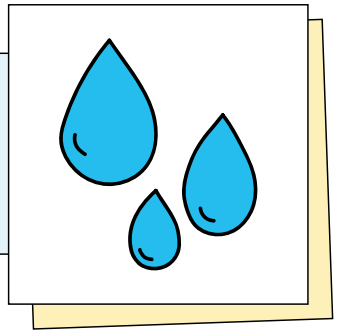
C40 WATER SAFE CITIES ACCELERATOR



Increasing urban resilience to water-related climate impacts

SIGNATORY CITIES

Buenos Aires, Bogotá, Copenhagen, Freetown, Fuzhou, Jakarta, Lisbon, Los Angeles, Milan, New Orleans, New York City, Oslo, Phoenix, Quezon City, Quito, Rio de Janeiro, São Paulo, Rotterdam, Tokyo, Tshwane

COMMITMENTS

Core Commitment: Protect the city's most vulnerable communities at high risk of flooding and drought by 2027 (or 4 years after joining the Accelerator) by

- Establishing early warning systems in the most vulnerable areas where communities face a high-risk of flooding and drought
- Developing emergency responses to protect all people during critical events with actions such as ensuring safe and accessible shelters and provision of basic needs

Universal Access Pathway: Achieve equitable universal access to clean water efficiently by 2030 by

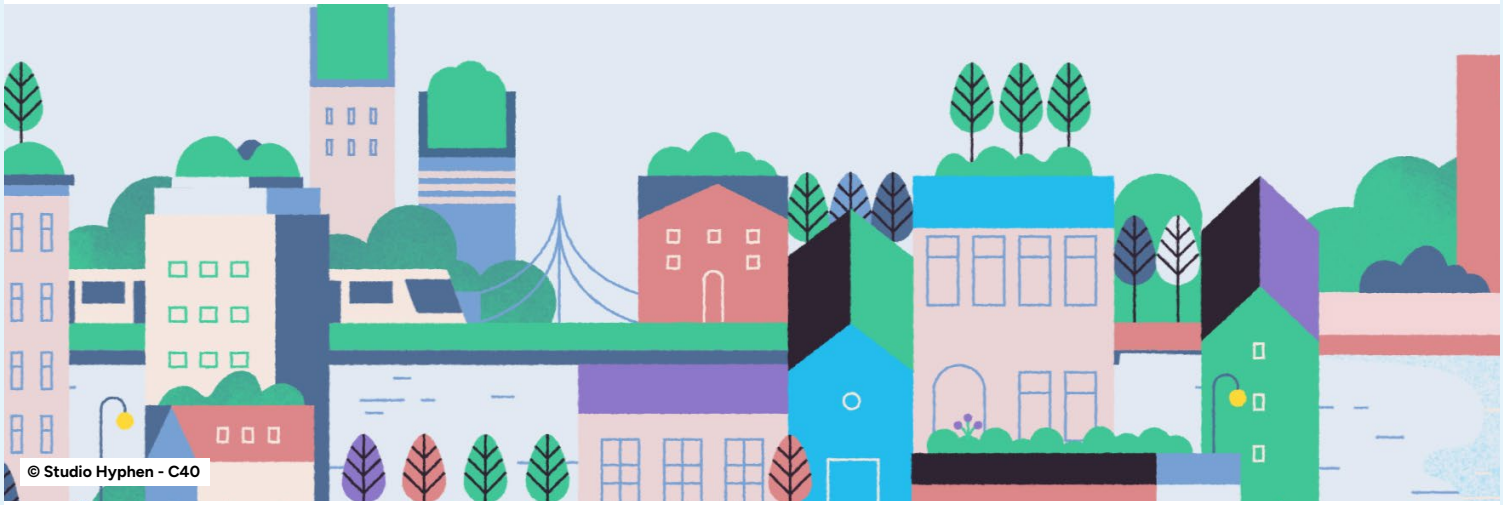
- Reducing at least 20% of water demand
- Increasing at least 15% of water supply

Flood Reduction Pathway: Safeguard people and the city's critical infrastructure from major flood events by 2030 by

- Increasing at least 20% of stormwater retention and infiltration to significantly reduce flood risk by 2030
- Restoring at least 3 of the city's water bodies to significantly reduce flood risks and improve water quality

Net Zero Pathway: Achieve net-zero greenhouse gas emissions in city water and wastewater systems by 2035 by

