Report

Strategies to Catalyse Safe, Efficient, and Reliable Decentralised Water Reuse in Bengaluru

Insights From Two Stakeholder Workshops Under the WaterReuseLab Project

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About Eawag

Eawag is one of the world's leading aquatic research institutes. With its professional diversity, close partnerships with practitioners, and an international network, Eawag offers an excellent environment for the study of water as a habitat and resource, for identifying problems at an early stage and for developing widely accepted solutions.

About WELL Labs

WELL Labs is transforming water systems at scale across India through research, partnerships, and collective action. We take on audacious challenges, tackling complex problems by designing comprehensive solutions that provide large social returns. Our work is science-led and community-focused. We address the interconnections between water, environment, land, and livelihoods. To create impact at scale, we embed solutions within governments, work with the private sector, and collaborate with civil society and active citizens. Based in Bengaluru, WELL Labs is part of the Institute for Financial Management and Research (IFMR) Society.

About the WaterReuseLab Project

The WaterReuseLab project aims to analyse how a new generation of decentralised wastewater reuse systems could be developed in Bengaluru and scaled to other cities in India and beyond. In close collaboration with local research partners and stakeholders, the project assesses technologies, water quality monitoring approaches, business models, user acceptance issues, and governance models that could help create water reuse solutions for effectively addressing booming megacities' water scarcity challenges.

About Bangalore Apartments' Federation

Bangalore Apartments' Federation (BAF) is a federation of 1,247 apartment owners' associations and resident welfare associations across Bengaluru. It was formed in 2014 to represent and protect the interests of apartments and resident welfare associations. Its governing council comprises passionate individuals from diverse backgrounds, who manage the day-to-day affairs of the federation.

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The following experts shared insights that were instrumental in developing this report:

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Executive Summary

Bengaluru has adopted a unique approach to solving water scarcity and pollution. It mandates buildings above a certain size to treat their sewage on-site and reuse the treated wastewater. As a result, the city now has over 3,500 decentralised sewage treatment plants (DSTPs), which treat approximately 17% of the city's wastewater.

This presents a significant opportunity. Mapping Bengaluru's potential demand for treated wastewater based on domestic, commercial, and industrial use revealed that the city could currently reuse up to 615 MLD of treated wastewater. By 2035, this figure could rise to 1,073 MLD—almost three times current levels—providing up to 25% of the city's water needs.[1] This would position Bengaluru as a global leader in innovative urban water solutions.

However, many DSTPs have inadequate technology and suffer from neglect, so the treated water is not consistently safe or reliable for reuse. The core challenges are not technology-related, but also social; they comprise e.g. the lack of sustainable and profitable business models, unclear modalities for treated water transportation, or lacking financial and regulative incentives that ensure the long-term maintenance of DSTPs. To overcome these barriers, the WaterReuseLab project was launched. It adopts a systemic lens on these challenges and developed a strategic planning process through a series of workshops with key stakeholders in the sector.

The first workshop explored the challenges in water treatment and reuse in the city, and how these could evolve in the future. It adopted a scenario planning approach to develop three distinct alternative future states for how the city—and by extension, its water situation—might evolve by 2030. The first two scenarios assumed that urban and economic growth would continue along their current trajectory, leading to worsening water scarcity. The first scenario imagines utilities joining hands with private players to collectively overcome the worsening water scarcity. The second scenario assumes that utilities continue to be overwhelmed by the growth and citizens begin to build or buy homes in water self-sufficient neighbourhoods. The third scenario was less optimistic in terms of economic growth. It envisions the city's growth plateauing and industries leading water reuse as a response to global mandates and norms.

The second workshop explored different configurations in which decentralised water reuse could develop in each of these scenarios. The *50/50* model envisages equal on- and off-site reuse of treated wastewater. This configuration has the highest overall scaling potential across various future scenarios, but also faces the most complex barriers, such as unreliable logistics, unclear water quality standards for off-site use, and the need for extensive actor coordination. The *My water, my control* configuration involves 100% on-site reuse, which would require higher quality treatment. This makes it a high-cost, niche solution providing 24/7 water self-sufficiency. The *Naya Neeru* (new water) configuration of 100% off-site reuse would perform best under the future scenario, in which industrial demand is high. However, it would rely heavily on pipeline networks, which are currently not available.

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[1] *A report on these calculations is under development and due to be published in 2026.*

All three configurations also face cross-cutting systemic barriers: a lack of consensus on water quality standards and pricing, weak communication between the government and private actors, the absence of affordable, real-time effluent quality monitoring, and a lack of financial support and subsidies.

By the end of the second workshop, participants had a comprehensive overview of the potential scenarios, configurations, and barriers for developing safe, efficient, and reliable water reuse solutions. Based on this assessment, they developed and prioritised concrete action items that could help improve the scalability of decentralised water reuse solutions. At the top of the list was developing a local water reuse coalition comprising civil society members, researchers, STP firms, and regulatory officials. This coalition could induce a shift from today's fragmented interventions to push water reuse to a more coordinated and strategic system-building approach. The document outlines a first suggestion on how such a coalition could be structured and built up and outlines potential action items to be taken up in specialized task forces.

Overall, the report shall provide a concise overview of the potentials and challenges in developing a more coordinated approach to supporting decentralized water reuse. By systematically implementing some of the proposed interventions, Bengaluru could unlock the full economic, environmental, and social potential of its decentralised water reuse systems and cement its role as a global reference point for sustainable urban water management.

1. Introduction: The Need for Safe, Efficient, and Reliable Water Reuse Solutions in Bengaluru

Bengaluru has developed a globally unique approach for managing and reusing water. Rather than relying only on centralised wastewater infrastructure, over 3,500 DSTPs are spread across the city, which together treat about 17% of its wastewater.[2] These distributed plants hold a unique potential to enable water reuse and creating a much-needed, drought-resilient water source. At the same time, a majority of systems suffer from inadequate technology, a lack of qualified operators, or complete neglect. With water scarcity intensifying, it is crucial to analyse how DSTPs can function more effectively and serve as a reliable pillar of the city's urban water management system.

Current estimates suggest that by 2035, up to 25% of the city's water supply could be provided by decentralised systems—a significant contribution to alleviating water scarcity.[3] Beyond these local benefits, if safe, efficient, and reliable water reuse solutions were developed in the city, Bengaluru could create a template for other water-scarce cities across India, Southeast Asia, and eventually, the world. The city thus has the potential to become a global reference point for innovative water reuse solutions, which would attract experts and funding from around the world. Considerable economic, ecological, and social gains could be tied to developing a DSTP-based water reuse template that works in Bengaluru.

To fully reap this latent potential, several issues relating to how DSTPs are currently planned, operated, and run would have to be addressed. The main aim of the WaterReuseLab project is to provide a holistic assessment of the systemic challenges that hinder decentralised water reuse from becoming a safe, reliable and scalable practice in Bengaluru. To identify the key challenges and devise potential ways of addressing them, two interactive stakeholder workshops were organised in 2024 and 2025, whose main insights and outcomes are summarised in this report. The report's aims are threefold:

1. Providing a summary of the main insights developed in these high-level events.
2. Outlining the key barriers for developing safe, efficient, and reliable water reuse solutions.
3. Providing actors interested in tackling these barriers with strategic background materials and a list of potential action items.

The exchanges at the two workshops highlighted the need for a more coordinated and strategic approach to develop and scale innovative DSTP solutions. The main challenge is not a lack of technological expertise, but bringing together appropriate combinations of technologies, business models, and regulative frameworks that create incentives to properly design and maintain DSTPs in the long run. Key issues comprise a lack of:

1. Treatment trains and monitoring approaches that enable a robust assessment of DSTPs' effluent quality.
2. Innovative business models for on- and off-site water reuse.
3. Affordable solutions for water transport.

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[2] *This figure is based on the Bangalore Water Supply and Sewerage Board's data. It is currently not in the public domain.*

[3] *A report on these calculations is under development and due to be published in 2026.*

4. Strategies to improve user acceptability.
5. Effective governance and financial arrangements for water reuse.

These challenges cannot be resolved by a single actor—they require strategic collaboration. Bengaluru is uniquely positioned to address these challenges, as it hosts a dense ecosystem of innovative firms, consultants, and NGOs actively developing improved water reuse solutions. Our workshops have shown that safe, efficient, and reliable water reuse solutions could be reached if these actors further intensified their strategic collaboration. A key stepping stone in reaching this vision is developing a 'water reuse coalition' in Bengaluru, i.e., a network of local players that jointly develop an agenda for decentralised water reuse and identify ways to address the barriers that hinder its broader scaling. If such a coalition was built and barriers effectively addressed, this would benefit everyone in the local ecosystem and significantly increase the market potential of decentralised water reuse solutions.

This document intends to support strategy development by outlining the broader context of decentralised water reuse in the city and providing a strategic toolbox for local actors interested in the build-up of a water reuse coalition. To this end, the report summarises a strategic planning process developed by the project team and implemented in two consecutive stakeholder workshops in 2024 and 2025. The document follows the sequence of this process. It first provides a high-level overview of the current state of decentralised water reuse in the city, outlines future development scenarios for Bengaluru's water scarcity situation, discusses three ideal-type configurations in which decentralised water reuse could be scaled, identifies their main development barriers, and proposes a list of concrete action items that could be instrumental for mainstreaming high-quality decentralised water reuse solutions.

2. Baseline: Recycled Water Supply and Demand in Bengaluru

Bengaluru has over 3,500 DSTPs collectively treating 17% of the city's sewage, a globally unique number. These plants are distributed across the city, but are mostly serving suburban areas.

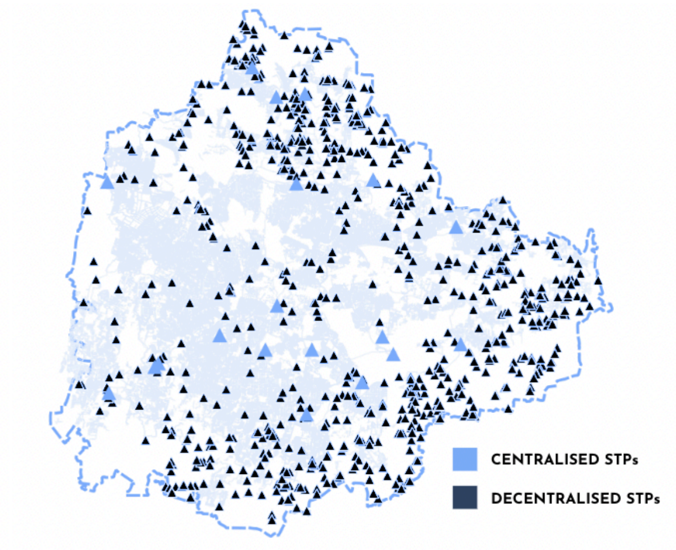

Figure 1: Spatial distribution of centralised and decentralised STPs in Bengaluru. Source: Own design

Decentralised water reuse emerged as a result of rapid urban growth starting in the late 1990s. Suburban areas saw a boom in residential and commercial buildings without access to centralised sewer networks, prompting policies that required new real estate developments to install on-site treatment plants. The city also adopted this approach to curb lake pollution caused by a lag in the centralised sewage network reaching peri-urban areas. These DSTPs are predominantly located in the city's suburban zones, especially around quickly expanding IT zones (see Figure 1). These areas rely heavily on groundwater, whose over-extraction has led to alarming depletion and recurrent water scarcity.

Meanwhile, the slow expansion of sewer infrastructure caused untreated wastewater to contaminate local lakes, some of which caught fire—events that drew national media attention. In response, the Forest, Ecology, and Environment (FEE) Department of the Government of Karnataka (FEE) mandated in 2016 that residential buildings with more than 20 apartments or 2,000 m² built-up area and educational institutions above 5,000 m² install DSTPs. A 2024 amendment extended this requirement to buildings with over 120 units or generating more than 80 kilolitres of sewage per day and allowed up to 50% of treated water to be sold for off-site reuse. Together, these regulations have driven the unprecedented diffusion of DSTPs across the city.

2.1 Supply of Treated Wastewater from DSTPs in Bengaluru

In 2025, Bengaluru generated around 2,140 MLD, which is treated in both centralised and decentralised STPs. Centralised STPs treat 1,239 MLD (58% of the overall wastewater generated in the city) and decentralised STPs treat around 371 MLD (17% of the overall wastewater generated). The remaining 25% is left untreated. A comprehensive overview of all decentralised STPs installed in the city is still lacking, meaning that the exact numbers and treatment levels can only be roughly estimated from surrogate measures and WELL Lab's extensive fieldwork over the past few years.[4]

[4] *A report on these calculations is under development and due to be published in 2026.*

Tentative results from these activities show that fewer than 20% of decentralised STPs meet the treated water standards mandated by the Karnataka State Pollution Control Board (KSPCB). While most systems comply with fairly stringent limits for organic pollutants and suspended solids, they exhibit inconsistent and partial removal of nitrogen. Further, disinfection, typically carried out through chlorination, is often insufficient.[5] In many cases, the water is thus not consistently safe for reuse. On the other hand, systems that consistently meet KSPCB standards also (increasingly) exist. They typically employ robust upstream (or secondary treatment) and differential downstream (or tertiary) treatment, are maintained by well-qualified operators, and reuse treated water either on- or off-site. The workshops primarily engaged actors developing and applying such high-quality systems.

2.2 Demand for Treated Wastewater Produced in DSTPs

Tentative numbers show the total demand to be about 946 MLD. End uses with the largest water saving potential are those with large, perennial, and concentrated demand. These include showering (350 MLD), common area cleaning and laundry (174 MLD), industrial manufacturing and process use (154 MLD), and cooling and toilet flushing in commercial buildings (102 MLD). These uses are attractive because they consume large volumes year-round and are often co-located with DSTPs. More limited demand exists in seasonal or spatially dispersed uses such as landscaping, lake replenishment, road work, and construction. Commercial and industrial reuse options are spread across the city quite uniformly, while most of the newer residential clusters are located on the periphery.[6] Overall, the potential demand for water treated in DSTPs (946 MLD) exceeds the amount of water produced in them (370 MLD) by a factor of about 3. If the water produced in DSTPs reliably reached certain quality thresholds, it could be reused for onsite reuse and/or selling excess treated water to customers in the neighbourhood, thus significantly increasing residents' water resilience and freeing up freshwater supplies to other parts of the city. A large, yet untapped, market potential thus exists. If this potential was fully served, decentralised water reuse could play a key role in the city's effort to manage its worsening water crisis. Realising this potential thus warrants a more strategic approach.

