

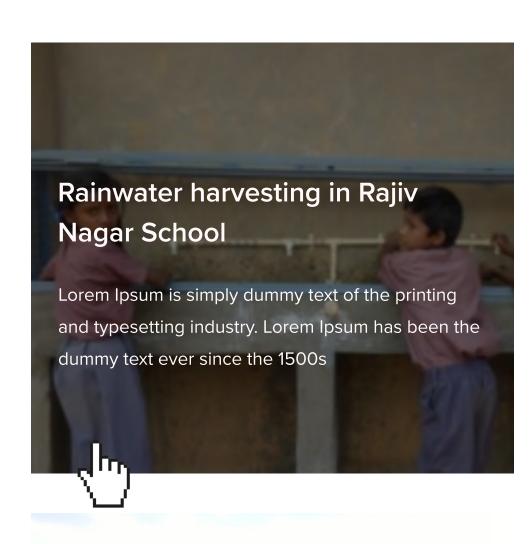
Our Solution

Since 2015, we have engaged with many communities, encouraged communities to share their stories and data, measured some important data parameters ourselves, and conducted many events to constantly share our evolving learnings with all of you. This website formally presents the most important and actionable of our learnings and serves as a community resource for all to learn from and share. However, this three-year effort is only the beginning and we hope to continue working with all of you as partners. We hope you will help us make this a more useful destination for information on our urban water. We are excited and grateful to receive your contributions, your stories, your research, and your experiences.

use efficiency measures within its campus, and towards addressing the challenges of collective stewardship of our urban common water resources, especially our groundwater aquifers and local lakes. It was this shared interest that brought Wipro, Biome Environmental Trust, ACWADAM and Mapunity in partnership to try and understand how to collectively manage urban water resources.

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Featured Resources



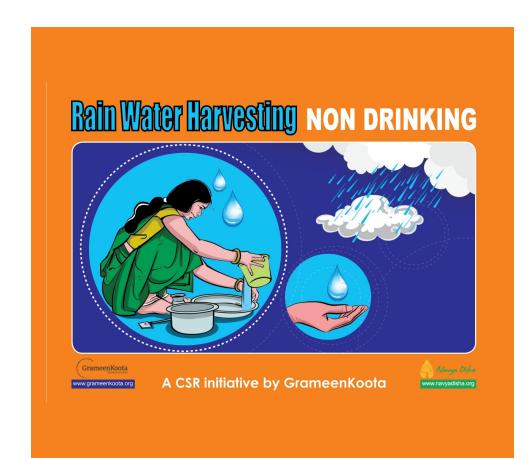


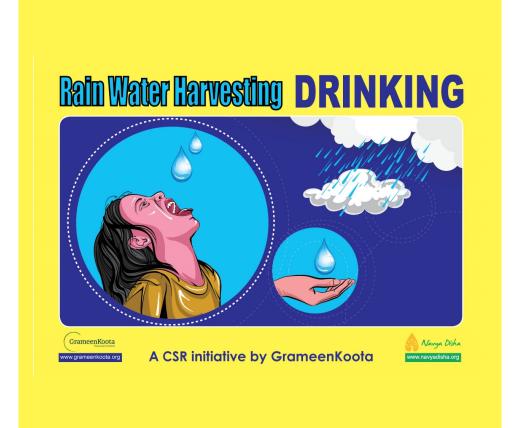








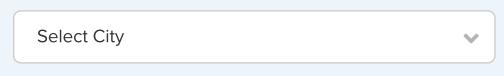






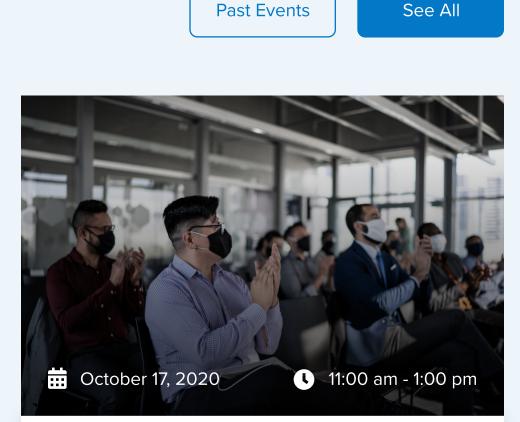
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Upcoming Events









TEDx Biome Environmental Trust

The event has talks by international speakers from the Global Countdown event, from Samaaj, Sarkaar and Bazaar in Bengaluru about water, and a Q and A session at the end! Do not miss it!

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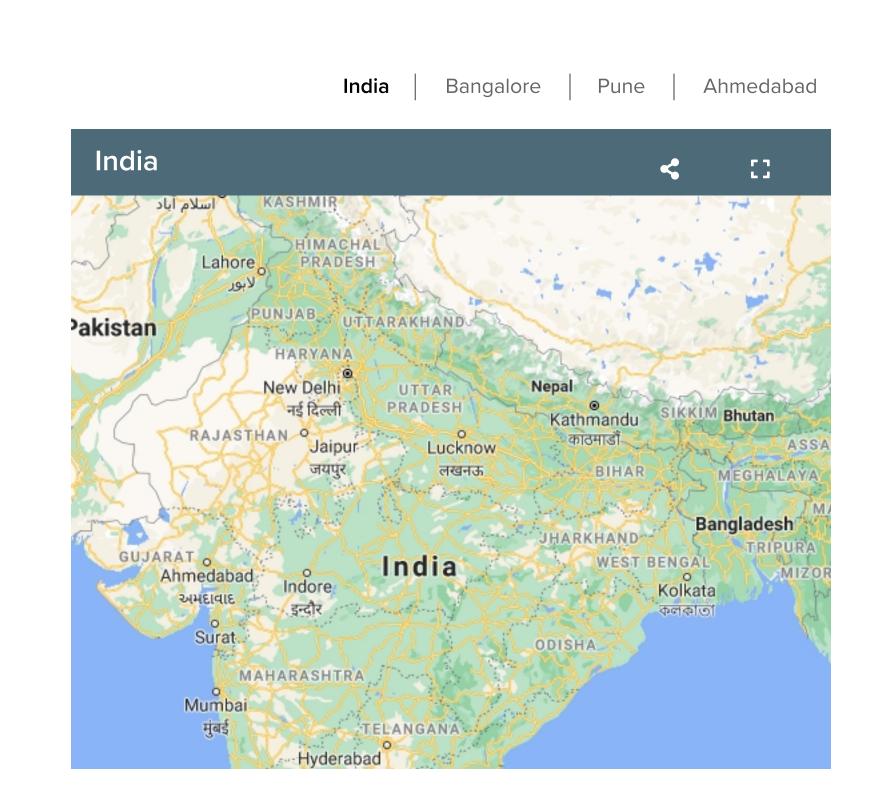
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Presence of Urban Waters Initiative

The map captures the Urban Waters initiatives spanning across various cities in India. Urban Waters has programs in 15 states, 12 cities, and more than 100 districts.

Across varied city chapters, the initiative brings together the knowledge, experience, and practice of many such individuals, communities, practitioners, citizen activists and researchers.

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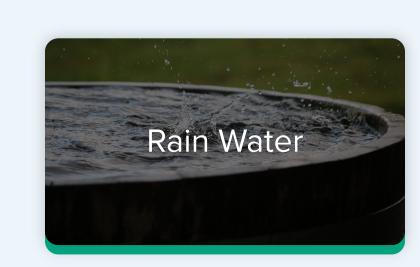
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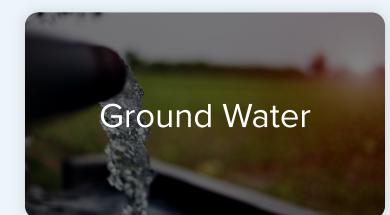
Urban Waters - Bengaluru

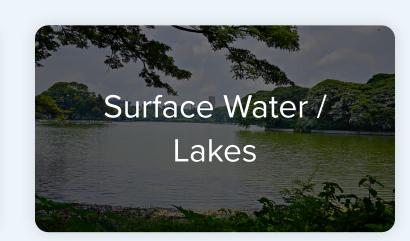
While our institutions of governance grapple with and try to address the larger challenges facing our rapidly growing city, we still need to respond to the everyday necessity of ensuring we have enough water, and we have to learn to do this intelligently. We have the power to change our relationship with water and our environment if we change the way in which we solve our everyday water problems – at our house, our layout, or our apartment buildings. And in Bengaluru, many conscientious individuals and communities have already begun to demonstrate how to this can be done.

Urbanwaters.in brings together the knowledge, experience, and practice of many such individuals, communities, practitioners, citizen activists and researchers. It seeks to inform, guide and provide any and all resources aimed at making us water-literate, community-oriented problem solvers who can act responsibly to protect our common urban water resources.