- Meeting 100% of total annual energy consumption of the water and wastewater system by renewable energy sources
- Capturing and utilising at least 50% of biogas from wastewater plants



SUMMARY

Urban areas are increasingly vulnerable to water-related climate impacts, which account for 90% of global disasters. The **C40 Water Safe Cities Accelerator** was launched in 2023 to help cities address the challenges of too much, too little, and too polluted water. In the first two years of the Accelerator, **20 global cities** have become signatory cities, taking ambitious action to transform their water systems and safeguard their communities. As signatory cities, they pledge to protect their most vulnerable populations from the high risks of flooding and drought, and commit to at least one of three pathways – achieving equitable universal access to clean water by 2030, safeguarding critical infrastructure from major flood events by 2030, and achieving net-zero greenhouse gas (GHG) emissions in city water and wastewater systems by 2035.

All signatory cities are working to protect their most vulnerable communities by establishing early warning systems and developing emergency response measures. **Lisbon** has established 86 new evacuation points and an SMS alert system for real-time warnings, while **Quito** and **São Paulo** both implemented their first-ever early warning systems. **Tshwane** has increased personnel to strengthen its emergency response capacity.

Signatory cities to the universal access pathway are committed to decreasing water demand and/or increasing water supply. To reduce demand for potable water, **Lisbon** is using reclaimed water for street and green space maintenance. To increase supply, cities including Tshwane have upgraded their distribution systems for better efficiency, and **Jakarta** is expanding its waterpipe network to guarantee more residents have access to clean water.

Cities are taking action to safeguard people and infrastructure from major flood events by increasing stormwater retention and/or restoring urban water bodies. **Milan** has integrated sustainable urban drainage systems (SUDS) to reduce flood risk, and **Rotterdam** has similarly transformed several streets and squares to create more permeable surfaces and retention ponds. To progress on restoring water bodies, **Quezon City** has developed a Water Quality Management Plan with clear actions to test, monitor, and improve the quality of its main rivers. In line with this pathway, **Oslo** has done work to open streams, such as with the Klosterenga park which supports water retention.

On the net-zero pathway, cities are committed to powering their water and wastewater systems with renewable energy and/or capturing biogas from their treatment plants. **Los Angeles** is actively working to increase the share of renewable energy used in its water and wastewater systems. Meanwhile, **Copenhagen** has enhanced its technology to capture more biogas at the Damhusåen wastewater plan, and in a similar effort, **Bogotá** is constructing a new treatment plant, Canoas, specifically designed to capture and utilise biogas in its water treatment procedures.

These ambitious actions are crucial for building resilience against climate change, and are delivering tangible benefits that improve residents' quality of life. From ensuring safer, more reliable access to clean water to strengthening defenses against extreme weather, these efforts are creating more sustainable and liveable urban environments.

IMPACT

This inaugural reporting period for the C40 Water Safe Cities Accelerator reveals ambitious commitments and significant early progress from signatory cities.

Key takeaways from the first year of reporting include:

Protecting frontline communities: As outlined in the Accelerator's core commitment, cities are prioritising the safety of their most vulnerable communities. Over 50% of signatory cities have progressed towards establishing crucial early warning systems in high-risk areas and developing emergency response plans to protect people during flood or drought events. Actions reported include strengthening forecasting and alert dissemination and improving emergency protocols.

Safeguarding water supply: A high percentage of signatory cities to the universal access pathway are making progress on managing water resources, with 90% advancing towards increasing their water supply, and 70% actively working to reduce water demand. Practical steps taken by signatory cities include diversifying water sources, upgrading infrastructure, and implementing leak detection to conserve water.

Enhancing flood resilience: To protect communities and critical infrastructure from major flood events, cities are progressing toward their goal of increasing stormwater retention and infiltration. 70% of signatory cities are actively working on projects like installing retention basins and rain gardens to help their city absorb water to reduce flood risk.

Decarbonising water systems: Signatory cities to the net-zero pathway are demonstrating best-practice in powering their water operations with renewable energy and utilising biogas from wastewater. This includes increasing their renewable energy production capacity and optimising technologies to capture wastewater biogas.

Overall, signatory cities have quickly moved from commitment to action, implementing a diverse set of solutions to deliver a water-safe future for their residents, from early warning systems and emergency preparedness to green infrastructure and energy system upgrades.

