

Stories of Impact

A series highlighting achievements in disaster risk management

Making Senegal's Cities More Flood-Resilient



REGION: AFRICA
FOCUS: RESILIENT RECOVERY
COUNTRY: SENEGAL



RESULTS:

- Building on GFDRR support since 2012, the World Bank, the Nordic Development Fund, the Global Environment Fund, and the government of Senegal have invested over \$70 million in the Storm Water Management and Climate Change Adaptation Project (PROGEP).
- Drainage/reservoir system carried out by PROGEP have helped protect almost 100,000 people and more than 400 hectares from flooding during the 2015 rainy season.
- A drainage master plan has been prepared for the peri-urban areas covering more than 60% of Dakar's population, and drainage channels designed for year-round use have helped to significantly reduce the groundwater level.

Flooding has become a major problem in Senegal's cities, a trend exacerbated by rural-urban migration and a lack of access to drainage and sewage infrastructure.

Recognizing these risks, the Global Facility for Disaster Reduction and Recovery (GFDRR) began to engage with the Senegalese government in 2008, supporting a Spatial Analysis of Natural Hazards and Climate Variability Risks Project and the country's first-ever Post-Disaster Needs Assessment (PDNA). The PDNA's recommendations laid the groundwork for the Storm Water Management and Climate Change Adaptation Project (PROGEP), with support and funding from the World Bank, the Nordic Development Fund, and the Global Environment Fund.

CONTEXT:

Flooding is one of Senegal's main sources of disaster risk, often affecting low-income groups in cities. The growth of urban populations has led to construction of informal settlements in low-lying areas on the outskirts that have limited soil absorption capacity. These areas lack drainage infrastructure, which further increases flood risk. Access to public sanitation services is low, at 39%, and 74% of households in coastal areas are vulnerable to erosion, an issue which is being exacerbated as sea levels rise and storms become more intense. Sea levels are projected to rise by up to one meter by 2100, putting more than 100,000 people in low-lying areas at risk.

APPROACH:

PROGEP, building on the recommendations of the GFDRR-supported PDNA, is tackling the causes of flooding and addressing weaknesses with Senegal's DRM efforts by:

- Integrating climate risks into urban planning and management, particularly in terms of enforcement tools to prevent floods, reduce vulnerability, and increase urban resilience to climate change.
- Managing and investing in drainage systems, with the aim of establishing drainage systems in Dakar's peri-urban areas and ensuring that they are functional.
- Empowering local municipalities, residents, and community groups to engage in flood-risk reduction measures and climate change adaptation by piloting the development and implementation of community investments in participating areas.
- Developing and operating a monitoring/evaluation system and supporting all fiduciary requirements including safeguards, procurement, and financial management.

The first detailed Urban Master plan of the country including flood prone areas mappings and related restrictions about settlements have been also prepared for the project intervention areas. The PROGEP is part of the GEF "Sustainable Cities Program" representing Senegal to this global program. This pilot initiative under the PROGEP co-funded by the GEF, the NDF and the WB aims to improve planning and management capacities at local and national levels, increase knowledge and partnership on sustainable cities and climate resilience and strength national urban policy framework for sustainable cities model.

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*ALL MONETARY VALUES IN USD



"We left our homes because our limited resources were not enough... to cope with such severe flooding. Thanks to the project, we have returned and are proud to live in a neighborhood with paved streets and drainage infrastructure... We are committed to mobilizing our community to maintain them."

– Aminata Fall, resident of Wakhinane Nimzatt

NEXT STEPS:

Moving forward, the project will help to consolidate Senegal's risk management capacity through the development of urban planning and management including climate risks projections, geographic information systems tools, implementation of a community engagement action plan for floods risks reduction, strengthening DRM financing mechanisms, implementing a sustainable cities pilot project as model for promoting urban resilience in Senegal, and support for a national coastal zone protection strategy.

Senegal's government has embraced PROGEP, requesting the GFDRR and the World Bank's help to bring in other partners to support a similar approach at a national level.

LESSONS LEARNED:

Make use of natural waterways and gravitational drainage to address flooding. These offer significant benefits in terms of the environment, cost, and sustainability. Pumping stations are expensive and may not be an appropriate choice.

Low-lying areas that are susceptible to flooding need to be protected from informal settlement, and community investments can help integrate drainage networks into urban areas. If an area is used by the local community for agricultural, leisure, or recreational purposes (as a garden or a soccer field, for instance), residents will be more likely to protect it from being settled and help ensure its upkeep.