2.3 Towards a Strategic Planning Approach for Decentralised Water Reuse in Bengaluru

The guiding questions in our workshops were: *How can Bengaluru move from the current situation, with many defunct DSTPs and sluggish market formation, to one where high-quality DSTPs that enable safe on- and off-site water reuse are the norm? Further, how can robust operational and market structures support quality treatment trains, efficient operations and maintenance (O&M), and effluent management procedures?*

[5] *Office Memorandum on STPs (2021). Guidelines for Design and Location of Sewage Treatment Plants (STPs). Bengaluru, Karnataka, India: Karnataka State Pollution Control Board.*

[6] *A report featuring this analysis is under development and due to be published in 2026.*

To answer these questions, the WaterReuseLab project team co-developed a strategic planning process over two workshops with local stakeholders working on advanced DSTP solutions. A five-step approach was taken in this process, which is reflected in this report's structure:

1. Thinking about **future development scenarios of the city**. What potential futures could water reuse solutions develop into?
2. **Systematising currently (and potentially) existing water reuse solutions** into three ideal-type strategy options.
3. Identifying the **systemic bottlenecks** that hinder these solutions from functioning better/diffusing more widely.
4. Assessing **how well each solution would perform under different future scenarios**.
5. Based on the prior steps, **deriving system interventions to support scaling**. These interventions were then translated into concrete action items that a local water reuse coalition could address.

3. Future Development Scenarios for Bengaluru's Water Situation

The trajectory of water scarcity in Bengaluru remains highly uncertain. Droughts and heavy rainfall events have become more severe and unpredictable because of climate change. At the same time, rapid economic and urban growth have continued, causing an ever-increasing strain on limited local water supplies. This results in a worsening water crisis, which sets the backdrop in which innovative DSTP solutions are developing. Any strategising on how to move toward higher-quality and scalable solutions needs to take this dynamism and volatility into account. Predicting how the water crisis and the economic development of the city will evolve even in the mid-term is hard. For solid strategy development, we need to consider different generic 'futures' into which the city's water situation may develop.

A well-established method for strategy development when confronted with uncertain context conditions is scenario planning. The basic idea is that if the future is unknown, one should develop a set of internally coherent scenarios that cover the range of imaginable futures. A set of (investment) strategies may then be evaluated in terms of how well they would fare in each of the scenarios, whether there are any critical context conditions, which could jeopardise investments and how the corporation may prepare for such uncertainties. As a baseline for strategy formulation around decentralised water reuse in the city, we thus conducted one-day scenario workshops with key stakeholders in Bengaluru in 2024.

The following three scenarios were developed, which describe alternative future states for how the city—and by extension, its water situation—might evolve by 2030.

3.1 Scenario 1: Public-Private Partnerships Drive Water Reuse

Rising incomes drive demand for better water and sanitation services. Public-private partnerships emerge, in which decentralised water reuse plays a key role in a larger integrated water management system.

Figure 2: AI-generated illustration of the public-private partnership scenario

Imagine a Bengaluru on the rise, where wealth is growing, and residents are paying more taxes. With increasing prosperity comes a demand for better water services. In this scenario, citizens are banding together to demand transparency regarding how their money is spent in providing basic utilities like water and sanitation. But under these conditions, the utilities are struggling to keep pace with the city's growth and amenities such as water supply and proper sewerage management lag behind.

To tackle these challenges, the utility increasingly turns to public-private partnerships. Decentralised sewage treatment continues in apartments and commercial buildings but also feeds into a macro-water supply and sanitation plan for the city. This involves collaborative efforts among the government, STP firms, civil society organisations, builders, businesses, and citizens in developing more integrated urban water management solutions.

In the context of this overarching planning, the government and utilities run campaigns with think tanks and citizen action groups that aim at building trust in the reuse of treated wastewater. The utility introduces more incentives, such as the Green Star Challenge, that push for better water management practices and encourage citizens and businesses to better integrate their supplies and demands of treated wastewater. With these programmes, comes a regulatory push for more high quality DSTP designs for new builds and improved O&M procedures for existing plants. In this scenario, public-private partnerships are also set up to lower the cost of transportation of wastewater from residential zones to customers in commercial and industrial zones via trunk lines.

Taken together, in Scenario 1, DSTPs contribute to reducing groundwater abstraction by 30–35% thanks to a joint effort by the government and private players. The city can meet its growing water demands by integrating decentralised water reuse into more holistic water management plans. Bengaluru emerges as a model city for how public-private partnerships can achieve water resilience.

3.2 Scenario 2: Move Towards Water Self-Sufficient Neighbourhoods

As water costs and scarcity rise, residents turn to innovative water reuse solutions, which foster self-sufficient communities and reduce dependence on tanker and Bangalore Water Supply and Sewerage Board (BWSSB) supplies. Advances in technology create dynamic markets for these solutions.

Bengaluru is facing a severe water crisis, which is exacerbated by rapid urban growth and over-exploitation of groundwater resources. The increasing demand has led to rising costs and erratic supplies of tanker and BWSSB water, pushing residents to seek reliable, affordable alternatives. As a result, resident welfare associations (RWAs) are increasingly turning to onsite wastewater reuse as the most reliable water source, aiming for self-reliance rather than dependence on unpredictable external supplies. The use of treated water expands to applications like swimming pools and showers, while quality standards also increase. The local DSTP industry introduces a voluntary quality certification system that recognises high-performing products and services.

Figure 3: AI-generated illustration of the 'water-market' scenario

This scenario assumes that technological advancements have made onsite treatment more reliable and cost-effective, with significant reductions in capital and operational expenses due to standardisation and technological innovation. Private STP firms are acting as integrated technology managers, ensuring that installations meet industry quality standards. This also streamlines installations, operations, and maintenance for RWAs, and eases the transition of STP operation from builders to RWAs. Additionally, RWAs are exploring ways to sell excess treated water to neighbouring buildings and businesses.

Builders are promoting high-quality STPs as essential features of new developments that guarantee 24/7 water supply, highlighting the ecological and economic benefits of water reuse. This has transformed water reuse into a profit source for RWAs, which benefit from reducing their reliance on tanker water and selling surplus treated water. The market for wastewater reuse in Bengaluru has surged to such a degree that DSTPs contribute to groundwater savings of 40–50%.

In this scenario, RWA and resident-driven dynamics have proven that even if drought strikes Bengaluru, 'water reuse fuels survival'. This shift leads to new perceptions among RWAs and regulators, who now view water reuse as key for the city's sustainability.

3.3 Scenario 3: Industries Lead Bengaluru's Treated Wastewater Reuse

In a slowing economy and real estate market, global mandates encourage industries to utilise treated wastewater, thereby reducing freshwater use and incentivising innovative water reuse solutions.

Figure 4: AI-generated illustration of the industry scenario

In this scenario, Bengaluru experiences an economic slowdown and stagnant growth, which has led to a stabilisation in water demand from residential users. While the expansion of industrial and commercial activities has also plateaued, a new incentive for developing high-quality water reuse solutions has emerged from this sphere.

Global environmental, social, and governance (ESG) directives are pushing local commerce and industries to reuse wastewater and achieve zero liquid discharge as part of their core sustainability criteria. In response, commercial and industrial enterprises turn to improving their own STPs and effluent treatment plants, and also begin buying treated wastewater from outside the fence. As supplies from centralised government-run STPs deteriorate due to declining tax revenues and fee collection, they increasingly turn to 'water brokers' who supply water from DSTPs in residential compounds.

