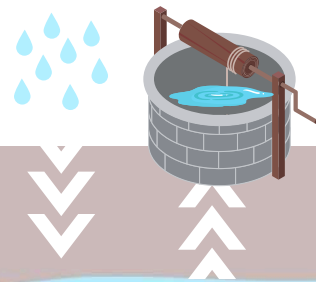
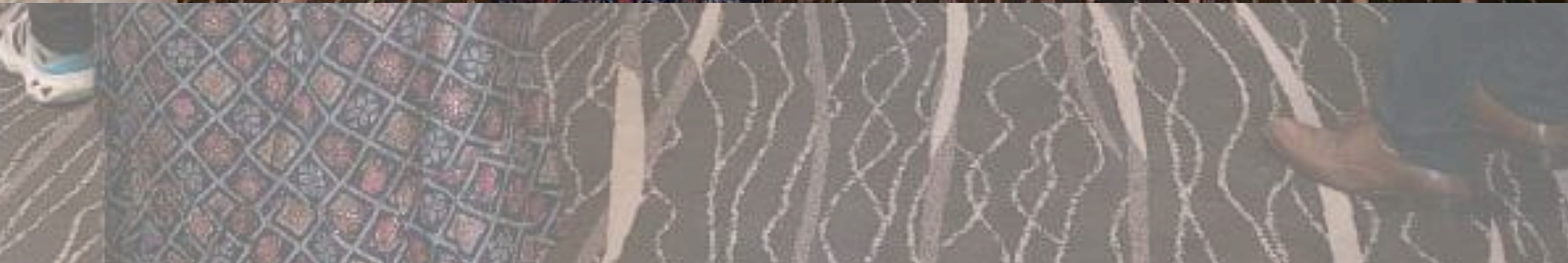




# Managing Shallow Aquifers In Urban Areas

12-13 February 2024, Pune  
**Workshop Report**





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# BACKGROUND

India's cities have made significant strides in enhancing water infrastructure, driven by various government programs. While progress is evident, recurrent seasonal flooding and water scarcity pose persistent threats, exacerbated by rapid urbanization. Several cities also find themselves grappling with the challenge of aligning water infrastructure development with the speed of urban growth and the escalating demands on water resources. In response to this, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT 2.0), spearheaded by the Ministry of Housing and Urban Affairs (MoHUA), is pioneering a paradigm shift towards the judicious management of the 'urban' aquifers. These often overlooked, yet invaluable, groundwater resources play a pivotal role in supplementing the freshwater needs of cities.



Under AMRUT 2.0, a pilot project on Shallow Aquifer Management was initiated in 2022 in 10 select cities to sensitize city officials and to demonstrate the use of a variety of recharge wells/structures as means for shallow aquifer recharge, while also addressing the frequent issues of rapid groundwater depletion, urban flooding and contamination of groundwater reserves, specifically at shallow depths.

This pilot project is being implemented in Jaipur, Dhanbad, Gwalior, Chennai, Hyderabad, Kolkata, Rajkot, Pune, Thane, and Bengaluru. The overarching objective is to create an enabling environment for mainstreaming shallow aquifer management into city water strategies, while also emphasizing traditional structures like dug wells and urban water bodies. This pilot project aligns with AMRUT's vision of sustained water security and draws attention to the invaluable role of shallow aquifers in supplementing urban water demand.

The training workshop intended to share insights and promote cross-learning among various Indian cities with high dependence on groundwater. a collaborative effort by the National Institute of Urban Affairs, ACWADAM (Pune), BIOME Environment Solutions (Bangalore), and ten AMRUT cities.



## WORKSHOP HIGHLIGHTS

The workshop received 49 participants. Overall 19 cities from 13 states participated in the workshop. It included a mix of senior decision-makers such as the Commissioners, Deputy Municipal Commissioner, Chief Engineers, executive engineers, senior officials from the shallow aquifer management pilot cities and a verity of sector experts that included organisations like CGWB, ACWADAM, Biome along with various city partners for SAM project. In all, there were more than 49 participants from 19 AMRUT cities and 10 other organizations.



Local partners from the 10 SAM cities, such as People Sciences Institute, Aga Khan Agency for Habitat, Bhujal Abhiyan Trust, The Rainwater Project, Megh Pyne Abhiyan, Arid Communities & Technologies, Rain Centre, Centre for Developments & Environment Studies, and PRASARI, played a pivotal role in sharing their on-ground experiences and ensuring diverse learning perspectives.

### OVERVIEW

PARTICIPANTS  
**49**

STATES  
**13**

CITIES  
**19**

OFFICIALS  
**34**

SECTOR EXPERTS  
**15**

# MESSAGE FROM THE LEADERS



“The key to India's groundwater sustainability lies in the emergence of innovative, locally sourced, locally executed, and locally managed ideas.”