TURNING COMMITMENT INTO ACTION

Core Commitment: Protect the most vulnerable communities at high risk of flooding and/or drought

Lisbon has deployed an advanced flood sensor system, with 10 sensors strategically placed in high-risk areas, including road tunnels, metro stations, and other low-lying zones. The system provides civil protection authorities with a 15-minute lead time, enabling an efficient and coordinated response to stop traffic, close metro stations, and activate water pumps. This technology helps to protect the 9.8% of the total city population who live in these areas, reducing the risk of both economic and human losses. In a further commitment to flood prevention, the city plans to install 50 new sensors in coastal regions, river valleys, and other low-lying areas.

Pathway 1: Achieve equitable access to clean water efficiently

Fuzhou has established 43 key monitoring areas in the city's most critical districts, where it has deployed a total of 204 leak detection devices, including acoustic water listeners and noise recorders. These devices detect the unique sounds of escaping water from underground pipes, allowing for the rapid warning, investigation, and precise location of leaks.

Pathway 2: Safeguard people and the city's critical infrastructure from major flood events by 2030

New York City addressed flood risk and combined sewer overflow by installing 100,000 square feet of porous pavement in Brooklyn in 2024. This new permeable area allows stormwater to drain into the ground, reducing the volume of water entering the sewer system. For every one-inch rainfall event, this infrastructure can manage approximately 62,317 gallons of stormwater. As part of its green infrastructure strategy, the city plans to add an additional 500,000 square feet of porous pavement in Brooklyn by the end of 2026, with projects also planned for the Bronx.

Pathway 3: Achieve net-zero greenhouse gas emissions in city water and wastewater systems

Copenhagen increased its biogas utilisation in 2024, driven by a new thermal hydrolysis process at the Damhusåen wastewater plant. This upgrade delivered increased biogas production from the same amount of organic waste, a key part of the city's push for a climate-positive and circular economy. The new process contributed towards a 5.59% increase in biogas captured and utilised, rising from 12,337,681 Nm^3/year in 2023 to 13,027,242 Nm^3/year in 2024. This gas is then used in the city's gas network for cooking, improving overall efficiency and reducing reliance on fossil fuels.

INSPIRATION

Copenhagen's pioneering Cloudburst Management Plan has become a model for other cities facing increased flood risk due to heavy rain. Developed collaboratively with municipalities, utility companies, and other stakeholders, the multi-year plan makes a strong economic case for using combined blue-green solutions, like parks and permeable roads, alongside traditional sewer systems. The city has since collaborated with other C40 cities, including **São Paulo** and **New York City**, to help them create their own flood management strategies.

Lisbon is actively implementing its Strategic Water Reuse Plan and is now looking to a range of global cities to help improve and scale up its efforts. The city is learning from best practices in cities like **Austin**, which measures demand for both potable and non-potable water and plans for a more circular water system. It is also studying **Phoenix**, which has successfully expanded the uses of its recycled water. In turn, Lisbon is sharing its own experience in managing water for green spaces with other cities, such as **Fortaleza**, fostering a collaborative approach to urban water resilience.

COLLABORATION

Tshwane has significantly strengthened its disaster risk governance by fostering collaboration across departments and with a wide range of stakeholders. The city's Disaster Management Plan is fully integrated into its main Integrated Development Plan, ensuring that risk reduction strategies are coordinated across various municipal departments and projects, from budget planning to infrastructure management. This comprehensive approach is supported by a quarterly Municipal Disaster Management Advisory Forum, which brings together public and private stakeholders and NGOs. Additionally, Tshwane has established a Community Emergency Response Team to train volunteers, further extending its collaborative network and enhancing community preparedness for hazards like flooding and drought.

Quito is working to enhance water supply management and distribution during emergencies by successfully integrating institutional and community efforts. The Metropolitan Public Water and Sanitation Company (EPMAPS) and municipal civil protection units, specifically the Metropolitan Directorate of Risk Management, have partnered to build capacity across the city by developing and delivering a train-the-trainer programme for officials on humanitarian standards. This is complemented by direct capacity-building and simulations for residents, managed through local Community Risk Management Committees (CRMCs). These partnerships align technical preparedness with grassroots organisational capacity for fair and equitable distribution. The power of this collaboration was demonstrated during a major water emergency in July 2025, where the active involvement of the CRMCs was essential in managing and ensuring the equitable supply of water to approximately 5,500 people daily using alternative methods like portable bladders. This initiative is supported through C40's Inclusive Water Resilience Accelerator Fund.