RWAs struggling to maintain their STPs begin viewing industrial demand for treated wastewater as an opportunity to get additional income. In Scenario 3, RWAs thus begin outsourcing the operations and maintenance of their plants to local water brokers who can connect local treated water supplies with industrial customers. The local government also sees this as an opportunity to lease some of their smaller plants to more established water brokers. The ESG requirements in global value chains and different industries' specialised water demands are key enablers in setting high-quality reuse guidelines and offering financial incentives in this scenario. This could be, for example, through a newly established water credits system. ESG incentives also push industries to invest in water stewardship initiatives like lake restoration, landscape irrigation of public parks and recharge through treated wastewater.

To summarise, this scenario leads to an increase in groundwater savings by 25% through decentralised water reuse. With the combined efforts of commerce, industries, firms, RWAs, and the government, ESG-induced water reuse projects enhance environmental sustainability and improve local ecosystem resilience while contributing to companies' water stewardship goals.

Summary of the Three Scenarios

The workshop discussions revealed some basic expectations from the future, which appear consistent across scenarios. Water scarcity is a consistent challenge in all three of them, driving a strong need for innovative water reuse solutions. Treated wastewater is recognised as a valuable resource that could play a significant role in different ways, depending on the scenario. The scenarios also suggest that leadership in advancing wastewater reuse may come from different actors, ranging from governments and the private sector to communities and industries, each influencing important elements in the path forward. All scenarios furthermore share the need for a systemic approach to addressing barriers—that is, combinations of technological, regulatory, and social interventions—to enable the effective and widespread adoption of decentralised water reuse.

4. Barriers to Scaling Different Water Reuse Solutions

As a next step, we systematised the 'strategy options'—different ideal-type decentralised water reuse solutions—developing in Bengaluru. There are several solutions available on the market, ranging from reverse osmosis systems that produce almost potable water quality to nature-based solutions used in the outskirts of the city. To have a manageable set of strategy options for the discussions, the project team developed three ideal-type configurations in which water reuse can be provided (Table 1). They do not represent either one specific or the full spectrum of solutions available on the market, but rather three inherently different ways in which decentralised water reuse can be provided. They were also designed as seeds for breakout discussions, which aimed to further specify their key characteristics.

4.1 Three Ideal-Type Configurations for Decentralised Water Reuse

The seed configurations were provided to three breakout groups, which then discussed their core technologies, water uses, and management and water logistics approaches. Below, we describe how the respective specialised stakeholder groups characterised each configuration.

Configuration A: Maximising onsite reuse	Configuration B: Balanced on- and off-site reuse	Configuration C: Tailor-made water for offsite reuse
Solutions that maximise onsite reuse—up to 'potable' levels	**Solutions that produce hygienic service water for on- and off-site reuse**	**Solutions that produce water tailored to offsite customer's needs**
	Technology	
Retrofitted STP; Disinfection step creating water for various 'service' uses; Advanced treatment for 'potable' uses; Dual piping	Retrofitted STP; Affordable and robust filter/disinfection steps creating consistent quality for on- and off-site 'service' uses; Dual piping	Retrofitted STP; Additional treatment depending on the customer's specific needs; Water qualities vary widely; No dual piping
	Water Uses	
Service (50%): Flushing, irrigation, cleaning 'Potable' (50%): Showers, pool, kitchen	Onsite (50%): Flushing, irrigation, cleaning Offsite (50%): Construction, irrigation, industry	Specialised, industry-dependent: For example, laundries, manufacturing industries, hotels/malls, parks
	Management	

RWAs own the STP; Installation, operations, and maintenance (O&M) done by private technology suppliers and operators	RWAs own the STP; Installation and O&M by local technology suppliers; Water logistics and marketing by specialised water brokers	Ownership, installation, O&M of the STP, as well as water transport and marketing subcontracted to a large 'water service' firm
	Transport	
None	Tankers	Tankers or micro-grids to bulk users in the neighbourhood

Table 1: Three ideal-type 'seed' configurations for subsequent discussions

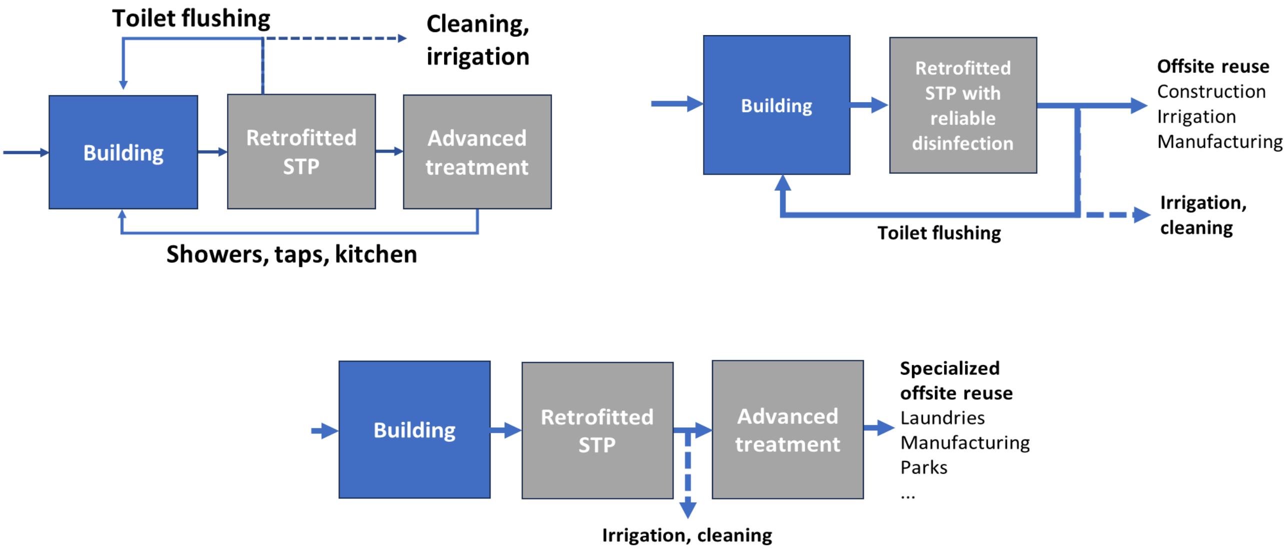

Figure 5: Water reuse configuration A, B, and C (clockwise from top left)

Configuration A: My Water, My Control

The first configuration focused on providing residents in RWAs with a reliable and drought-proof local water source that makes them largely independent from outside influences, like unpredictable BWSSB supplies, price spikes in tanker water deliveries, or boreholes running dry during droughts.

The main assumption in this configuration is that RWAs value gaining control over water supplies and avoiding price spikes. This solution comes with high costs, as advanced treatment is needed, but also provides substantive benefits for RWAs, such as gaining control over water quality and pricing, or reduced environmental pollution. It could also be implemented without the need for further regulations, as self-regulation through quality certificates, firms aiming for a high-quality reputation, and end users asking for consistently high treatment quality could develop an incentive system for this solution. The number of tankers in the streets could also be reduced, as the treated wastewater is predominantly reused locally.

The main challenges are that:

1. Worry-free, standardised treatment systems do not yet exist.
2. The high costs might be prohibitive for large parts of the population in Bengaluru.
3. User acceptance issues for potable reuse need to be overcome to fully reap this configuration's benefits.