**Ms. D. Thara (IAS)**

Additional Secretary, Mission Director,  
AMRUT 2.0, MoHUA

Focusing back on shallow aquifers means India's water security will be ensured. City is nothing without water. A city can have best of the infrastructure which are required for the economic activities, but without water, the biological activities will not work. Therefore we are focusing on not work. Therefore we need to focus on how to do these small interventions which will make a huge difference in improving the water sustainability.

We all have been treating water for granted because we are getting water in our taps and are least bothered about its source. And the focus has been kept on augmenting sources for improving the urban water supply but the replenishment of those new sources is not been considered or thought about.

Hence it becomes important to focus on shallow aquifers which are predominantly accessed via wells. You can use the water in shallow aquifers easily which is also replenished easily during the monsoon period.

Though Rain Water Harvesting has been promoted and is being adopted widely, there are other means of recharging of shallow aquifers that are significantly easy to do for example open recharge wells, and defunct wells which are cost-effective and can be used for harvest water as well as draw water.



“The AMRUT proposals by cities need to move beyond water supply infrastructure and provisioning to innovative projects on water resource conservation.”

**Mr. Lavanya Kumar**  
Director,  
AMRUT 2.0, MoHUA



The success of the Shallow Aquifer Management project could serve as a learning experience for Indian cities. The rejuvenation of the Stepwell platform in Hyderabad can be cited as an excellent example. It was proposed that India should promote its heritage sites similarly to European countries, where tourist sites are considered part of their heritage and attract visitors.

The involvement of parastatals and other agencies in the Shallow Aquifer Management project is crucial. The ten-city pilot projects should will be completed soon and will be followed by an evaluation of improvement in the shallow aquifer post monsoon. Participants were encouraged to reach out to AQUADAM, Biome, and NIUA members for future collaboration, as their cities have been identified as potential cities where shallow aquifer needs to be managed early. The hope is that the knowledge and understanding gained from the workshop can be replicated in their respective cities.

As part of last year's mission AMRUT Sarovar, which commemorated 75 years of independence, efforts were made to promote community awareness about water conservation, particularly focusing on rejuvenating urban water bodies. This initiative aimed to encourage people and communities to reimagine urban water bodies as cultural centres and focal points of city life, as they were in earlier times. To achieve this goal, numerous architecture, engineering, and urban planning colleges were engaged. Students were tasked with submitting work plans or case studies as part of their semester work or summer courses. These colleges were engaged through the All India Council for Technical Education (AICTE), and students were offered incentives for developing ideas on lake rejuvenation and integrating them into city's plan.



# SESSION 1

## KNOWING THE SHALLOW AQUIFER STATUS: SURVEYS AND INVENTORY



The session on understanding the status of shallow aquifers through surveys and inventory management highlighted the importance of creating a detailed and dynamic database to effectively manage shallow aquifers, drawing on experiences from Gwalior and Dhanbad.

The session began with an overview of the importance of creating a comprehensive database on shallow aquifers, emphasizing the need to utilize existing information on wells (open, tube, or bore wells) to build this database. Speakers from Gwalior and Dhanbad shared their experiences and strategies for creating a first-hand database on shallow aquifers, showcasing them as practical examples of effective groundwater management.



# KNOWING THE SHALLOW AQUIFER STATUS: SURVEYS AND INVENTORY



## KEY TAKEAWAYS

### Utilization of Existing Information

Cities already have data on wells, which can be used as a foundation for creating a database on shallow aquifers. The session discussed how this existing information can be leveraged to understand the groundwater scenario better.

### Survey Techniques

Various survey techniques used in Gwalior and Dhanbad to gather data on shallow aquifers were highlighted. Methods such as geophysical surveys, groundwater level monitoring, and water quality analysis were discussed as essential tools in understanding the status of shallow aquifers.

### Inventory Management

Effective inventory management of wells was emphasized as a key component of creating a dynamic database on shallow aquifers. The session discussed the importance of regular updating and maintenance of the inventory to ensure its accuracy and relevance.

### Groundwater Scenario Analysis

The experiences from Gwalior and Dhanbad were used to demonstrate how data collected through surveys and inventory management can be analyzed to understand the groundwater scenario. This analysis is crucial for developing sustainable groundwater management strategies.



# KNOWING THE SHALLOW AQUIFER STATUS: SURVEYS AND INVENTORY

The experiences from Dhanbad were used to demonstrate how data collected through surveys and inventory management can be analyzed to understand the groundwater scenario. This analysis is crucial for developing sustainable groundwater management strategies.



**Raviraj Sharma**  
Commissioner  
Dhanbad Municipal Corporation



**SUKESH KUMAR BARTARYA**  
People's Science Institute

The Gwalior case study showcased how a detailed survey of wells helped in creating a comprehensive database on shallow aquifers. The data collected through the survey was used to analyze the groundwater scenario in the form of detailed groundwater maps, leading to the development of effective management strategies.

