Pre-feasibility study for transformative river and stormwater management

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DIGITAL
DECENTRAL
DEMOCRATIC

Potential Climate/ Disaster Impacts addressed and Justification for this Approach

According to the regional climate modeling, climate change will increase heavy rainfall events and temperatures (as much as 2°C in 2035), which will result in more extreme weather events, particularly flash floods in some parts of Mbombela and prolonged droughts and heatwaves. Moreover, the combination of excessive solid waste and alien vegetation within the river corridors increases the risk of blockage at river crossings, erosion of the river bed and channel, and flooding. On the other hand, prolonged drought periods will have a direct impact on the water supply and quality. This is particularly relevant because Mbombela is already considered a water-stressed municipality and suffers from disrupted water service delivery and lacks water service and storage infrastructure. This drought-flash flood dynamic, coupled with the characteristics of the soil, is likely to increase soil erosion and lead to land degradation. Investment in the stormwater management system and flood protection measures to protect the city is expected to increase water quality and availability, reduce flood-related risks and increase the city's resilience to climate change. This includes upgrading the drainage system and improving green spaces in the city, as well as implementing NbS such as widening the natural flood plains and expanding wetlands in the areas that surround the city.

Process of Implementation

After shortlisting the city, the Gap Fund conducted a detailed assessment taht was approved by the TS. The team prepared a ToR with the city and later on, the TA was implemented and supervised by the GF team. Throughout the process, all relevant stakeholders were engaged.

Results and Impacts

Developing of a pre-feasibility study, consisting of: 1) a baseline report of the existing riverine and stormwater governance arrangements, budget planning and initiatives: 2) climate and hydrology modelling, including rainfall estimates for different scenarios and modelling and mapping scenarios of current and potential flood lines for the rivers within the Mbombela municipality; 3) a vulnerability assessment, including a comprehensive gap analysis of ecosystem-based adaptation approaches to issue recommendations, as well as vulnerability models with the participation of municipal officials; 4) interventions for problem-focus areas on stormwater management, including capacity building of city officials and relevant stakeholders based on the Toolkit for Transformative Adaptation of Riverine Infrastructure in an Urban Context and the Cost Benefit Analysis (toolkit) developed for the C40 CFF for the eThekwini Rivers with the focus on the problem focus areas in Mbombela, workshops and development of maintenance management plan; 4) a three-year action plan based on a 20 years perspective, including the co-production of a theory of change and a plan for the implementation of a riverine management program.

TYPE OF APPROACH
Framework conditions

COUNTRY
South Africa

LEVEL OF INTERVENTION
city

TYPE OF RISK MANAGEMENT
prevention, transformation

MAIN HAZARDS ADDRESSED
Flood

URBAN FUNCTION PROTECTED
Basic existential functions (water, electricity, etc.), Public security/ civil protection

SPHERE OF INTERVENTION
socio-political sphere/ governance, environment

RESOURCES REQUIRED
5 Experts + 1 project intern, 227 working days in total; consulting contract

COOPERATION PARTNERS
Environmental Management and Planning of Mbombela

Project Title

Support for Project Preparation for Urban Progress (SuPPUrbP) - City Climate Finance Gap Fund

Project Number

20.9118.9-001