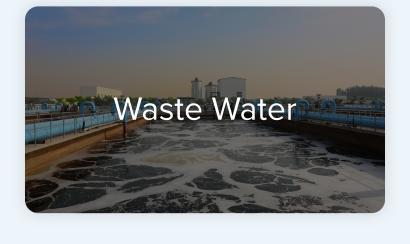
Intervention Areas







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Case Studies

Rainwater harvesting in Rajiv Nagar School Rainbow Drive: Re-imagining water sources A lake is rejuvenated for people and nature



Principles of Rainwater Harvesting

#video #RWH #Bangalore

flooding occurs due to the city getting more and more paved over, rainwater harvesting can help in not only meeting a



Guides

Rainwater Harvesting: The Basics Rainwater Harvesting: How to store and reuse water Rainwater Harvesting: How to recharge groundwater



Storing in a Rain Barrel #video #RWH #Bangalore

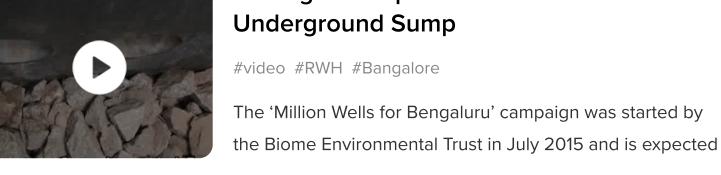
In an engaging comic book, 10 years old Jalaj with his friend

Neera explores how efficiently waste could be used, and the technology that could help recycle and reuse it.



Manuals

Rainwater Harvesting for Non-Drinking Water Rainwater Harvesting Manual for Drinking water Sanitation: Eco San System



Storing Rooftop rainwater in an **Underground Sump**

The 'Million Wells for Bengaluru' campaign was started by

Groundwater Recharge



Regulations

Rainwater Harvesting Regulations in Bengaluru Decoding Groundwater Regulations- for Borewells in Bangalore

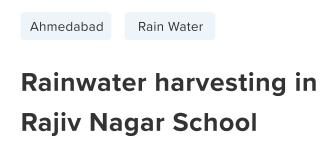


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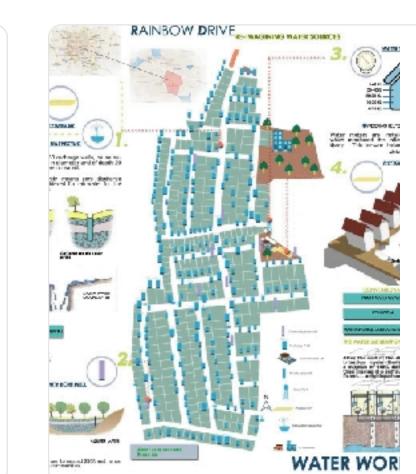
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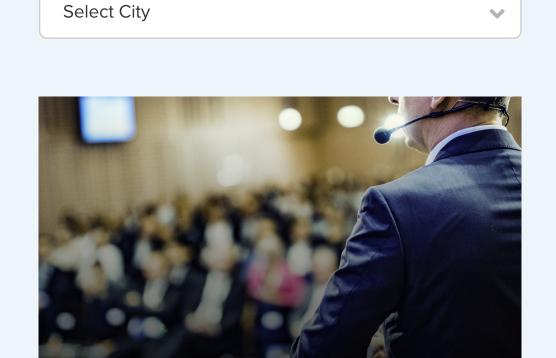
Rajiv Nagar School

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TEDx Biome Environmental Trust

11:00 am - 1:00 pm

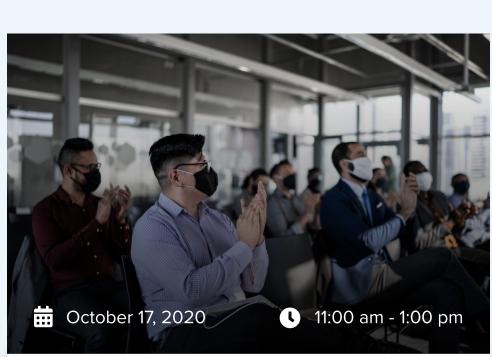
October 17, 2020

The event has talks by international speakers from the Global Countdown event, from Samaaj, Sarkaar and Bazaar in Bengaluru about water, and a Q and A session at the end! Do not miss it!



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Past Events

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TEDx Biome Environmental Trust

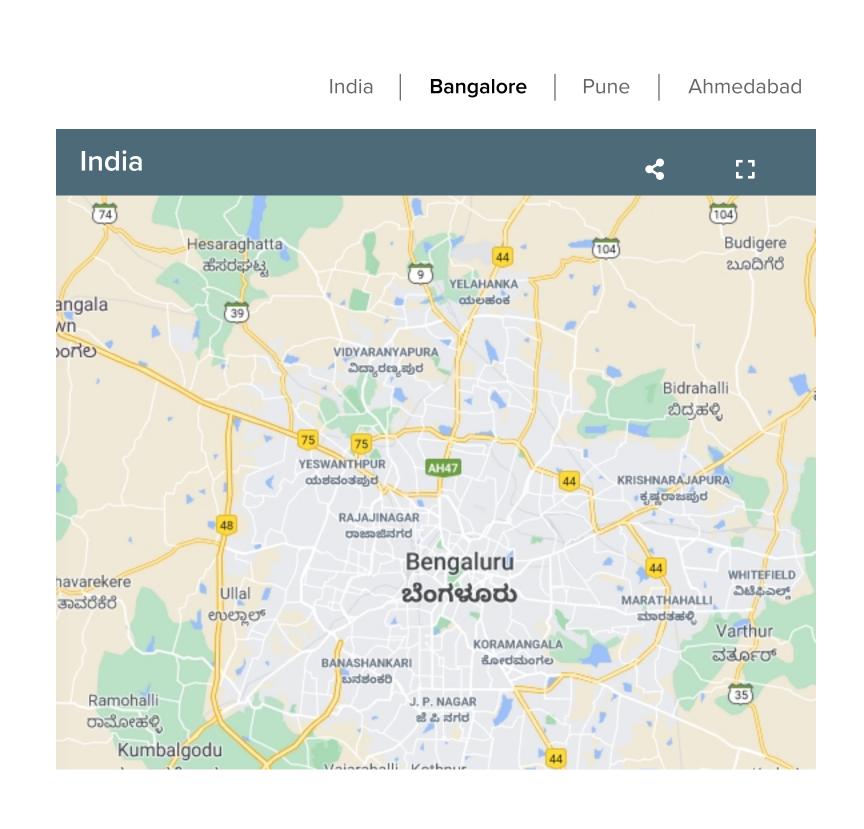
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Map of Urban Waters Bangalore

The comprehensive map of Bangalore city captures the water resources in the Upper Ponnaiyar mini watershed, STPs, lakes, wetlands, an inventory of wells in Bangalore and all the rain gauges installed by the KSNDMC in Bengaluru Urban District.

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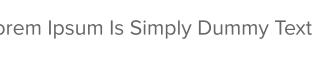
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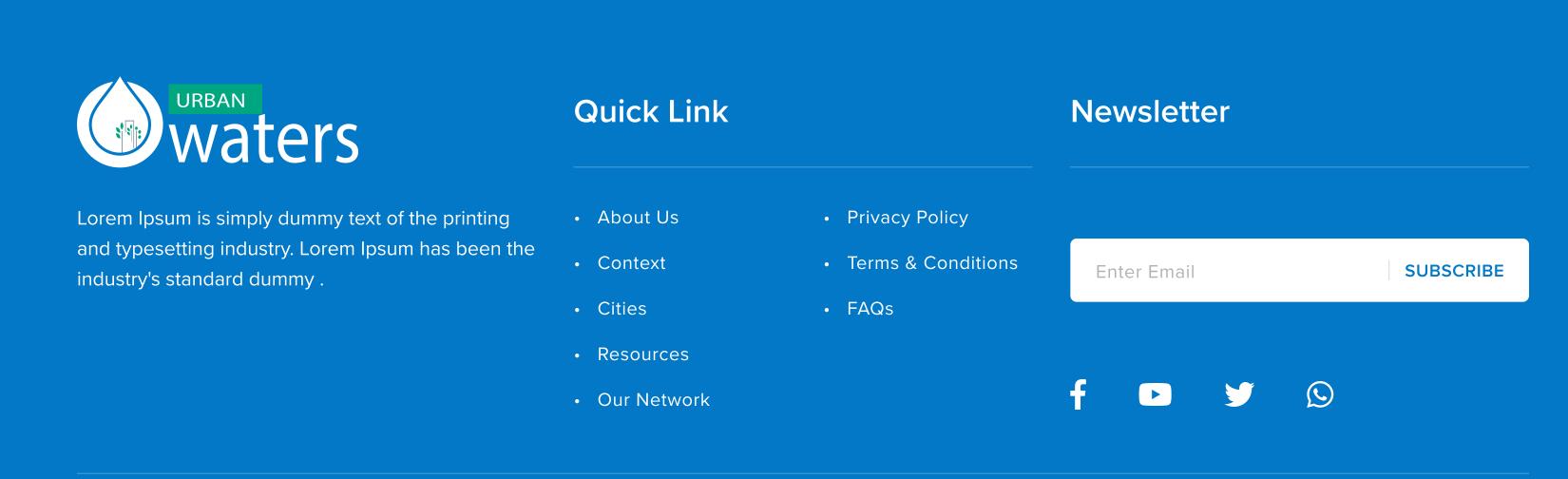