The survey and inventory management approach led to the creation of a dynamic database on shallow aquifers. The data collected helped in identifying areas of high groundwater stress and formulating targeted interventions. Utilizing existing information on wells to build a database on shallow aquifers and regularly updating and maintaining the inventory of wells is also important to ensure its accuracy and relevance.



**Eklavya Kumar**  
Megh Pyne Abhiyaan

## SESSION 2

# SITUATION ANALYSIS FOR SHALLOW AQUIFER MANAGEMENT



The sessions focused on the situation analysis for shallow aquifer management, highlighting the importance of identifying potential new recharge sites through systematic approaches. The session drew on experiences from Pune and Thane to illustrate the process of identifying local sites based on an understanding of underground aquifer systems, topography, recharge, and discharge zones in urban areas.

The session began with an overview of the need for a systematic approach to identify potential new recharge sites for shallow aquifers. Speakers from Pune and Thane shared their experiences and strategies for conducting situation analysis, showcasing them as practical examples of effective groundwater management.



# SITUATION ANALYSIS FOR SHALLOW AQUIFER MANAGEMENT



## KEY TAKEAWAYS

### GIS Mapping

The session emphasized the use of GIS mapping as a useful approach to identify potential locations for aquifer recharge. GIS mapping allows for the visualization of underground aquifer systems, topography, and recharge zones, aiding in the identification of suitable sites for recharge.

### Micro-Watershed Mapping

Micro-watershed mapping was highlighted as another useful approach for identifying potential recharge sites. By understanding the local hydrological processes and land use patterns, micro-watershed mapping can help identify areas where excess water during monsoon can be diverted to recharge shallow aquifers.

### Understanding Aquifer Systems

A key aspect of situation analysis is to have a thorough understanding of underground aquifer systems. This includes mapping the recharge and discharge zones to identify areas where groundwater is replenished and areas where it is discharged.

### Local Site Identification

The experiences Thane were used to demonstrate how the understanding of aquifer systems, topography, and recharge zones along with the help of local communities can be used to identify local sites for aquifer recharge. This approach helps in utilizing excess water during monsoon efficiently.



# SITUATION ANALYSIS FOR SHALLOW AQUIFER MANAGEMENT

Pune showcased how the establishment of a groundwater cell within the ULB has helped in institutionalizing groundwater management. The case study demonstrated the importance of strong institutional arrangements in ensuring effective groundwater management. With the help of groundwater experts from Pune the potential sites were identified



**Mr. Madhav Jagtap,**  
**Dy. Commissioner (Environment)**  
**Pune Municipal Corporation**



**Mr. Vijay Rajguru**  
**ACWADAM**

The Pune case study showcased how GIS mapping and micro-watershed mapping were used to identify potential recharge sites in the city. By understanding the local aquifer systems and topography, Pune was able to identify areas where excess water during monsoon could be diverted for recharge. Another important aspect is protecting the shallow aquifers from getting destroyed due to anthropogenic interferences such as large basements. Such developments should be consulted with groundwater experts before construction.

In Thane, a similar approach was used to identify potential recharge sites based on an understanding of aquifer systems and topography. The case study highlighted the importance of community engagement in local site identification to ensure effective shallow aquifer management.



**Mr. Sachin Marti**  
**Aga Khan Agency for Habitat**

## SESSION 3

# REVIVAL AND RESTORATION OF WELLS



The session focused on the revival and restoration of wells, highlighting the often-overlooked potential of these structures in recharging shallow aquifers. The session showcased successful examples from Bangalore and Hyderabad, where community participation played a crucial role in the revival efforts.

The session commenced with an overview of the current state of wells in Indian cities, emphasizing their dilapidated condition and the resultant ignorance towards their potential for aquifer recharge. Speakers from Bangalore and Hyderabad shared their experiences and strategies for reviving and restoring wells, showcasing them as practical examples of effective shallow aquifer management



# REVIVAL AND RESTORATION OF WELLS



## KEY TAKEAWAYS

### Technological Interventions

The use of innovative technologies such as GIS mapping, hydrogeological surveys, and rainwater harvesting techniques were highlighted as essential tools in identifying suitable locations for well restoration and ensuring optimal aquifer recharge.

### Importance of Community Participation

Both cities emphasized the significance of involving the community in well revival projects. Community engagement not only raised awareness about the importance of groundwater recharge but also ensured the sustainability of the initiatives.

### Policy and Governance

The session underscored the role of supportive policies and governance frameworks in facilitating wells revival projects. Examples of incentives provided by local governments to encourage community participation were shared, highlighting the importance of policy interventions in promoting sustainable groundwater management practices.

