

Safe and Resilient Water Supply for Western Cities - Integrating Climate Resilience into Water Safety Plans of the Ambatale Water Supply Scheme (AWSS)



Funded by:	Infrastructure Resilience Accelerator Fund (IRAF) under Coalition for Disaster Resilient Infrastructure (CDRI) with financial support from the Government of India
Budget:	USD 469,232
Implemented by:	UN-Habitat
Duration:	24 Months (Oct 2025 - Oct 2027)
Partner:	National Water Supply & Drainage Board (NWSDB)
Location:	Colombo, Kotte and Kelaniya

Background

Urbanization in the Colombo, Kotte, and Kelaniya municipal areas is characterized by rapid sprawl and ribbon development along major roads, leading to the merging of these areas into a single metropolitan region with the highest population density. Key trends include population expansion, increased industries, residential and commercial development. These Urban Local Bodies (ULBs) are the largest water consumers and polluters of the Kelani River basin and are at the highest risk of negative socio-economic impacts due to poor water quality and system failure from climate induced disasters.

The Kelani River basin receives around 3,400–3,450 mm of rainfall annually, resulting in floods which affect physical infrastructure, increase turbidity and pollution from natural and anthropogenic sources upstream, negatively impacting the Ambatale Water Supply Scheme (AWSS) and Biyagama Water Supply Scheme (BWSS). During drought, low flow rates increase concentration of pollutants in the downstream area of impact and push the salinity wedge upstream, increasing salinity and pollution at the intake of AWSS and BWSS. These climatic impacts increase water treatment costs and result in increased disruptions to water supply for maintenance of the system, which negatively affects access to water and water tariffs.

The Project

This project aims to improve the catchment management capacities of Urban Local Authorities in Colombo, Kotte and Kelaniya and the early warning capacities of the NWSDB to increase the resilience of operations and maintenance of the AWSS and BWSS, protecting it from climate change induced floods and droughts. This project will support NWSDB to align with Edition II of World Health Organization's Water Safety Plan Manual enabling upscaling at national level.

The project is expected to benefit 1.2 million residents in the Urban Local Authorities of Colombo, Kotte and Kelaniya and a commuter population of 1 million, through improved quality of life through uninterrupted access to safe water. It is also expected to improve resource efficiency and business continuity of the AWSS through lowered operating

costs, reduction in breakdowns and damage to equipment, infrastructure and extended lifespan of assets due to early warning systems.

Output 1: Catchment assessments, real-time water quality monitoring system (sensors, database), and decision support tools.

Output 2: Evidence-based catchment management plan addressing floods, droughts, and pollution.

Output 3: National Standard Operating Procedures (SOPs), training modules, and case studies for scaling climate resilience into water safety planning nationwide.

Key Project Deliverables

- Catchment Assessment Report
- Catchment database integrating geographic, climatic, hydrological, socioeconomic, environmental, and infrastructure data
- Early Warning system including water quality monitoring system aligned with “US EPA online water quality monitoring protocols” and evidence-based decision support system
- Catchment management plans
- Case Study themed “Integrating Climate Resilience in Water Supply in the Kelani River Basin”
- National Standard Operating Procedures (SOPs) for Integrating Climate Resilience into WSPs
- Training programme for implementing SOPs for NWSDB and ULB officials and training programme for ULBs and NWSDB officials on leveraging investment for climate resilient water infrastructure

Implementation methodology

The project is jointly implemented by UN-Habitat and NWSDB. NWSDB serves as the lead implementing partner, responsible for real-time water quality monitoring, development of the Decision Support System, development of Standard Operating Procedures, and scaling up activities to 340 water supply systems nationwide. NWSDB is also contributing a co-financing commitment of USD 10,000 for the procurement of a sensor system. UN-Habitat provides overall coordination, technical guidance, and quality assurance, ensuring alignment with national and global standards for climate-resilient water quality management. Key outputs including catchment assessments, databases, and catchment improvement plans will be delivered via a national consultancy team under UN-Habitat’s technical supervision. It will also develop training modules and conduct sessions for ULBs and NWSDB officials on leveraging investments and creating bankable, climate-resilient water infrastructure projects.

Other key project stakeholders include the Urban Local Authorities of Colombo, Kotte and Kelaniya; Urban Development Authority; Irrigation department; Disaster Management Centre; National Building Research Organization; Central Environmental Authority; Department of Wildlife Conservation; Forest Department and selected NGOs and CBOs.

Expected Benefits

- Safe and uninterrupted water supply during extreme weather events including floods and droughts
- Reduced operational and management costs and treatment costs for NWSDB
- Reduced tariff burden particularly on urban poor communities
- Technical advancement of Ambatale Water Supply Scheme and Biyagama Water Supply Scheme
- Increased knowledge and skills of NWDB and Urban Local Authority officials
- Scalability to over 340 other water supply systems operated by NWSDB

Contact Us:

United Nations Human Settlements Programme (UN-Habitat),
UN Compound, 202-204, Bauddhaloka Mawatha, Colombo 7, Sri Lanka.
Tel: +94 11 2580691 Email: info@unhabitat.lk
Website: <https://unhabitat.lk/>