EQUITY AND INCLUSION

Rio de Janeiro is implementing a community-based early flood warning system (CBFEWS) as part of its Climate Action Plan, in response to severe flooding risks in the Acari river basin. The system is designed to reduce disaster risks and strengthen the resilience of frontline communities. The system actively engages local residents in data collection, information dissemination, and training sessions, ensuring that communities are key stakeholders in both preparedness and response. By empowering residents with knowledge and tools, the CBFEWS enhances local flood response capabilities and builds long-term community resilience. This initiative is supported through C40's Inclusive Water Resilience Accelerator Fund.

São Paulo is currently implementing a project to advance environmental education in four vulnerable areas of the city. Community members will participate in a tailored training programme to become Environmental Monitoring Agents, contributing to climate resilience and water security. The initiative raises awareness of ecological issues, builds knowledge of local environments, and develops skills for community-based problem-solving and transformative action. Training local leaders as environmental education agents strengthens knowledge dissemination, fosters community empowerment, and motivates broader participation in sustainable practices. The project also supports green job creation, through the hiring of four environmental education agents, and is delivered through C40's Inclusive Water Resilience Accelerator Fund.

CHALLENGES

Cities highlight a lack of financing as a major obstacle. The high cost of new water infrastructure, coupled with the need to upgrade existing, ageing systems, presents a significant financial burden. This is further complicated by the expensive technology required for effective early warning systems and other advanced solutions.

Cities also face complex governance and coordination issues. Unclear water management roles between local governments, national governments, and utility companies can create policy hurdles and slow down progress. This is especially true for cross-departmental coordination needed for emergency response, and for cities that lack power over the upstream areas where their water resources are located.

Cities must also contend with practical and social challenges, including growing water demand due to population growth, a lack of physical space to implement large-scale nature-based solutions for flood reduction, and public acceptance of using reclaimed water. Additionally, in some cases, mitigation is prioritised over adaptation, which can delay essential protective measures. Finally, many cities are forced to deal with the impacts of pollution from upstream activities, a challenge often beyond their direct control.

HOW CITIES ARE STEPPING UP THEIR ACTION

The next five years demand ambitious and targeted action to make cities water safe by 2030. All cities will continue to work towards the core commitment of protecting the most vulnerable populations through early warning systems and emergency preparedness. Cities are working to significantly improve forecasting and monitoring capabilities, exemplified by **Buenos Aires'** ongoing efforts to design a dedicated hazards monitoring centre and **Tokyo's** work to expand observation capabilities such as river surveillance cameras to support early warning systems.

Cities will enhance water security by driving down demand through methods like leak detection and behaviour change, and by increasing supply via infrastructure upgrades and diversification, such as **Freetown's** plan to construct new dams. Simultaneously, cities will continue to safeguard people and critical infrastructure from major floods through innovative projects that focus on retention and infiltration, like **Quezon City's** water-storing basketball courts and **New York City's** use of porous concrete. Cities will also continue to address flood risk through water body restoration, such as **New Orleans'** 'living shoreline' project to restore natural wetlands. Additionally, cities are focused on achieving net-zero greenhouse gas emissions in water and wastewater systems by 2035, concentrating on 100% renewable energy use and biogas capture. Cities won't have to navigate these challenges alone. Through knowledge-sharing and the exchange of best practices within the Urban Flooding and Water Security networks, combined with tailored technical assistance, cities will receive the support needed to achieve their Accelerator commitments. By building upon this progress and collaboration, signatory cities can make significant strides towards a water safe and resilient future for all their residents by the end of the decade.

FUTURE ACTION

Rotterdam is implementing 50 street-level projects between 2022 and 2026, including the renovation of 15 city squares. These initiatives are part of the 'Rotterdam Goes Green' agenda and climate adaptation efforts, aiming to increase permeable surfaces and integrate nature-based solutions like rain gardens and retention ponds. These solutions are designed to mimic the natural dynamics of soil, allowing stormwater to infiltrate the ground, recharge the aquifer, and slowly release water to waterways. This approach prevents the oversaturation of the drainage system during heavy rainfall, effectively reducing both urban flooding and combined sewer overflows.

Quezon City is launching a three-year project to address high storm runoff by integrating rainwater harvesting systems and detention basins into 138 basketball courts and open spaces. The Rainwater Harvesting Detention Basins Project will be implemented in 50 priority barangays and is a collaborative effort between the city's Engineering Department and partners including the Parks Development and Administration Department, the Department of Public Works and Highways, and the Metropolitan Manila Development Authority.