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Bengaluru's rainfall

India gets annual rainfall of 1187 mm on average, but there are huge variations within the country. Mawsynram in Meghalaya, gets annual average rainfall of 11,873 mm, about 10 times the national average. This tiny hamlet currently holds the Guinness World Record for the highest average annual rainfall on the planet. On the other extreme is Jaisalmer, the district that gets the least average annual rainfall – 186.26 mm. Around 3500 rain gauge stations of the Indian Meteorological Department (IMD) collects rainfall data regularly. Overall, northwest India gets the least annual rainfall, while northeast states get the most.

Rainfall patterns for Bangalore over 100 years, from 1901 to 2000, show that annual rainfall has varied from as low as 500 mm to as high as 1350 mm, while the city's average rainfall is 970 mm. If we look at rainfall for Bangalore region for the month of August alone, from 1951 to 2007, the variation is even wider. The lowest rainfall was 24.3 mm (1984), and the highest was over ten times this – 247.3 mm (1998). It is wise to understand rainfall and its changing patterns, being prepared to deal with its impacts, and adapting our lives in response to it.

In Bangalore, rainfall peaks during the pre-monsoon in May, and later in September-October. While the pre-monsoon season has short spells of intense rains, monsoons bring longer spells of recurring rains. In the past, there was more opportunity for water to percolate into the natural ground in the city. However, with the paving of urban lands, surfaces become harder to penetrate and percolation has reduced because of the roads and buildings that cover large our city. Most rain water is now lost as runoff, carried away by stormwater drains.

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Principles of Rainwater Harvesting



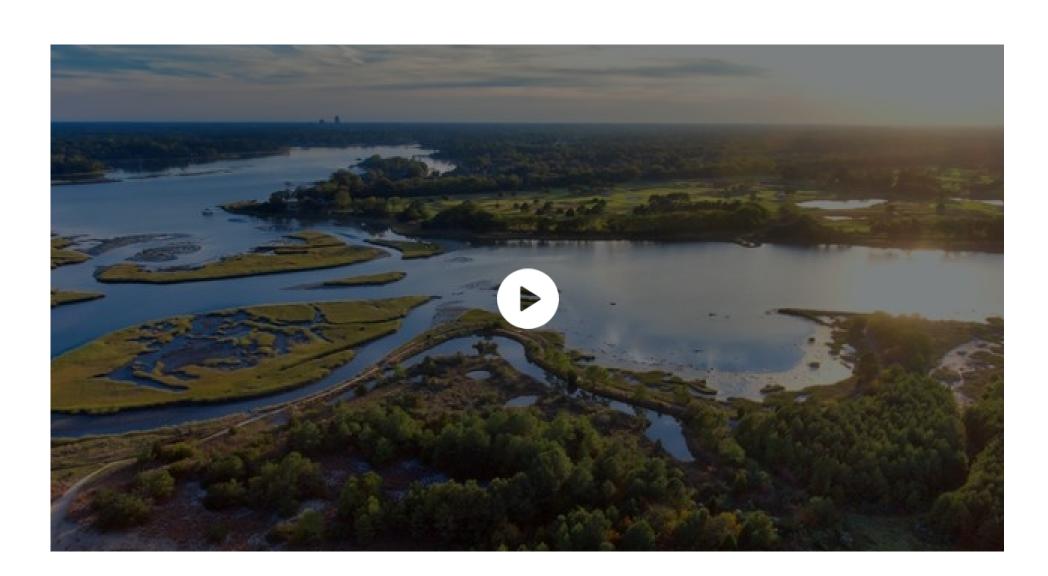
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Storing Rooftop rainwater in an Underground Sump



Groundwater Recharge



The Principles of RWH

This is a plumber training video made jointly by BIOME and LabourNet

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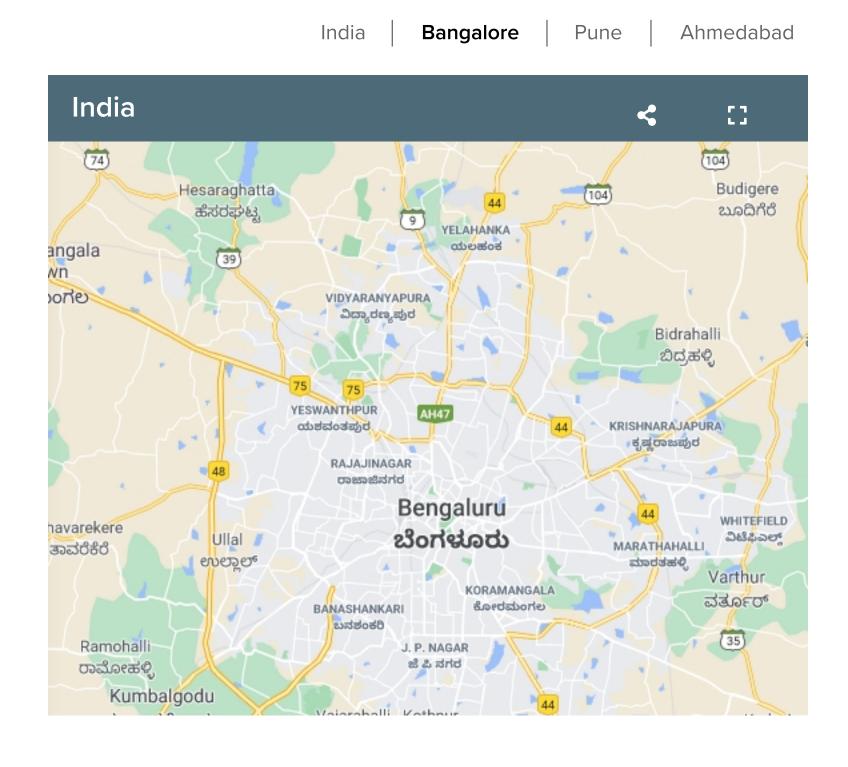
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Bengaluru Ground Water