### Monitoring and Evaluation

Regular monitoring and evaluation of well revival projects were identified as critical components of successful aquifer management. Data collection and analysis were emphasized to track the impact of well restoration efforts on groundwater levels and quality.



# REVIVAL AND RESTORATION OF WELLS

The correlation between shallow aquifers and lakes is evident. Bengaluru has been a city of lakes and with time the lakes have deteriorated and need revival. Wells are an important part of the shallow aquifer management in urban areas. The revival of shallow aquifers in urban areas with the help of the recharge ecosystem created by recharge wells and lakes will lead to improved availability of water during the period of crisis.



**Ms. Indrani KM,**  
Executive Engineer, Lakes  
Bruhat Bangalore Mahanagara Palike



**Ms. Kalpana Ramesh**  
The Rainwater Project

In Hyderabad, a community-driven approach resulted in the restoration of abandoned heritage wells and stepwells, transforming them into functional recharge structures. The project highlighted the importance of community engagement in sustaining aquifer recharge efforts.

Bangalore has successfully revived several heritage wells in the city. The campaign 'Million Wells for Bengaluru' has demonstrated how successfully recharge wells can be constructed at a large scale, leading to a noticeable improvement in groundwater levels. The project not only recharged aquifers but also preserved the cultural heritage associated with the wells



**Ms. Suma Rao**  
BIOME

## SESSION 4

# MANAGED RECHARGE OF SHALLOW AQUIFERS



The sessions drew on experiences from Pune, Rajkot, and Chennai to illustrate the different approaches of managed aquifer recharge, including catchment revival, stormwater diversion, and recharge using treated wastewater.

The session began with an overview of the various approaches available for the managed recharge of shallow aquifers. Speakers from Pune, Rajkot, and Chennai shared their experiences and strategies for implementing managed aquifer recharge, showcasing them as practical examples of effective groundwater management.



# MANAGED RECHARGE OF SHALLOW AQUIFERS



## KEY TAKEAWAYS

### **Catchment Revival/Treatment/Protection**

The importance of catchment revival, treatment, and protection as key approaches for managed aquifer recharge. By restoring and protecting catchment areas, cities can ensure the sustainable recharge of shallow aquifers.

### **Diversion of Stormwater**

Another approach discussed was the diversion of stormwater into recharge structures. Cities can utilize existing stormwater drains or construct new structures to divert excess stormwater into shallow aquifers, replenishing groundwater levels.

### **Experiences from Pune, Rajkot, and Chennai**

The session also discussed the option of recharge using diverse methods like channel widening, percolation beds, and pervious pavements along with the process of implementing such interventions to achieve maximum good quality recharge. By using such techniques, cities can safely recharge shallow aquifers, reducing the pressure on freshwater resources.



## SESSION 5

# INSTITUTIONAL AND GOVERNANCE ASPECTS OF SHALLOW AQUIFER MANAGEMENT



The sessions focused on the institutional and governance aspects of shallow aquifer management, highlighting the need for mainstreaming aquifer management through institutionalization in urban local bodies (ULBs). The session drew on the experience of Pune, which has established a groundwater cell for groundwater management, despite ULBs not being mandated for groundwater management

The session began with an overview of the current institutional and governance landscape for shallow aquifer management in Indian cities. Speakers discussed the need for mainstreaming aquifer management and discussed various approaches like establishing a groundwater cell within the ULB for effective groundwater management.



# INSTITUTIONAL AND GOVERNANCE ASPECTS OF SHALLOW AQUIFER MANAGEMENT



## KEY TAKEAWAYS

### **Mainstreaming Aquifer Management**

The session emphasized the importance of mainstreaming aquifer management in urban local bodies to ensure sustainable groundwater management. Currently, ULBs are not mandated for groundwater management, but there is a growing recognition of the need to integrate aquifer management into urban planning and governance.

### **Establishment of Groundwater Cells**

The experience of Pune was highlighted as a successful example of institutionalizing aquifer management within a ULB. Pune has established a groundwater cell to oversee groundwater management activities, demonstrating the feasibility and benefits of such institutional arrangements.

### **Regulatory Framework**

The session also discussed the need for a regulatory framework to support aquifer management. This includes the development of policies, guidelines, and regulations that promote sustainable groundwater management practices.

### **Governance and Planning**

The session emphasized the importance of governance and planning in aquifer management. Effective governance structures and integrated planning processes are essential for addressing the complex challenges associated with shallow aquifer management.



## SESSION 6

# OVERVIEW OF GW CELL, PUNE MUNICIPAL CORPORATION



**Mr. Kunal Khemnar**  
Additional Commissioner  
Pune Municipal Corporation

The workshop on Shallow Aquifer Management for Indian Cities aimed to address the challenges and solutions pertaining to the management of shallow aquifers in urban settings. One of the key sessions focused on the overview of the Groundwater Cell (GW Cell) within the Pune Municipal Corporation (PMC), highlighting how the establishment of the GW Cell has helped institutionalize groundwater management in Pune. The session demonstrated the importance of strong institutional arrangements in ensuring effective groundwater management.