A quality certification system would have to be developed from scratch, maybe in combination with PAT (performance, achievement, trade) business models. Good communication and quality monitoring systems would also be needed to bolster trust in this solution. Additionally, brine would have to be professionally managed if reverse osmosis is used for tertiary treatment. Finally, government involvement might still be needed, for example, to set baseline water quality standards, provide subsidies for some of the expenditures, and/or allow water to infiltrate into the ground and reused indirectly through borewells.

Configuration B: 50/50

The second configuration combines 50% onsite with 50% offsite reuse. This solution most closely aligns with the city's existing water reuse policies and combines key opportunities and challenges from the other two solutions. The key assumption is that DSTPs will reach a specific 'service water' quality, which is high enough to enable safe reuse for use cases with relatively low contact with humans onsite (flushing, cleaning, gardening) and offsite (cleaning, construction, manufacturing). This has the advantage that simpler and cheaper treatment trains are needed compared to configuration A, as RWAs get double income from reducing tanker water supplies and selling excess treated wastewater to offsite customers. Besides, end user acceptance might be higher.

The main challenge here revolves around quality assurance of the treated water, both for on- and off-site reuse. As quality requests from offsite users vary and diverge from what is required for onsite uses, flexible and fit-for-purpose standards would be needed, and the locally produced water quality would have to be easily and continuously controllable. Innovative logistics models are also needed, and matching demand and supplies might be hard as the involved actors are highly diverse and distributed in the city. This configuration would also require significant advances in quality monitoring (for example, through test kits and online monitoring) and communication and trust building between RWAs and offsite customers.

Configuration C: Naya Neeru (New Water)

Configuration C provides a solution for 100% offsite reuse. In the discussions, it was assumed that RWAs get a worry-free solution, as external actors (specialised firms, utilities, independent water brokers, or local industries) install, operate, and maintain DSTPs in lieu of full access to the treated water. The main actor is a 'water service firm', which can adopt one of the following operational models:

1. **End-to-end management:** One company owns the DSTP and manages the full value chain from installation to water delivery to industries. RWAs pay a fixed annual service fee.
2. **Government-backed aggregator:** Same model as above, but the water service firm is backed by the government. This can reduce risks, make subsidies available, and regulate price levels.
3. **End users as the aggregator:** End users (large manufacturing firms, IT companies, construction companies) interact with RWAs through a jointly managed aggregator firm. In this model, the

water service firm and end users have a strong incentive to get water that reaches desired quality parameters for a varying set of end uses.

The key challenges in this configuration revolve around the need for a sophisticated logistics model. Relying solely on tanker transport is unsustainable, so a solution with micro-grids or trunk lines for treated wastewater would be needed. How to set this up is a key question, as utilities already struggle with building conventional water and sewer pipes. The water service firms would furthermore need reliable water quality assurance. The price levels of this firm would also have to be closely monitored and regulated, as a de facto monopoly situation would arise. If done well, this solution could be co-financed through ESG funds. The complexity of the model could be reduced due to the integration of installation, treatment, operations, maintenance, and logistics services under one specialised firm.

Summary

Three inherently different strategy options exist to organise decentralised water reuse in the city. While existing business models already developing in the city cover each of those models to some extent, none of the configurations has matured to a degree where it can enable fully reliable, efficient, and safe water reuse practices. Considerable strategic opportunities thus still exist in developing each of them. Yet, they also face systemic barriers to rapid upscaling. As a next step, workshop participants were asked to elaborate on these barriers.

4.2 Systemic Barriers Limiting Each Configuration's Scaling Potential

In a next breakout session, participants were asked to examine in depth the key systemic barriers constraining the development of each configuration. This step was crucial to establish a shared understanding of challenges that cannot be tackled by any actor in isolation. To this end, workshop participants were regrouped into specialised teams to assess each of the three configurations in terms of gaps in a) technologies and business models, b) market and user acceptance, and c) regulations and financial incentives.

Technology and Business Models

In configuration A (*My water, my control)*, quite radical technical innovation would be needed, especially in terms of developing more affordable treatment trains and improved/automated O&M and effluent quality monitoring approaches. A lack of subsidy schemes to cover the high capital and operational costs is the biggest systemic bottleneck here, as is a lack of incentives (quality labels, green building certificates, etc.) that could highlight the value of reaching 100% water circularity at consistently high quality levels.

Configuration B (*50/50)* lacks reliable online effluent quality monitoring solutions, as well as affordable logistics models and guidance for micro-grid designs if water is reused in the same neighbourhood. Major business model innovations are needed here. Since industries are largely not yet willing to purchase DSTP treated water, offsite sales cannot fully subsidise the costs of running a DSTP, and there are few incentives to guarantee the quality of the water sent from DSTPs to offsite customers.

For configuration C (*Naya Neeru)*, the biggest technical bottleneck is the need for improved transport networks, which would have to be based on pipelines and maybe, even semi-centralised treatment solutions. Building sewers is already a challenge in the city, so how current infrastructure could be customised for reused water is a key question. The business models enabling this solution would have to be industry-focused and utility-scale (especially for the water service firm), which might be challenging to develop.

The challenges that transcend all three configurations are:

1. The lack of generally agreed guidance on how the water quality for different uses should be defined, guaranteed, and priced.
2. Weak communication between private and government players.
3. A lack of affordable online effluent quality monitoring approaches.

Markets and User Acceptance

The systemic challenges related to end users and market formation for treated wastewater also differ substantively across configurations. In configuration A *(My water, my control*), market formation is hindered by the limited options for onsite reuse, especially if the water does not reach potable quality. There are also limited studies on public health impacts and acceptance issues if treated water is used for potable uses.

In the *50/50* configuration, a key challenge is the spatially uneven distribution of customers for treated wastewater, making it hard to match demand and supply. There is also a need for better quality monitoring and reliable testing approaches, which would bolster customers' trust in the quality of the water delivered from various DSTPs. As this configuration comprises many different actors that need to be coordinated in a decentralised marketplace, there is a high chance of 'finger pointing', that is, different actors blaming each other for not reaching consistently high water quality standards.

In the *Naya Neeru* configuration, market formation is hampered by a lack of clearly defined fit-for-purpose standards for a broad range of industrial end uses. New business models that include capital costs and logistics managed by the water service firm would be needed. User acceptance is not a major hurdle; the main challenge would be trust and brand building by the water service firm.

The overarching challenges in terms of markets and use acceptance are a lack of skilled STP operators, limited transparent communication between operators and end users, and again, a need for real-time water quality monitoring approaches.

Regulations and Financial Incentives

The systemic barriers related to regulative and financial domains differ between the configurations as follows. In *My water, my control*, a key challenge is developing a regulatory model that consistently monitors effluent water qualities, ideally through an online and centrally managed monitoring system. This should enable trend-based rather than only incident-based monitoring. Bringing the operational cost of this model down and developing a self-regulating incentive system are unresolved yet important issues.

The *50/50* configuration suffers from a lack of fit-for-purpose water quality standards, regulations, and standard operating procedures for water transport. Besides, the current regulatory environment is complex; some rules are partly self-contradictory. As in other configurations, the transport of treated wastewater would need subsidies or financial incentives, and the firms involved in the offsite water reuse markets would need an industry-internal quality certification label and clear water quality benchmarks. Finally, RWAs might need financial incentives for retrofits to their DSTPs and/or incentives like tax rebates and GST waivers if they receive a high score in a 'green credits' system.