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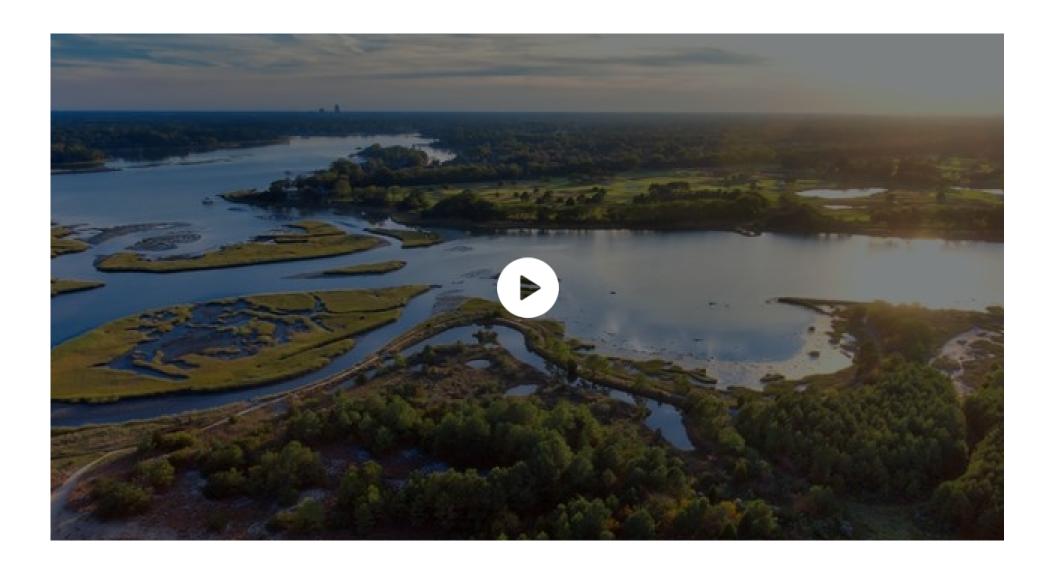
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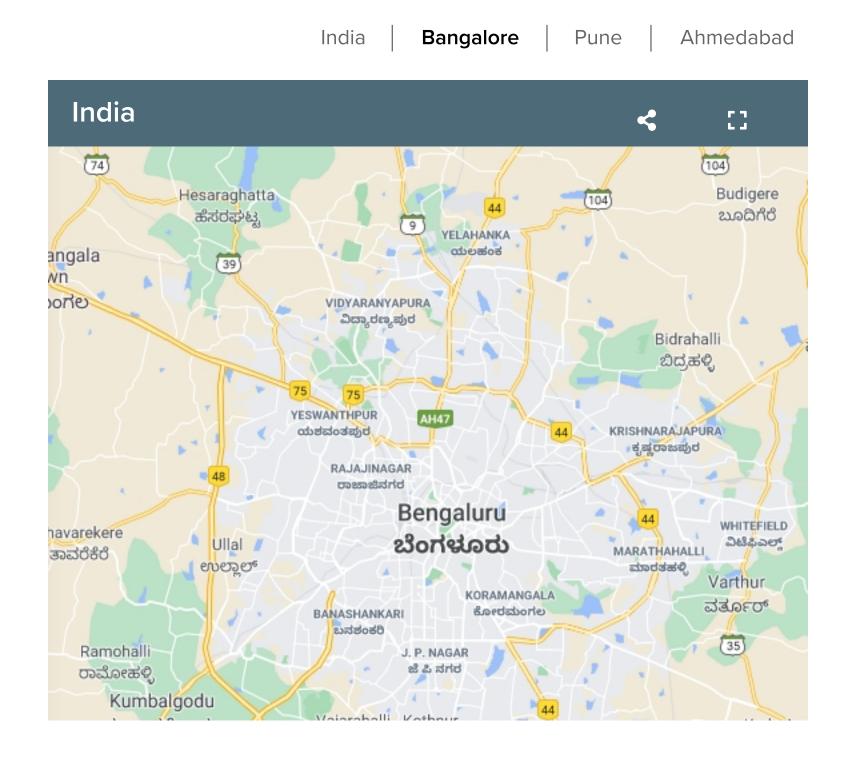
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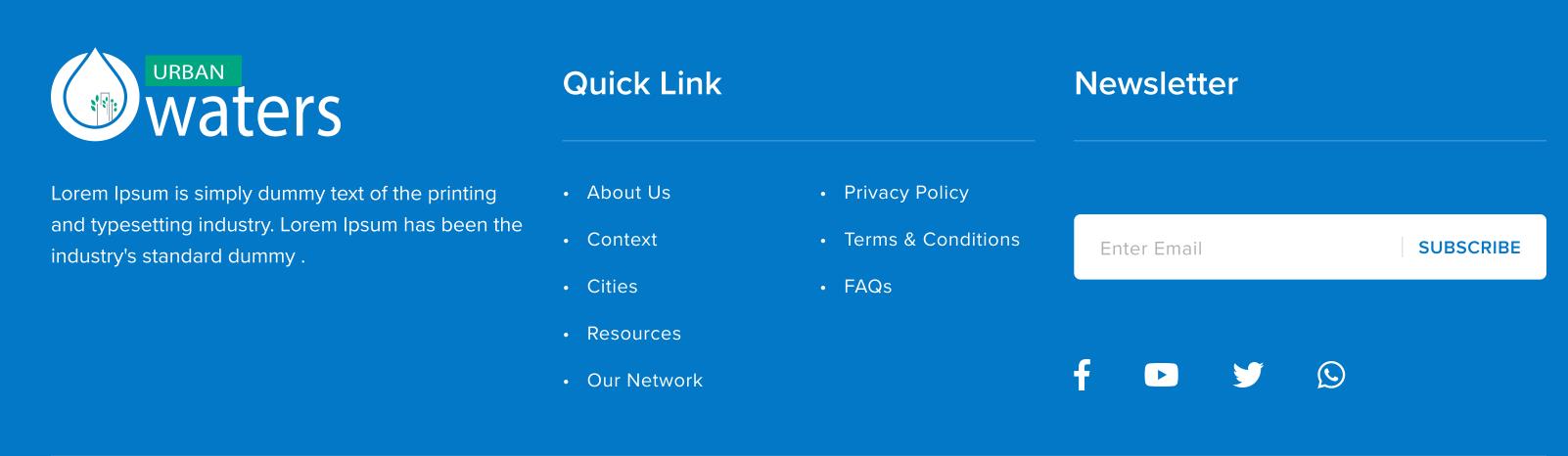
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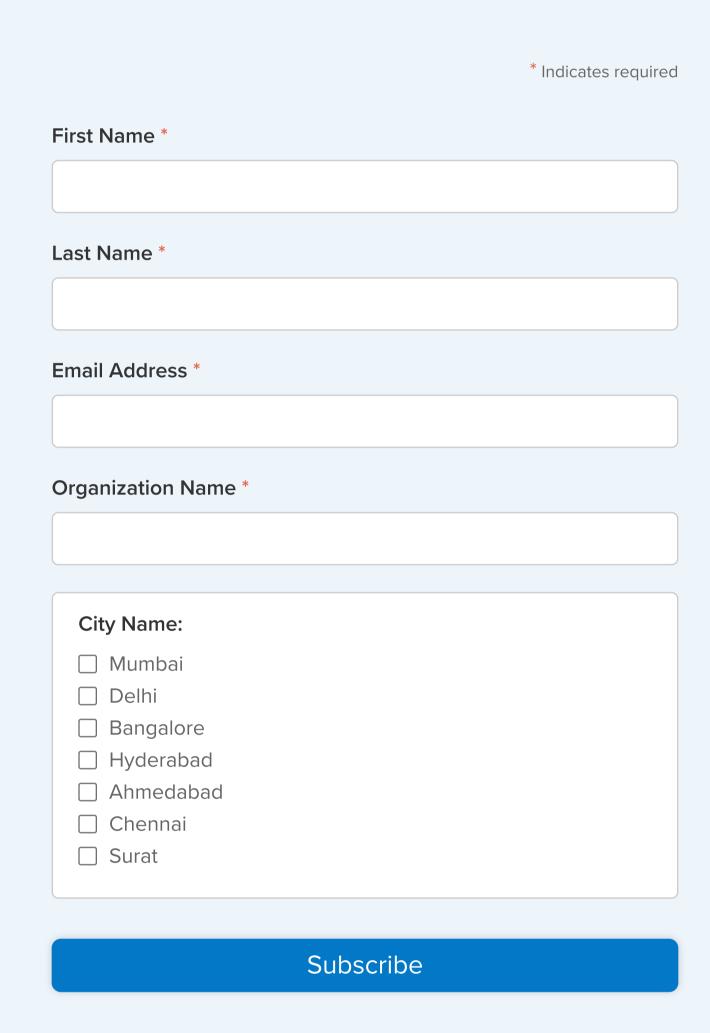
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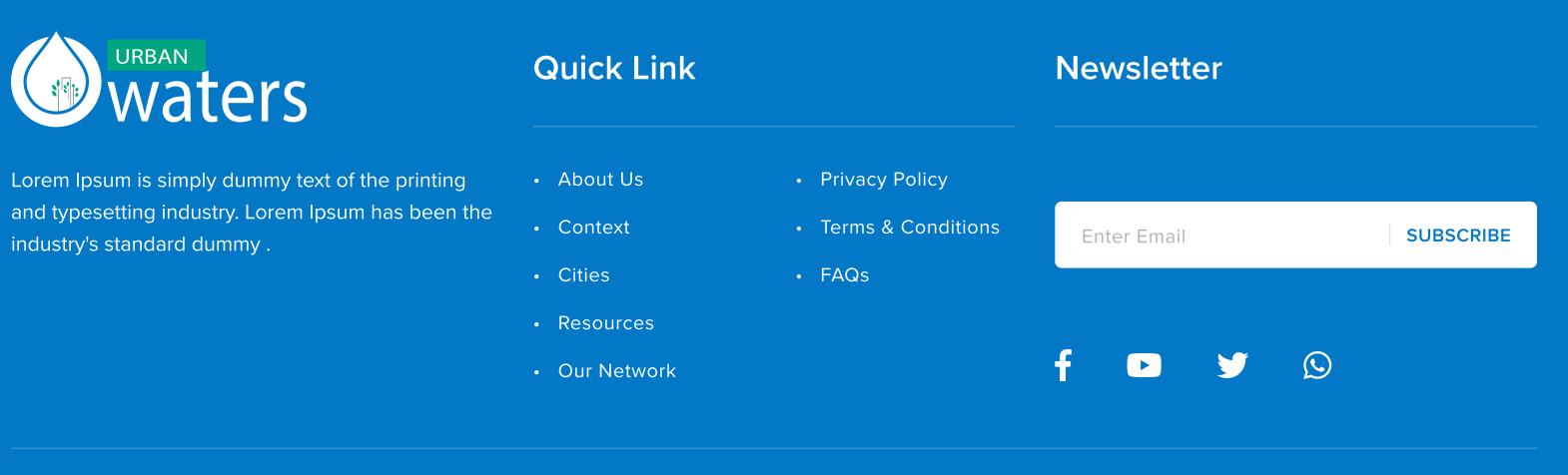
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A revived open well meets the water needs of an apartment complex



When Mourya Jayaram found that the plot in Kaikondarahalli once had an open well, he was fairly confident that it would have water. Mourya's company, the builder group Gravity Infrastructures, had acquired a few plots in Kaikondarahalli. This particular plot, located right opposite Kaikondarahalli lake, was one of them. Managing Partner at the company, Mourya decided to dig up the closed well here.

