



Technical Assistance: Enhancing the resilience of water supply system by modelling drought risks and developing a roadmap of prioritized alternatives for aquifer recharge
Location: Greater Paramaribo and Coastal Areas
Solution: Drought risk assessment and aquifer recharge roadmap using Geographic Information Systems (GIS) and advanced hydrological modelling
UNEP CTCN grant: USD 193,050



Collection of water sample from the Para River for water quality analysis © UNEP-CTCN

Suriname faces increasing drought risks, threatening water security and agricultural productivity, particularly in the Greater Paramaribo area. To address this, a comprehensive drought risk assessment was conducted, and an aquifer recharge roadmap was developed. These solutions, combined with advanced hydrological models, aim to sustainably manage groundwater resources and ensure water availability during dry periods, enhancing the country’s resilience to climate change.



Objectives

- The primary objective is to improve water security in Suriname by conducting a drought risk assessment, mapping aquifers, and designing a sustainable system for aquifer recharge.
- By identifying and prioritizing recharge sites, the project ensures that the country can maintain a reliable water supply even during periods of drought.



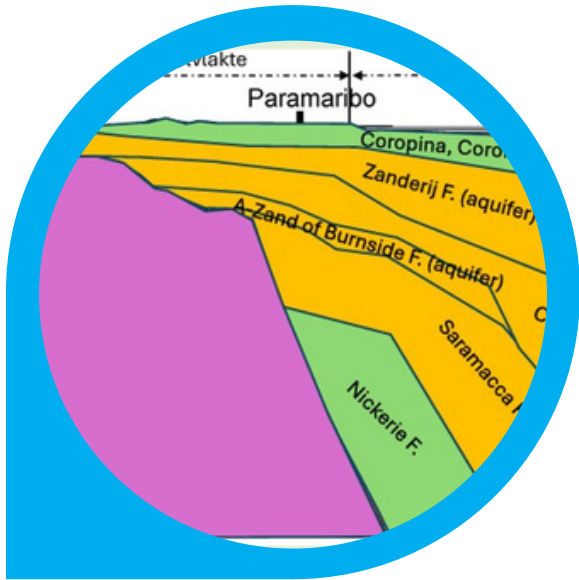
Social Impact

- The project directly benefits around 350,000 people by improving access to reliable and safe water supplies, particularly during droughts.
- Indirectly, approximately 634,000 people across Suriname benefit from strengthened groundwater management and protection measures.
- These improvements have significant impacts on public health, food security, and economic stability.



Adaptation Impact

- **Enhanced Water Security and Drought Resilience:** The project strengthens Suriname’s capacity to manage water resources effectively during droughts by developing a system for aquifer recharge. This reduces the vulnerability of water supplies to climate variability and ensures a reliable water source for the population.
- **Sustainable Groundwater Management:** By mapping and analyzing aquifers, the project supports the sustainable management of groundwater resources, protecting them from over-exploitation and saline intrusion, which are critical issues in coastal regions.
- **Increased Community Resilience:** The project improves community resilience by ensuring a stable water supply during dry spells, reducing the risk of water shortages and enhancing overall quality of life.



Other Co-Benefits

- Reduced risk of saline intrusion into groundwater sources
- Improved management of water resources
- Strengthened community engagement in sustainable water practices
- The project also promotes gender equality by involving women and marginalized groups in water management decisions, building local capacity, and ensuring their needs and knowledge are integrated into planning and implementation processes.



Innovation & Technology

- GIS-Based Drought Risk Mapping: Use of GIS technology to assess drought risks and identify areas most vulnerable to water shortages.
- 3D Aquifer Mapping: Application of 3D mapping techniques to provide detailed insights into aquifer characteristics and identify the most suitable sites for recharge.
- Advanced Water Conservation Technologies: Implementation of water-saving measures and technologies tailored to Suriname's specific environmental and climatic conditions.



Replication Potential

- The project can be replicated in drought-vulnerable contexts to strategically ensure reliable water supply during droughts. By conducting risk assessments in parallel with identifying aquifers suitable for recharge, the project can help address risks of scarcity even in contexts with highly limited water resources.

Key Figures

- USD 193,050 project budget
- Direct beneficiaries: ≈ 350,000 people
- Indirect beneficiaries: ≈ 634,000 people
- 4 different key experts were engaged in project implementation
- 7 government ministries engaged in project implementation and oversight
- The project contributed to the following SDGs:

