	Designation & Organisation	E-mail ID	Contact No.	Signature	
					Day 1	Day 2
5	BHAKTA KABI DAS	Chief Engineer-cum-Addl. Secretary, H+UD Dept. Govt. of Odisha.	bhaktadas@gmail.com	09437015603	17/11/2022	18/11/2022
6	CHANDANA KUMARI EKANAYAKA KALUPAHANA	Director Environment & Landscape Urban Development Authority	kalupahanacke@gmail.com	0771464544	17/11/2022	18/11/2022
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11	KIHANDUWAGE RANOSHI RANSARANI SIRIPALA					
12	MADHAV JAGTAP	Jagtap Madhav DY Commissioner	madhav.jagtap@pmccorporation.org	9689931457		
13	P K BHANJA	E.E Howrah Municipal Corp. Howrah - W.B	phbhanja@hotmail.com	9830163582	P.K. Bhanja 17-01-2022	P.K. Bhanja 18.11.2022
14	PHATIK BAHADUR KC	Under Secretary Ministry of Education Science and Technology Nepal	kcphatik78@gmail.com	9803689404		

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20	SIJAL POKHAREL	Natural Science officer, UNESCO office, Kathmandu	S.pokharel@unesco.org	9851233562		
21	SURYAWANSHI MAYUR VIKAS					
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23	VIKAS KUMAR	Executive Office NPP Bijnor Urban Development Govt. U.P.	Eonppbijnor@gmail.com	8189070114		10/11/22
24	V. SUBRAMANI	Senior Manager TNUIFSL	subramani.tnuifsl@gmail.com	9003088669		

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25	AJAY KUMAR	Dy Municipal Commissioner Nagar Nigam Begusarai Bihar	ajaykumar121166@gmail.com	7903555908	17/11/2022	18/11/2022
26	KAMAL TIWARI					
27	K C PANDEY					
28	S. P. Mishra	Chief Engineer. Nagar Nigam Mathura	spmishra ce1971@gmail.com	8218496309	17/11/2022	18/11/2022
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