Mourya felt that well might have water, since the company had already dug two open wells in Kaikondarahalli; both the wells were providing water to the company's apartments here. "There are many localities in Bangalore, like Jayanagar, that still have open wells. Besides, this well was likely to yield as it was near Kaikondarahalli lake," says Mourya. The well had once been used to irrigate the plot, which used to be farmland.

"From the architecture of the well, it was clear that it had been in use for at least 40 years, before it was closed in 1995-96," says Mourya. The well had then become a dumping point for garbage, and was later filled up with mud. Mourya got a team of well diggers to remove the mud deposited in the well. Peddanna, whose team had dug the well, says that water was struck at just 20 feet, and that it had to be pumped out twice a day so that digging could continue. The well was dug to a total depth of 33 feet, and now has 12-13 feet of water.

Upon digging, the traditional stone architecture of the well was found in the bottom 6-7 feet. Hence the entire well was built up this way, and not using concrete rings as is the case with modern wells. The well with a diameter of 10 feet looks traditional too, with its seven feet high wall built up above ground.

The well yields 15,000 litres of water daily, which is sent to the company's apartment 'The Edge', located some 500 feet away. The water meets all the needs of the apartment, which comprises 24 households. When residents had first moved into the apartment in December 2016, water used to be drawn from two borewells and an open well. Since the old well was revived this March, only water from this well has been used. The borewells are still pumped once a week, so that their water does not become stagnant.

When tested, the quality of well water was found to be good, and it is used for all purposes. It is only softened before use, to remove hardness, as is done in the case of all water sources of the apartment. "When tested, the well water did not have E.Coli, but contained traces of some metals that are not so harmful," says Mourya. He says that digging open wells are preferable, since their water is less mineralised compared to borewell water. "Also open wells do not dry up completely, while borewells do. Of the borewells dug in this area, only 30-40% yield for a longer period; many do not yield at all or dry up within months," he says. Particularly in the case of small apartments, Mourya says, water needs can be fully met by an open well.

Dimensions of the well	10 feet diameter, 33 feet depth
Daily yield	15,000 litres
Description of implementation	An old closed well was revived. Mud in the well was removed, and the well was built up on the remnants of its existing stone walls.
Cost of implementation	Rs 70,000
Time taken	One week
Any issues at present	No
Contact	water@biome-solutions.com
Location	Opposite Kaikondarahalli lake





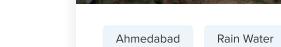






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Rainwater harvesting dos and don'ts (Poster)



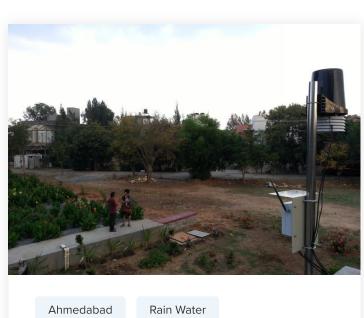


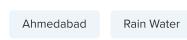






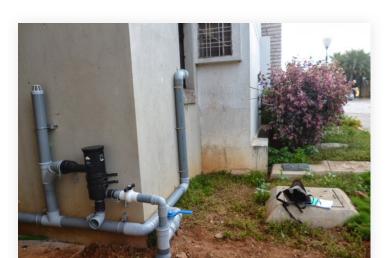
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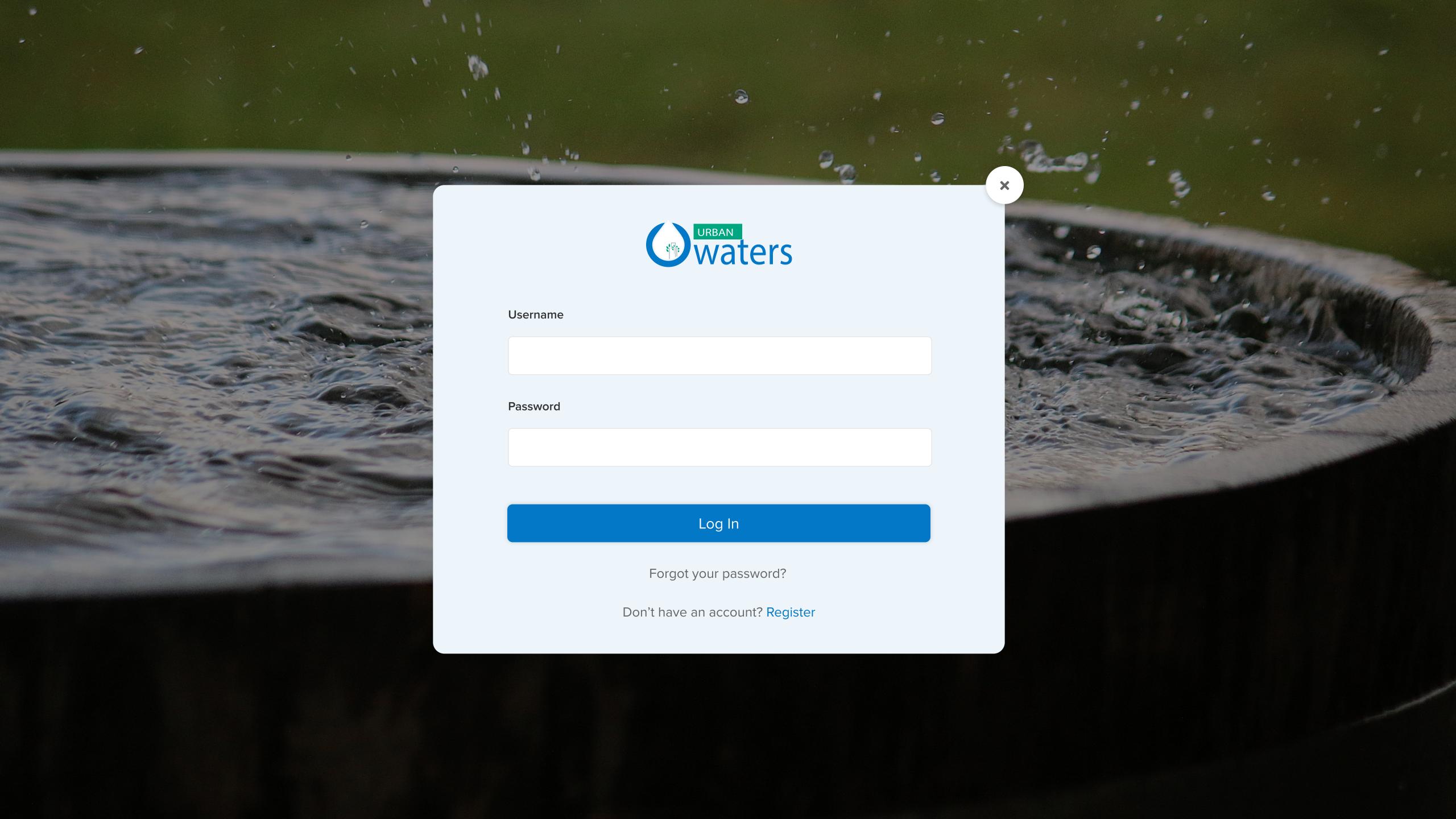