In the case of *Naya Neeru*, the key challenges revolve around the lack of fit-for-purpose water quality standards for diverse end uses and the insufficient regulations for water transport. This model needs particularly high financial investments and subsidies to build the transport infrastructure and retrofit DSTPs. Who would invest and how asset ownership would be divided between public and private actors are unresolved questions.

The cross-cutting barriers are the lack of coherent government guidance and supportive policies for water reuse from the national to local levels, a lack of government subsidies for DSTPs, and a lack of guidance on how treated wastewater should be priced.

Summary

Among the configurations, *My water, my control* has the most complex technical barriers in terms of developing efficient and affordable treatment trains and online monitoring systems that would guarantee consistently safe effluent quality.

It also faces user acceptance issues. At the same time, the business case and incentive structure is relatively clear for this solution, at least in an initial niche of high-income residential units that value 24/7 water resilience and stable water prices. How to scale beyond this niche is a core question, though, due to the still high costs that makes it prohibitively expensive for large parts of the population in Bengaluru.

The 50/50 model has the most complex systemic barriers, as its mix of on- and off-site reuse combines key challenges of both other models.

It requires reliable service water quality to be produced locally as well as a viable logistics model for selling excess treated water to offsite customers. A clearly specified and enforced water quality standard for 'service water' would have to be defined and customers of this quality (construction sites, industry, parks, etc.) would have to trust the water qualities delivered from multiple sources. At the same time, this model is closest to current practices and offers high and variegated market potentials.

***Naya Neeru*, in turn, has the highest need for water transport, so the lack of a viable *logistics model* is the most prevalent system barrier here.**

There are also unresolved issues around whether the system integrator should be a public or private entity, how it could be effectively regulated and potentially subsidised, and on how very diverse water qualities demanded by different industries could be defined, regulated and guaranteed. At the same time, this solution creates the most worry-free solution for RWAs, as they could completely outsource capital costs, operational costs, and water quality compliance to external actors. And end users in industry would have strong incentives to mobilise the investment needed to get the water qualities they need.

The discussions highlighted that there is no 'silver bullet' solution. Rather, there are three trajectories with specific opportunities and challenges.

This also implies that supporting each ideal-type solution implies very different courses of action for local companies, government and civil society actors. At this stage, it is thus worthwhile to further assess all three configuration's development potential.

4.3 Assessment of Each Configuration's Performance Under Different Scenarios

As a next step, we asked participants to assess each configuration's chance of success under the different future scenarios. To this end, stakeholders were allocated to new groups to assess how the three configurations would cope under a given scenario, and their drivers, barriers, and uncertainties. Participants were also asked to estimate the percentage of the DSTP market each configuration could cover in the three scenarios.

Scenario 1: Public-Private Partnerships (PPP)

In the first scenario emphasising PPPs, the 50/50 configuration was expected to accumulate the highest market share due to the relatively strong push from RWAs and local industries, both of which have an interest in making water reuse work. Given the important role that private actors and government bodies play in this scenario, fostering trust within the local ecosystem would be essential to successfully develop this configuration.

	My Water, My Control	50/50	Naya Neeru
Drivers	RWAs	RWAs and industry	Industry
Barriers	Potential interference from regulators, low trust in government bodies	Low trust in government bodies	Low trust in government bodies
Type of PPP	1. KSPCB works with a reliable company (auditor) on online monitoring (quantity/quality dashboard) 2. RWAs get subsidies from the government to implement more reuse, for e.g., if they score high in the online dashboard	1. The government enables tanker transport logistics and incentivises offsite water sales. 2. A public agency develops dashboards (documenting supply, sinks, quality control, company lists, etc.), which is widely trusted.	1. The government supports the water service firm financially and organisationally. 2. A public agency develops widely trusted dashboards (matching supply and demand, company lists, quality control). 3. Intermediaries connect the government with other actors.

	3. The government works with companies to streamline SOPs	3. Intermediaries connect the government with other actors.	4. The government invests in microgrids.
% of DSTP market	15%	50%	35%

Table 2: Different water reuse configurations' performance under the public-private partnership scenario

Naya Neeru and *My water, my control* would occupy smaller niche markets. In the case of the former, PPPs could, in theory, simplify the setup of a water service firm that collects treated water from STPs and sells it to industries. Yet, the overall drivers for industry-focused reuse practices were not deemed strong in this scenario. *My water, my control* could also profit from government subsidies, especially if 100% domestic reuse frees up Cauvery/borewell water for other uses.

Scenario 2: Water Self-Sufficiency

In the second scenario, a key qualification made was that the potentials of different configurations look different in the city core (zone 1), current peri-urban (zone 2), and future growth zone (zone 3). Overall, the *50/50* model was deemed to perform best in this scenario as well, while the potential of *My water, my control* and *Naya Neeru* is more restricted. The drivers and barriers of each solution vary more strongly than in scenario 1. A key advantage of *50/50* in this scenario is that it could work well in zones 1 and 2, while the other two models would be restricted to zones 2 and 3, which limits their overall scaling potential.

	My Water, My Control	50/50	Naya Neeru
Drivers	1. Self-sufficiency 2. Attractive for large RWAs in greenfield/new zones	1. Rising water costs 2. Irregular water supplies 3. Easy lake rejuvenation 4. Business opportunities	1. Greenfield projects 2. New technology and logistics 3. Business opportunities
Barriers	1. Public health concerns and the need for enforceable public health standards 2. High costs	1. Lack of technological/ transport innovation 2. Cost and space constraints 3. Consensus for upgrade from RWAs	1. Policy gaps for demand creation 2. Lack of suitable incentives enabling this model
Uncer-tainties	1. Technology and monitoring 2. O&M challenges 3. User acceptance	1. O&M and monitoring challenges 2. Quantification of recharge	Proximity of demand and supply

% of STP market	20% (concentrated in Zone 3)	70% (concentrated in Zone 1 and 2)	10% (concentrated in Zone 2 and 3)

Table 3: Different water reuse configuration's performance under the water self-sufficiency scenario. Note: The city has three zones: (1) central, (2) current peri-urban, and (3) future outer growth

A key driver for *My water, my control* in this scenario is that it provides RWAs with a 24/7 water supply, enabling water self-sufficiency. However, given the solution's high costs, it is expected to remain restricted to larger new developments on the city's outskirts (Zone 3). It is also expected to need significant progress in terms of technology, monitoring, and O&M approaches. *50/50* has a lot of interdependent drivers. For example, RWAs can gain a dual income from substituting tanker water supplies, while also selling excess treated water to nearby customers. A lack of logistics, models, and incentives for RWAs to upgrade their plants would have to be addressed, though. *Naya Neeru*, finally, is deemed to lack drivers. It appears feasible mostly in zones 2 and 3 and in places where RWAs and industrial customers are close to each other and have an interest in directly trading treated water.

Scenario 3: Industry as Lead User

In the third scenario, *Naya Neeru* has the largest market share, while the *50/50* configuration retains a relevant niche market and *My water, my control* is almost irrelevant. As the drivers for *Naya Neeru* are strong in this scenario, it was deemed likely that treated water would become fully commoditised and water trading integrated by a powerful water service firm. As industries have a strong incentive to invest into a water trading system to cover their water needs, RWAs get a worry-free solution, in which the aggregator firm upgrades their plants, organises logistics, and provides services in a 'pay for service' model, similar to the telecom sector.