The session began with an overview of the establishment and functioning of the GW Cell within the PMC. Speakers shared insights into the roles and responsibilities of the GW Cell, highlighting its organizational structure, key functions, and achievements in groundwater management.

# OVERVIEW OF GW CELL, PUNE MUNICIPAL CORPORATION



## KEY TAKEAWAYS

### **Establishment of the Groundwater Cell**

The session highlighted the process of establishing the GW Cell within the PMC, emphasizing the need for strong institutional support for groundwater management. The establishment of the GW Cell was a proactive step taken by the PMC to address the growing concerns related to groundwater depletion in the city.

### **Organizational Structure**

The organizational structure of the GW Cell was discussed, including the roles and responsibilities of various personnel involved in groundwater management. The session emphasized the importance of having a dedicated team for groundwater management within the ULB.

### **Achievements of Pune Groundwater Cell**

Achievements of the GW Cell in groundwater management, including the successful implementation of groundwater recharge projects, the development of a comprehensive groundwater database, and the formulation of groundwater conservation policies.



# EXCURSION VISIT

## URBAN RECHARGE/ MANAGED AQUIFER RECHARGE



# EXCURSION VISIT

## URBAN RECHARGE/ MANAGED AQUIFER RECHARGE



# Training Workshop on SHALLOW AQUIFER MANAGEMENT IN URBAN AREAS

12th & 13th February 2024

The O Hotel, Koregaon Park, Pune

## DAY 1, 12th Feb 2024

09.30am - 10.00am

Registration

10.00am - 10.15am

Welcome Address and Context Setting

**Dr. Victor Shinde**

Lead, Climate Centre for Cities, NIUA

10.15am - 10.30am

Keynote address

Shallow Aquifer Management : Integral Part of AMRUT 2.0

**Ms. D Thara**

Mission Director, AMRUT 2.0, MoHUA

10.30am - 11.45am

Knowing the Shallow Aquifer Status: Surveys and Inventory

Management of shallow aquifers begins with the creation of a detailed and dynamic database. Cities already have information on open, tube, or bore wells and their status. The discussion will focus on how this information can be utilized to attempt creation of a first-hand database on shallow aquifers and understand groundwater scenarios through experiences from Gwalior and Dhanbad.

**Mr. Raviraj Sharma**, Commissioner  
Dhanbad Municipal Corporation

**People's Sciences Institute** (Gwalior)

**Megh Pyne Abhiyan** (Dhanbad)

Moderator- **Dr. Uday Bhonde**,  
Sr. Program Specialist, NIUA

11.45am - 12.15pm

Tea/ Bio Break

12.15pm - 01:30pm

Situation Analysis for Shallow Aquifer Management

Identification of potential new recharge sites needs a systematic approach. Approaches such as GIS mapping, micro-watershed mapping etc. are some of the useful approaches to identify potential locations where excess water during monsoon can be diverted to quickly recharge shallow aquifers. The discussion would include learnings from Pune and Thane to understand the process of identifying local sites based on the understanding of underground aquifer systems, topography, recharge and discharge zones in urban areas.