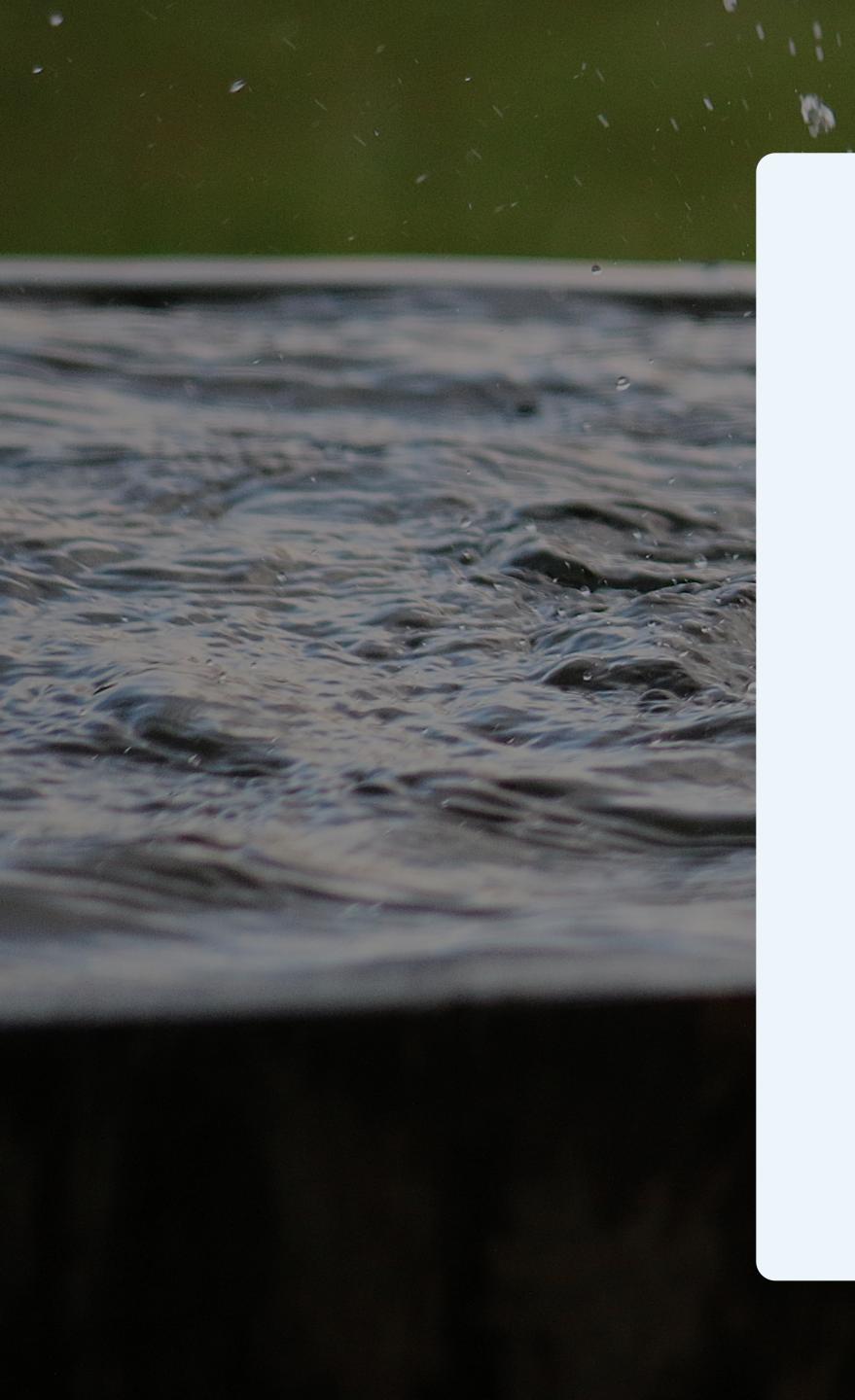




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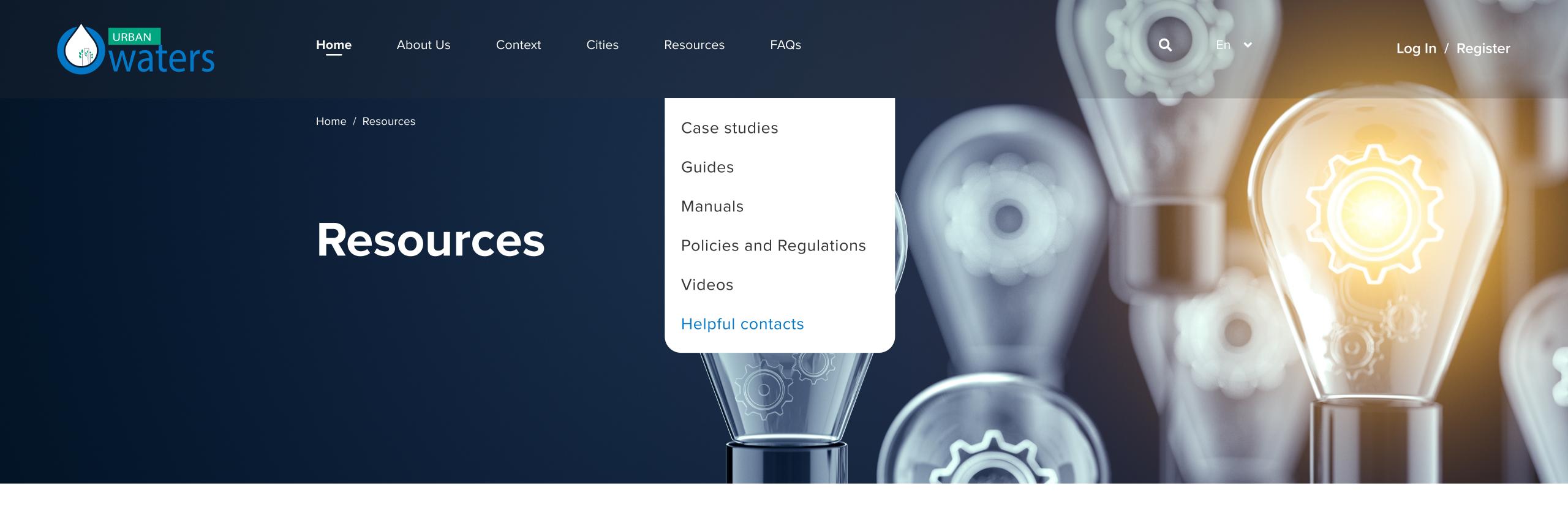
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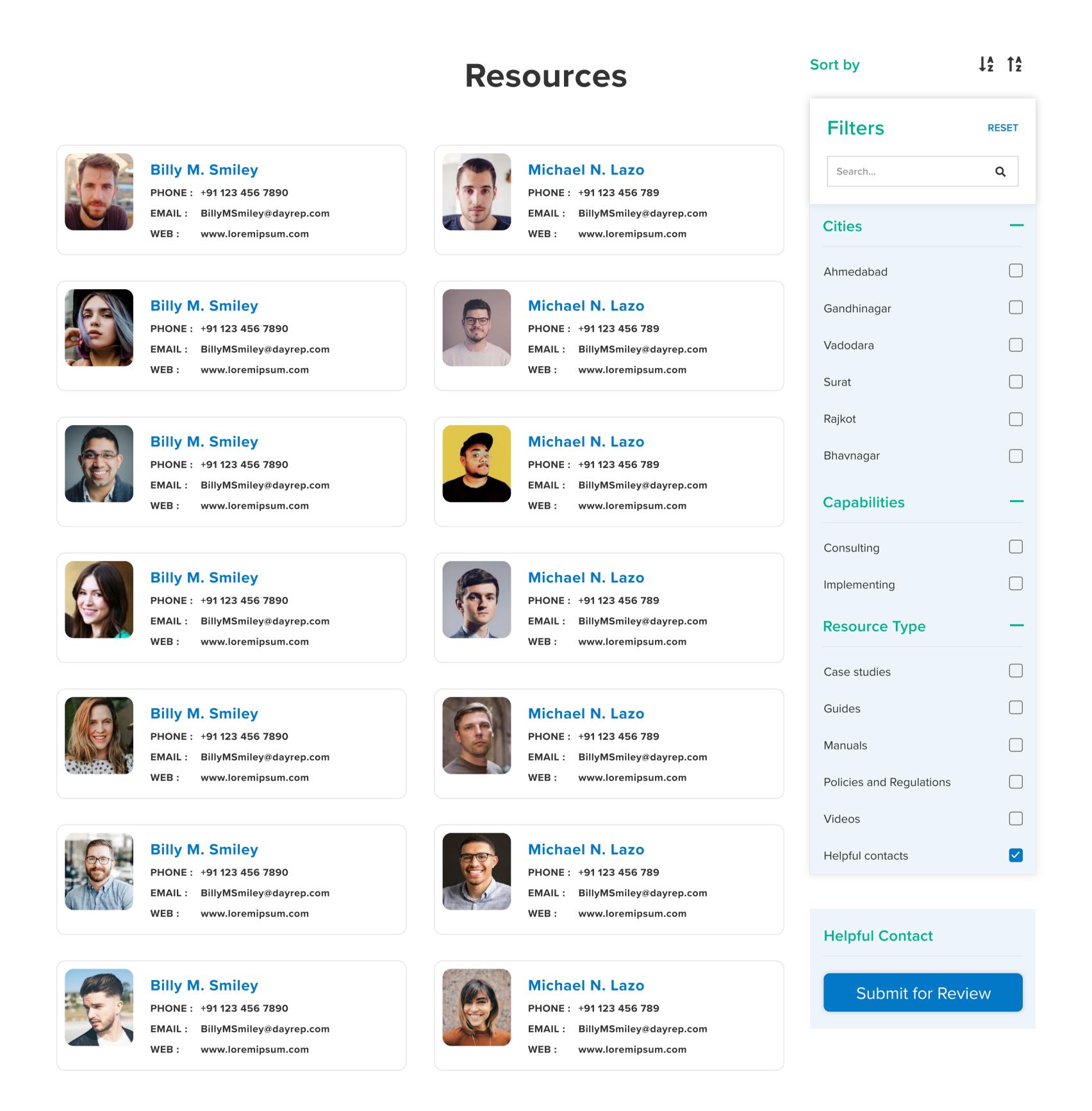