In this scenario, the *50/50* model would work mostly in legacy systems that cannot be connected easily to the aggregator firm or in which the RWA has an interest to maintain profitable water trading arrangements with small businesses in the neighbourhood. *My water, my control*, finally, is expected to only serve a niche market of idealistic RWAs, which value water self-sufficiency and peace of mind. In most other cases, RWAs are expected to switch to the other solutions, as they could make higher revenues from selling the water to the water service firm or industries.

	My Water, My Control	50/50	Naya Neeru
Drivers, Barriers, Uncer-tainties	1. A small number of RWAs still run high quality DSTPs. 2. Most RWAs shift to configuration C to make	1. Few legacy systems continue in this model. 2. Geographic restrictions.	1. A water service provider (functional aggregator) is responsible for sending water both ways (on- and off-site reuse). 2. Combination of configuration A and C 3. Water truly commoditised: Aggregator: Large private firms, e.g. telecom.

	money by selling high quality water. 3. Some might still do full, high quality on-site reuse to maximise water security and have peace of mind. But costs will be high due to their small scales.	3. RWAs fear price hikes in configuration C 4. Infrastructure constraints 5. RWAs have adequate money to ensure quality for use in-house	4. Monopolisation is likely, so regulation might be needed to avoid price hikes. 5. Pay for service deal for RWAs (subscription-based) 6. Infrastructure needed: Metering, transport and grid. 7. Fit for purpose standards and pricing are in place.
% of STP Market	<5 %	20%	75%

Table 4: Different water reuse configuration's performance under the 'industry as a lead user' scenario

Summary

Based on this exercise, the key trade-offs become apparent:

1. *My water, my control's* overall scaling potential is the most limited in all three scenarios, as it is largely restricted to a niche market in affluent and remote parts of the city. However, it has strong drivers in Scenario 1 and faces a relatively confined set of barriers, primarily technical and acceptance-related.
2. *Naya Neeru* performs best in the 'industry as a lead user' scenario, but has a significant market share in the public-private partnership scenario, too.
3. *50/50* has the highest scaling potential overall, particularly in the public-private partnership and water self-sufficiency futures. However, it also faces the most complex systemic barriers to scaling.

At face value, *50/50* looks like the most promising and robust strategy for firms and government actors. Yet it is also the riskiest, given its complex mix of barriers. A smart future strategy may therefore be to continue developing all three trajectories in parallel, while first addressing the cross-cutting system bottlenecks that hamper them all. In the mid-term, cross-fertilisation across the three trajectories could play a key role in advancing the DSTP field as a whole. For example, robust online monitoring developed for *My water, my control* could subsequently become available for other trajectories too or a water aggregator could emerge that works both in the *50/50* and *Naya Neeru* configurations. Eventually, one configuration may 'win' and merit targeted support.

5. Key System Interventions

As a last step in our strategic planning exercise, stakeholders came up with concrete interventions that could improve the scaling prospects of safe, affordable, and efficient DSTP solutions across various configurations and scenarios. We identified 10 high-impact interventions:

1. Develop a local water reuse coalition.
2. Develop a training system and industry association for STP operators.
3. Creating a compendium of best practice systems.
4. Develop new financing models for DSTP installations.
5. Develop real-time DSTP monitoring solutions.
6. Develop low cost yet robust treatment systems.
7. Create an incubator for water reuse businesses.
8. Define fit-for-purpose water reuse standards.
9. Advocate for policy changes and regulatory alignment.
10. Implement a green credits system for RWAs.

Workshop participants agreed that forming a local water reuse coalition is the most crucial and impactful step, as improved coordination among the different parties would help address barriers in an integrated way. A water reuse coalition could make future interventions more coordinated and strategic, moving away from the current ad hoc approach. Many participants expressed keen interest in joining and/or contributing to such a coalition. Yet, how exactly it could be set up, financed and structured could not be discussed at the workshop. The WaterReuseLab project team has thus developed a proposal for how such a coalition could be structured. The ideas outlined below are suggestions intended for further discussions among stakeholders in the next workshop.

5.1 Developing a Local Water Reuse Coalition

The Bengaluru water reuse coalition would be composed of key stakeholders—civil society, research organisations, STP vendors and operators, builders' associations, and regulators—to jointly address scaling barriers. A core group would establish and coordinate the coalition's main activities, organised into three specialised task forces focused on the action items listed above. A potential coalition structure is shown in Figure 6 below.

Core Group

The core group would comprise intermediary actors that already fulfil a coordinating role in the decentralised water reuse ecosystem in Bengaluru. Members of organisations that were part of the workshops, like the Bangalore Apartments' Federation, WELL Labs, or Biome, are potential candidates, but the list is by no means expansive.

The main tasks of the core group are as follows:

1. Secure stakeholder buy-in for the coalition.
2. Develop a 2035 vision for decentralised water reuse in the city and a roadmap for how to get there.

3. Develop a city-wide wastewater reuse blueprint. This involves mapping current and future decentralised and centralised water reuse systems across the city and how they could be integrated in a holistic plan
4. Manage and structure the daily operations of the coalition and monitor progress on key action items in its task forces
5. Fundraise for expanding coalition activities, developing pilots, and supporting research. The coalition will explore funding sources such as government subsidies, venture capital investment, or grants.

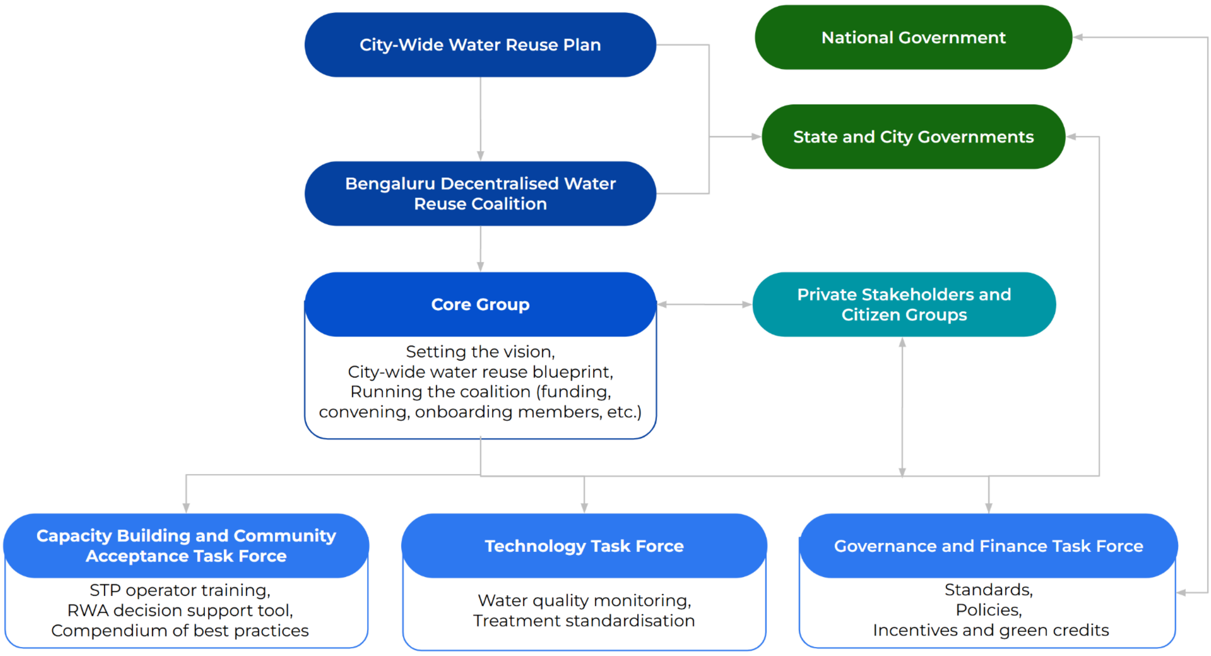

Figure 6: Potential structure of a water reuse coalition in Bengaluru

5.2 Potential Task Forces and Their Action Items

We also propose creating three thematic task forces—1) Capacity building, 2) Technology development, and 3) Governance—to implement the interventions listed above. These task forces would identify key problems in their domains, co-create solutions with the right partners, and swiftly implement them.