**Mr. Madhav Jagtap**,

Dy. Commissioner (Environment)  
Pune Municipal Corporation

**ACWADAM** (Pune)

**Aga Khan Agency for Habitat**  
(Thane)

Moderator- **Dr. Himanshu Kulkarni**

01.30pm - 02.15pm

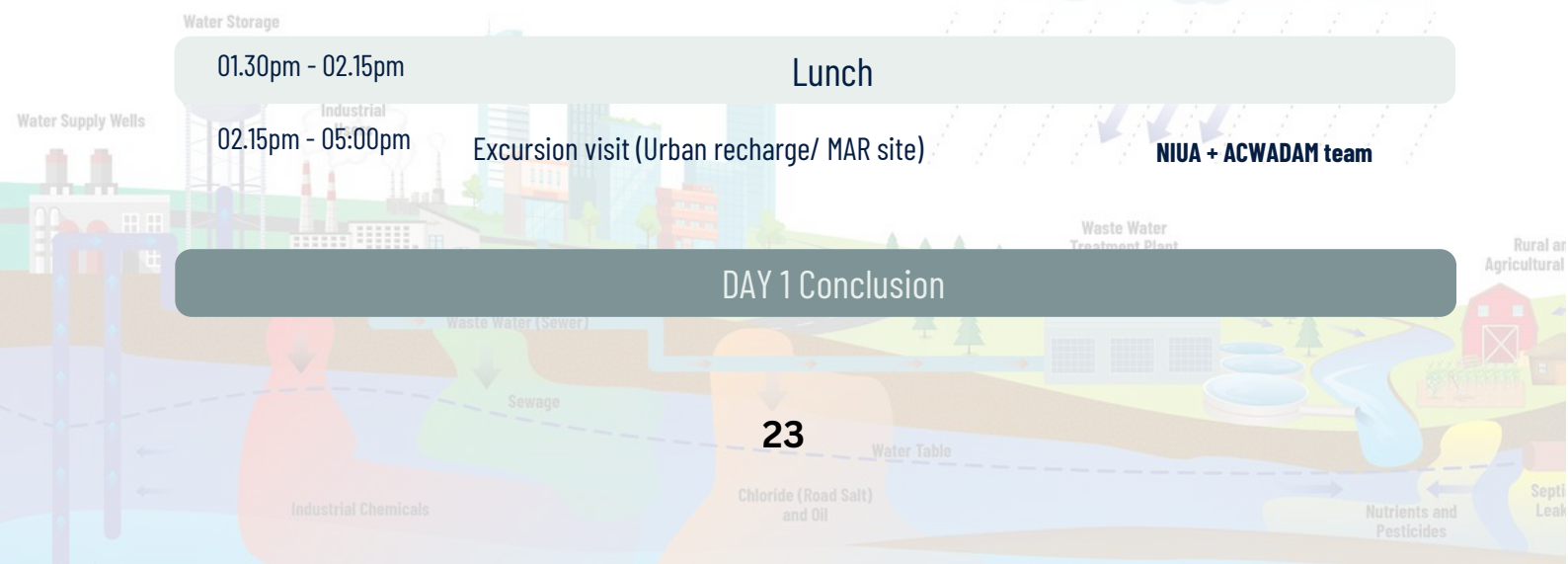
Lunch

02.15pm - 05:00pm

Excursion visit (Urban recharge/ MAR site)

**NIUA + ACWADAM team**

DAY 1 Conclusion



# Training Workshop on SHALLOW AQUIFER MANAGEMENT IN URBAN AREAS

DAY 2, 13th Feb 2024

10.00am - 10.15am

Recap of Day 1- What did you learn?

NIUA team

10.15am - 11:30am

Revival and Restoration of Wells

Ms. Indrani KM,

Most of the cities have dug/open wells, heritage wells which remain in dilapidated conditions due to unacknowledged potential leading to ignorance towards them. Their revival with community participation has resulted into successful recharge of shallow aquifers in some Indian cities. This panel will focus on experiences from Bangalore and Hyderabad to show practical examples of shallow aquifer management.

Executive Engineer, Lakes  
Bruhat Bangalore Mahanagara Palike (BBMP)

BIOME trust (Bangalore)

The Rainwater Project (Hyderabad)

Moderator- Mr. S. Vishwanath

11.30am - 11.45am

Tea/ Bio Break

11.45am - 1.00pm

Managed Recharge of Shallow Aquifers

Mr. Indrajit Vasava

There are variety of approaches for the shallow aquifer recharge. The options could be catchment revival/treatment/protection, diversion of storm water in recharge structures, and also recharge through use of treated wastewater. The panel discussion will highlight experiences from Pune, Rajkot and Chennai on the various approaches of managed aquifer recharge.

Dy. Executive Engineer, Drainage  
Rajkot Municipal Corporation

Bhujal Abhiyan Trust (Pune)

Aakash Ganga Trust (Chennai)

Arid Communities & Technologies  
(Rajkot)

Moderator- Anirudh Soni,

Research Associate, NIUA

01.00pm - 02.00pm

Lunch

02.00pm - 02.15pm

Energizer / Video on importance of groundwater

NIUA team

02.15pm - 03.15pm

Institutional and Governance Aspects of Shallow Aquifer Management

Mainstreaming of Aquifer management will require its institutionalisation in the urban local bodies. Currently, the ULBs are not mandated to do groundwater management. However, Pune has done it by establishing groundwater cell. This panel will focus and discuss with participants on the regulatory, governance, institutional and planning avenues for shallow aquifer management.