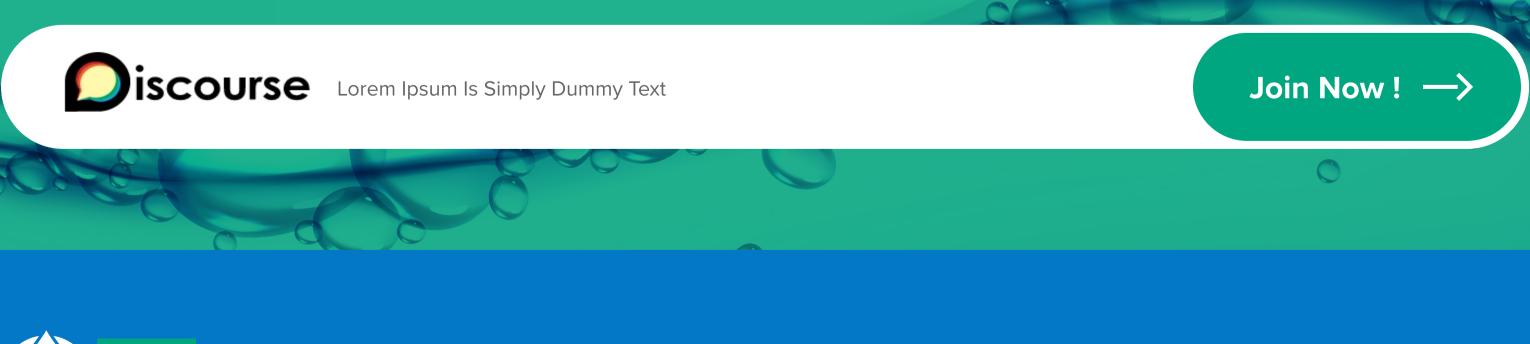




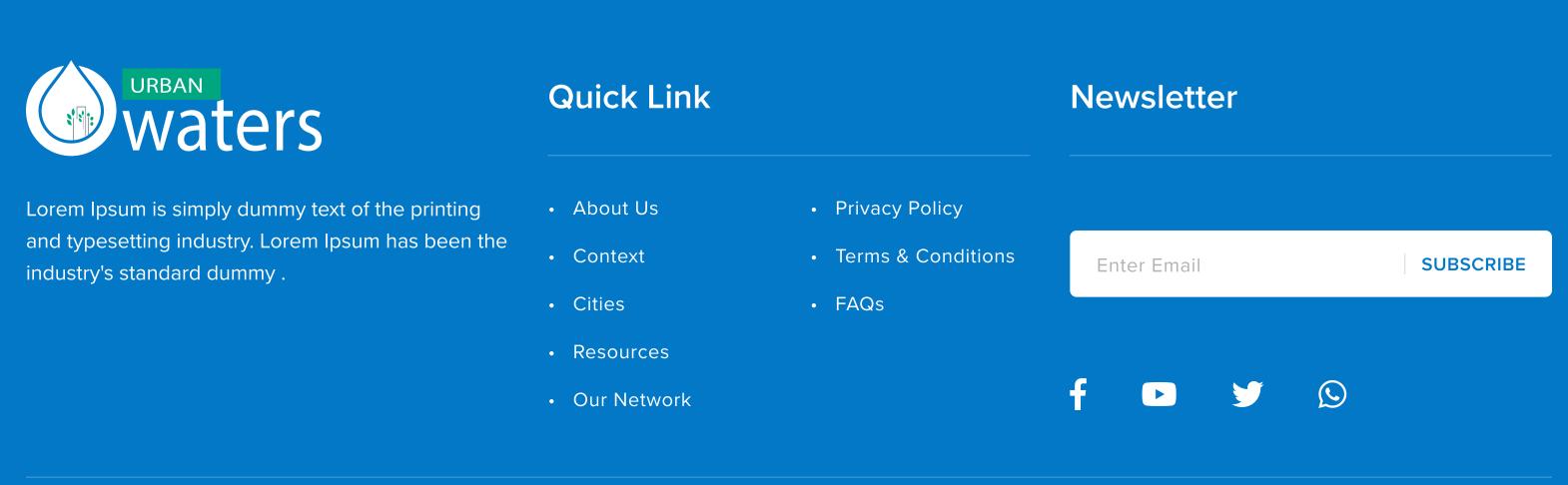
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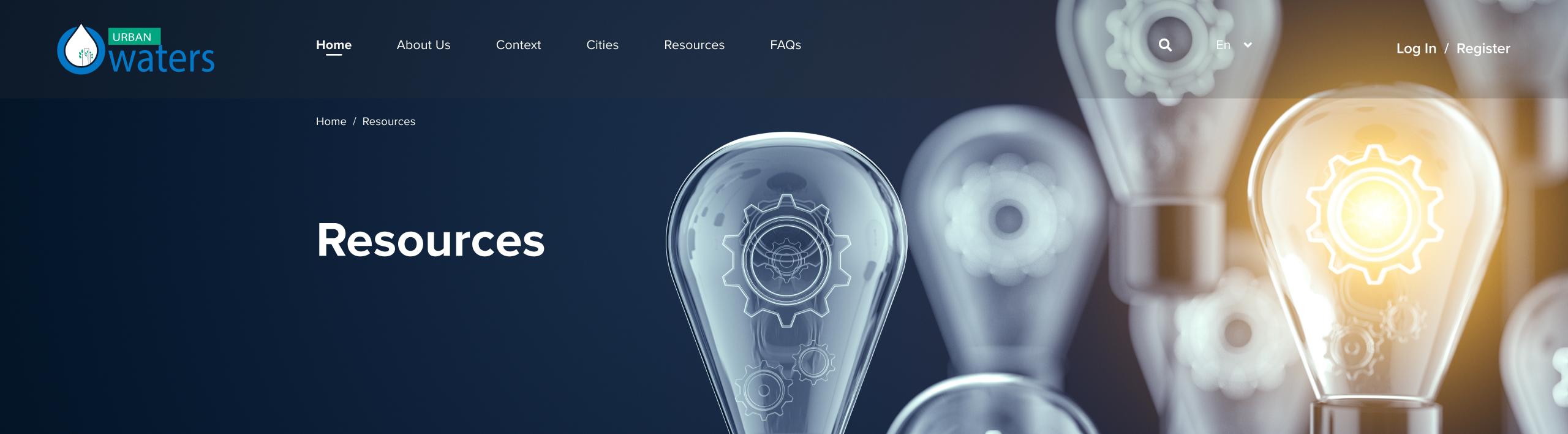
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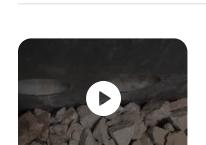
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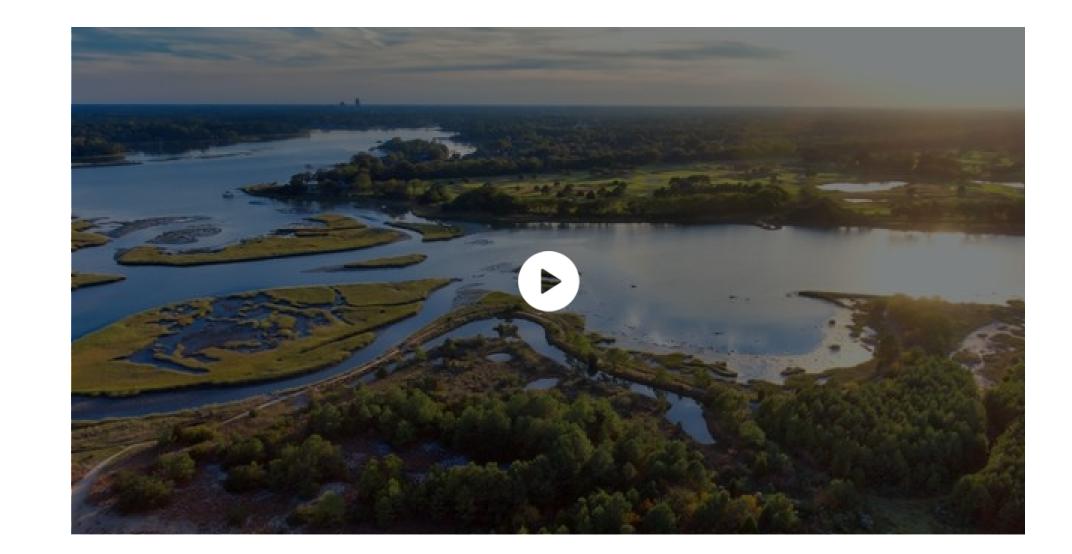
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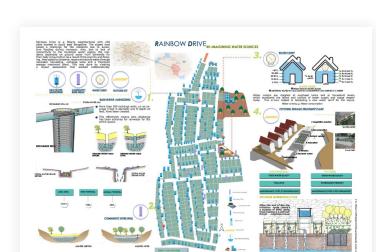
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Basics