1. Capacity Building and Community Acceptance Task Force

It would train stakeholders and empower them with tools and data to make better decisions related to DSTP installation, operation, and management. The task force would take on the following actions:

a. Develop a training and certification system as well as an industry association for STP operators.

One of the biggest barriers to the efficient operation and maintenance of DSTPs in Bengaluru is the lack of proper and regular training for STP operators. Current training programmes are largely theoretical, keeping operators away from their jobs for long times and with limited opportunities for hands-on experience. We need to transform them into practical, experiential programmes that strengthen skills and build trust in certification. Several public and private stakeholders, such as EMPRI and Greentivity, have voiced interest in championing this intervention and mentioned that it could be combined with establishing an industry association for DSTPs in Bengaluru and beyond.

b. Create a compendium of best-practice case studies.

This intervention focuses on developing a rich library of best-practice case studies drawn from Bengaluru's leading DSTP projects. This compendium of case studies should be fully searchable and filterable, allowing users to look up successful systems by technology type, plant size, management model, reuse application, or investment cost, and view real-world performance data.

c. Develop an RWA strategy tool.

An intervention not explicitly discussed at the workshop, but under development in the WaterReuseLab project is developing a strategy tool that supports RWAs and developers in making more informed choices for DSTP upgrades or new installations. The tool will lead the user through a multi-step process to assess current DSTPs and choose among different investment options and future water scarcity scenarios. At the end of the process, a return on investment calculator provides users with an assessment of the monetary and environmental/social benefits of various DSTP investment options.

2. Technology Task Force

The second task force would be responsible for driving technological innovations in treatment and monitoring approaches. The main initial actions are as follows:

a. Develop real-time DSTP monitoring solutions.

Monitoring the treatment process and the treated water quality is essential to advance safe water reuse, both for on- and off-site customers. To deliver scalable, cost-effective monitoring solutions, we need substantial technology development, including robust and cheap treatment systems whose operations can be monitored through simple surrogate measures, as well as developing machine learning models for water quality tracing, optimisation, and preventive maintenance. Further, developing online monitoring systems tailored to specific on- and off-site reuse purposes can help boost reuse.

b. Develop lower cost, yet robust treatment systems.

An advanced treatment system such as ultrafiltration, designed as a plug-and-play solution, can be retrofitted into existing STPs as a post-treatment module or implemented as a point-of-use (POU) unit. Such systems are essential for removing pathogens and other contaminants of concern specific to the reuse application, improving treated water quality, and increasing water reuse rates. Additionally, addressing storage conditions and the lag between treatment and reuse can help enhance safety and prevent recontamination during storage and/or transport prior to reuse.

c. Create a startup incubator programme.

The technological improvements outlined above can only be achieved if innovative firms in the DSTP business receive more funding. Public and private entities could develop incubation programmes to support a more diverse business ecosystem. Such programmes also help identify and raise awareness regarding bottlenecks in the water reuse value chain that market players face, enabling startups to innovate on DSTP (re)design, operations and maintenance procedures, and water quality monitoring. Masterclasses for and mentorships from industry experts, leading researchers, and potential customers could help refine these solutions during development and enhance their market readiness.

3. Governance and Finance Task Force

The core mandate of the third task force is to develop policies, regulations, and standards that create regulatory and financial incentive structures to drive the scaling of safe, efficient, and reliable decentralised water reuse systems. Some of the key initial actions are:

a. Define fit-for-purpose water reuse standards.

We need to establish fit-for-purpose standards that specify what quality of treated water is needed for what end uses. This setting of standards is a global challenge, including for similar initiatives in Europe and the US. It could take inspiration from the 'risk-based framework' established in the US and tailor it to Bengaluru's context. Relevant discussions could be organised within the Building Infrastructure Locally for Decentralized Water Systems (BILD) initiative. In parallel, the task force could push for standardisation at the national level. Standard development is concentrated in national government agencies (Central Pollution Control Board, Bureau of Indian Standards, and Central Public Health and Environmental Engineering Organisation), but clear and comprehensive standards for all relevant water reuse purposes are lacking.

b. Advocate for policy changes and regulatory alignment.

Collaborate with BWSSB, KSPCB, and other relevant government bodies to update policies, eliminate contradictory water quality regulations, set standardised tariffs/rates for treated water, and promote treated water reuse.

c. Implement a green credits system.

Bengaluru currently lacks formal incentives to encourage water reuse. Apartment complexes that invest in advanced treatment systems and maximise on-site reuse receive no financial benefits. Meanwhile, those that do not follow reuse policies face no penalties. We need to design and pilot a green credits system that would reward RWAs and entities excelling in water reuse (for example, through property tax rebates, reduced service fees, public recognition, etc.). Green credits would be awarded based on measurable factors such as the volume of water reused, adherence to water quality standards, or the consistent operation of treatment systems.

d. Create new financing models for DSTP installations

A key barrier in terms of funding is the ability of RWAs to pay the upfront capital cost needed to upgrade DSTPs. To overcome this issue, we require innovative financing models, in which firms make upfront investments and, in turn, generate revenue through long-term sales contracts of the treated wastewater.

6. Outlook: How to Further Develop Decentralised Water Reuse in Bengaluru?

Decentralised water reuse could play a key role in addressing Bengaluru's water crisis. To fully unlock this potential, we need to shift from the current fragmented, ad hoc way of coordinating the local DSTP ecosystem to a more coordinated and strategic system-building approach. Such a transformation will require sustained collaboration across multiple stakeholders and sectors.

With its active and engaged ecosystem of water technology specialists, government bodies, NGOs, and private sector actors who already collaborate, share knowledge, and advocate for regulatory change, Bengaluru is uniquely positioned to become a global lighthouse for decentralised water reuse. The foundation for coordinated system building is thus in place, and a critical window of opportunity exists to harness these networks and advance water reuse initiatives consistently within the city and beyond.

The current moment is ideal to form a water reuse coalition and prepare for the next drought, which will refocus attention on decentralised water reuse systems. The WaterReuseLab project team and its partners are confident that establishing such a coalition, with a shared agenda and concrete action items, would enable Bengaluru and its stakeholders to become global leaders in innovative urban water reuse. The economic, environmental, and social benefits that could result from this endeavour would more than justify the initial investment required to launch and sustain it.

We envision that this document, along with subsequent reports and outputs from the WaterReuseLab project, will provide essential guidance for the strategic planning and setting up of the coalition. Through concerted efforts and collaboration, Bengaluru can be recognised not just as a Silicon Valley for IT innovation but also as a global reference point for highly innovative water reuse solutions.