CGWB, BIOME, NIUA and  
ACWADAM

Moderator- Ms. Ishleen Kaur,  
Sr. Environment Specialist,  
NIUA

Water Storage

Ground

Residential

rain or snow

03.15pm - 03.30pm

Tea/ Bio Break

03.30pm - 04.00pm

Plenary discussions with participants on the overall applicability of Shallow Aquifer Management

Mr. Lavanya Kumar

Director, AMRUT 2.0, MoHUA

04.00pm - 04.30pm

Overview of GW cell, Pune Municipal Corporation

Mr. Kunal Khemnar

Addl. Commissioner  
Pune Municipal Corporation






04.30pm - 05.30pm

Feedback, certificates distribution and concluding remarks

Training Conclusion


**Shallow Aquifer Management  
In Urban Areas**
**REGISTRATION SHEET**

DAY 1

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
	Tai Mohammed Afzar	Surat Municipal Corporation, Surat.	8220885220	
	Ajay Singh <u>Surat</u>	Bhopal Municipal Corporation.	7809991597	
	Indrani. K.M.	Bruhat Bengaluru Mahanagara Palike Bengaluru	9964499392	
	Neelima Ramesh	BIOME	8277637848	
	Indrajit Vansam	AMC	9624083830	


**Shallow Aquifer Management  
In Urban Areas**
**REGISTRATION SHEET**

DAY 2

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
7.	Maupreet Singh	Municipal Corporation Ludhiana	81460-99950 Maupreet.Singh.250119@gmail.com	
8	Balvinder Singh SDO	- do -	99888-50855 preetaliwal@gmail.com	
9.	Ramesh Patel S/E	Raipur Municipal Corporation	8878161708 rameshpatel816@gmail.com	
10.	Yogesh K. da	Bright Municipal Corporation	94252 19341 kaduyogesh@rediffmail.com	
11.	K.H. Chaudhary	Surat Municipal Corporation	9879071508	

12<sup>th</sup> - 13<sup>th</sup> Feb, 2023. Venue: Pune, Maharashtra

## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 1

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
	Harshad Kharve	Nagar Nigam Bhelkar (Pune)	6376104647 harshadkharve9373@gmail.com	
	SEKHAR RAGHAVAN	AKASH GANGA TRUST CHENNAI	9003140476	
	RAVI RAJ SHARMA	MUNICIPAL COMMISSIONER DHANBAD	9431711080	
	Ajay Suryawanshi	Pimpri Chinchwad Municipal Corporation	9922501897	
	Mohy gusai	Bhuj Municipalities	9408437909	

12<sup>th</sup> - 13<sup>th</sup> Feb, 2023. Venue: Pune, Maharashtra

## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 1

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
1	Ravindra Jadhav	Bhujel Abhijan Pune	7774001188 sinker.ravindra@gmail.com	
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3	DEVIKANTH MODI	Vadodra Municipal Corporation Vadodra	7069029132 modidevprng1@gmail.com	
4	Jaimin Bhowani	Vadodra Municipal Corporation (VMC) Gujarat	9099769753 jaimin105@gmail.com	
5.	Sekesh Kumar Bortoye	People Science Institute	9411314341 skbortoye@gmail.com	
6.	Vaishali Patkar	Bhujel Abhijan Pune	7391055752	

12<sup>th</sup> – 13<sup>th</sup> Feb, 2023. Venue: Pune, Maharashtra



## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 1

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
	Kalpna Ramesh	The Rainwater project Hyderabad.	kalpanaramesh @ the rain waterproject. com	
	S. VISHWANATH	Biome TRUST	Zenrain man @ gmail. com	
	B.R. ASHOK	AGLW)	blcaurao ashok @ gmail. com	
	VICTOR R. SHINDE	NIUA	Vshinde @ niua. org	
	Kesar Lal Meena	Comm. Nagar Mijm Bikaner (Raj)	Kesarkalars @ g. mail. com	

12<sup>th</sup> – 13<sup>th</sup> Feb, 2023. Venue: Pune, Maharashtra



## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 1

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
	Dr. Yogesh Jadhav	A.C.T. / Rajkot (Bhav)	987958031 yogeshjadhav @ gmail. com	
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	Vinay Rajguru	ACWADAM	acwadam @ gmail. com	
	HIMANSHU KUKARNI	ACWADAM	acwadam @ gmail. com	
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## Shallow Aquifer Management In Urban Areas

REGISTRATION SHEET

DAY 1.

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
1.	Rahul Naewal I.A.S.	Commissioner, Municipal Corporation, Pune	Nagaenigampune132103 @gmail.com 99929-04232	
2.	Rahul Poonia	Executive Engineer MC Pune	Es.Punia.Rahul@gmail.com 94673-99913	
3.	Arpit Budhwal	Assistant Engineer MC Pune	Arpit.Budhwal@gmail.com 8872566448	
4.	Ajay Chitkole	Junior Engineer MC Pune	Achholkar842@gmail.com 8053444884	



## Shallow Aquifer Management In Urban Areas

REGISTRATION SHEET

DAY 1.

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
	MURAMA CHANDRUJOU	The Rainwater Project, Hyderabad	duram123@yahoo.com 8919923260	
	Patil Deepak	Pimpri Chinchwad Municipal Corp.	9922501123 dipatil@pcrcindia.gov.in	
	Sachin Sahu	Bhopal Municipal Corporation	9074925549 sahusachin1412@gmail.com	
	Usha Rani	Brhmat Bengaluru Maharajas Palike BBMP Bangalore.	9886046498 usha165@gmail.com	
	Suma Rao	Biome, Bangalore	9448494654 rao.suma@gmail.com.	



## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 1

S.No.	Name	Organization / City	Contact details (email and contact)	Signature
1	Ms Pooja S Dhole	Pune Municipal Corporation	poojadhole3@gmail.com poojadhole@kpmg.com 9850167690	
2	Jagtap Madhav K.	Pune municipal corporation	madhav.jagtap@pune corporation.org.	
3	Jogawa Pawan Kumar B.	Pune municipal corp	jogawa.pmc@gmail.com 8177986684	
4	Kedar Latika M.	Pune municipal corporation	latikapmc@gmail.com 7447472705	



## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 2

S.No.	Name	Organisation	Contact details (email and contact)	Signature
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2	Dr. M. SENTHIL Kumar	CGWB	senthilkumar-cgwb@gov.in 8056196033	
3	VIKTOR R. SHINDE	NIUA	vshinde@niua.org	
4.	Indrani. K. M.	BBMP- Bangalore	indrani.km@gmail.com 9964499392	
5	Usha Rani. K	BBMP- Bangalore	Ushal65@gmail.com 9886046498.	
6.	Ms. Pooja S. Dhole	Pune Municipal Corporation	poojadhole3@gmail.com poojadhole@kpmg.com 9850167690	



## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 2

S.No.	Name	Organisation	Contact details (email and contact)	Signature
6	Suma Rao	Biome	9668696654	
7	Sachin Marti	Aga Khan Agency For Habitatat	9975123589	
8	MURAMA CHANDRUPA	The Rainwater Project	8919923260 duram123@yahoo.com	
9	Balinder Sujit	M.C Ludhiana LQ-06	pretalwal@gmail.com	
10	Manpreet Singh	M.C Ludhiana	Manpreet Singh250119@gmail.com	
11	Uma Alekar	ACWADAM	acwadam@gmail.com	



## Shallow Aquifer Management In Urban Areas



### REGISTRATION SHEET

DAY 2

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12	K.H. Chaudhary	Surat Municipal Corporation	989907528 krushnateat281@gmail.com	
13	Yogesh Jadhav	Director	9879580931 yogeshjadhav@gmail.com	
14	Indrajit Vishnu	RMC Durgam	9624083830	
15	Sekhar Raghavan	Akash Ganga Trust Chennai	9003140476	



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### REGISTRATION SHEET

DAY 2

S.No.	Name	Organisation	Contact details (email and contact)	Signature
11	Bheem Kavi Ashok	AELWNI	91059 00533	
12	Yogesh Kumar Kadu	Raipur Municipal Corporation	94252 17321 kaduyogesh2@rediffmail.com	 17/2/24
13	Kesar Lal Meena	Comm. Nagar Nigan Bikaner	kesar.lal.meena@gmail.com	 3/13/2/24
14	Ravindra Sinha	Bhujal Ahiyan Pune	sinha.ravindra@gmail.com	 17/2/24
15	Neelima Ramesh Ajay Chokkar	BIOME Urban local bodies Haryana	8217637848 8053444884	 

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### REGISTRATION SHEET

DAY 2

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	ARPIT BUDHWAR	Municipal Corporation Panipat	88725-66448 arpit.budhwar@gmail.com	



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### REGISTRATION SHEET

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	Ajay Singh Solanki	Bhopal Municipal Corporation	786 9991597	
	Patil Deepak	Pimpri-Chinchwad Muni. Corp.	9922501123 d.patil@percindia.gov.in	



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### REGISTRATION SHEET

DAY 2

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	Ajay Suryawanshi	Pimpri-Chinchwad	9922501897	
	Tai Mohammed Atkar M.	Surat Municipal Corporation	8320885220	
	Havesh Mehta	Hajer Nagar Bhakar (Ray)	6326104647 haveshmehta373@gmail.com	
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### REGISTRATION SHEET

DAY 2

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16.	EKLAVYA PRASAD	MECON DYNE ASTHIVAN	meghpyneasthivan@gmail.com 9810207445	
18.	HIMANSHU KULKARNI	ACWADAM	acwadam@gmail.com 2822529208	
19.	Ramesh Patel	Ripar Municipal Corporation, S/E	8878161768 rameshpatel316@gmail.com	
20.	Ravi Raj Sharma	Commissioner, DMC		
21.	Rahul Narwal	Commissioner u/panipat ULB	9992904232	

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### REGISTRATION SHEET

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1	Rahul Narwal IAB	MC Panipat		
2	Rahul Kishore EC	MC P		
3	Ajay AE	MC P		
4	Ajay JE	MC P		







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