Rainbow Drive: Reimagining water sources

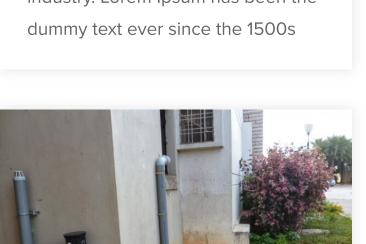
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Rain Water Ahmedabad

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of the printing and typesetting

How to store and reuse water Lorem Ipsum is simply dummy text Lorem Ipsum is simply dummy text of the printing and typesetting

industry.



Ahmedabad Rain Water

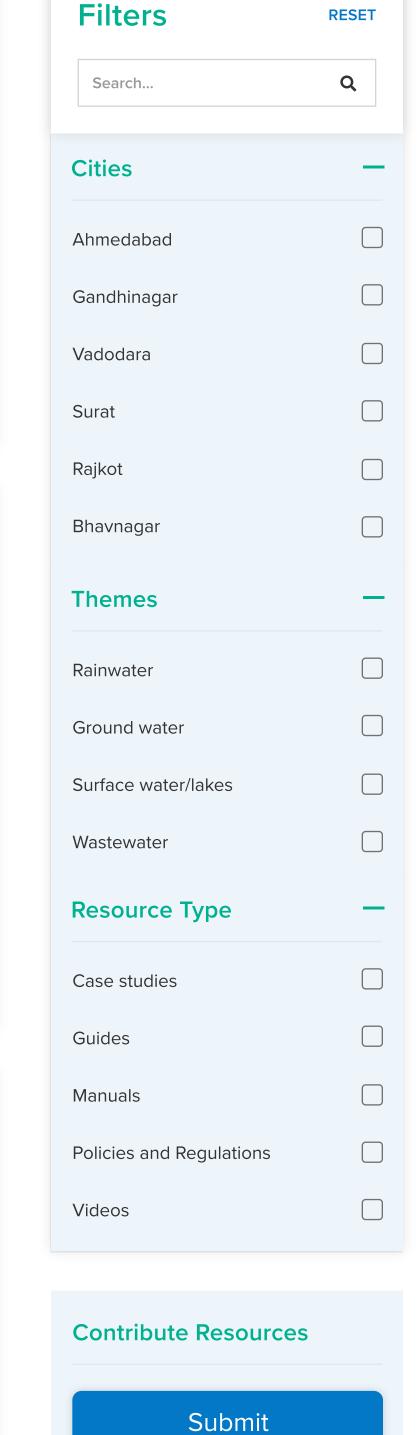
Rainwater Harvesting: How to recharge groundwater

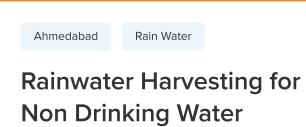
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Rain Water Harvesting DRINKING

Rainwater Harvesting Manual for Drinking water

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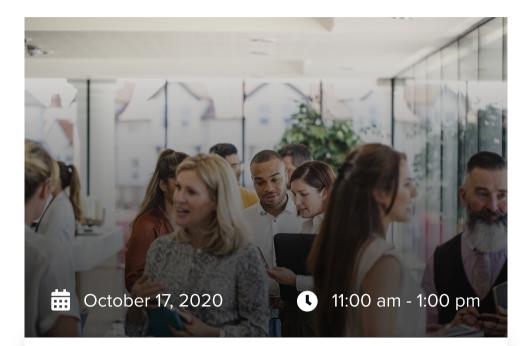
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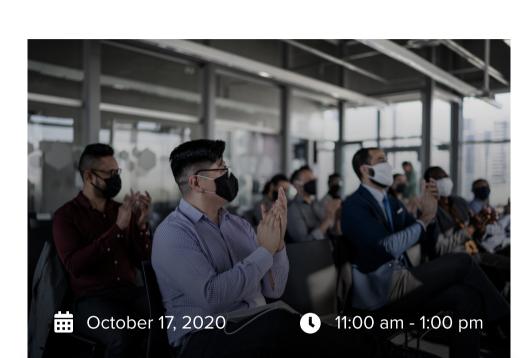
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The event has talks by international speakers from the Global Countdown event, from Samaaj, Sarkaar and Bazaar in Bengaluru about water, and a Q and A session at the end! Do not miss it!



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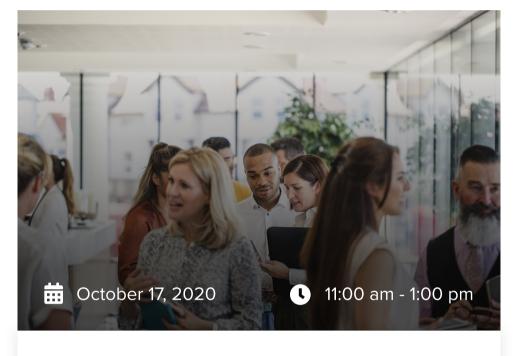
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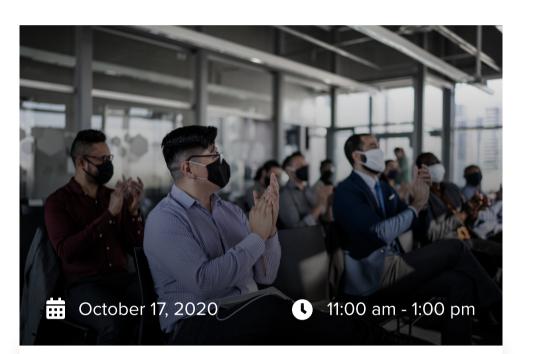
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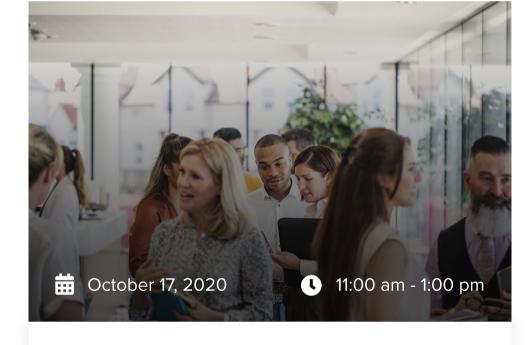
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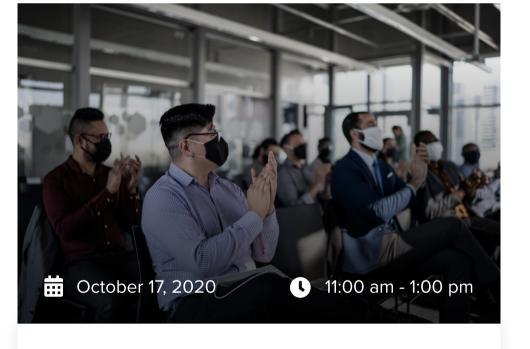
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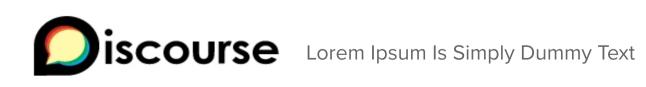


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