CONNECTIVE CITIES

GOOD PRACTICE

Dar es Salaam Metropolitan Development Project (DMDP) Phase 1

A GOOD PRACTICE FROM DAR ES SALAAM, TANZANIA

Partners of Connective Cities

Deutscher Städtetag

ENGAGEMENT GLOBAL
Service für Entwicklungsinitiativen

with its SERVICE AGENCY
COMMUNITIES IN ONE WORLD

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Commissioned by

Federal Ministry for Economic Cooperation and Development

Overview

Dar es Salaam City has a population of approximately 7.05 million people and is situated along the Indian Ocean and traces its origin to Ilala Municipality. Governed by the City Council and Regional government bodies, the city is led by the Lord Mayor. The city faces challenges in urban planning due to its varied elevations, ranging from lowlands near the coast to higher areas. Flooding risk in lowland areas is a significant concern, exacerbated by the city's annual rainfall exceeding 1,000 mm and two defined rainy seasons (March to May; October to December).

Focus

DMDP identified following drainage challenges:
- climate change impacts
- inadequate stormwater drainage
- misuse for sewage and garbage disposal
- encroachment on riparian zones

Insufficient stormwater drainage, especially in unplanned areas, due to a lack of adequate space for detention ponds was highlighted. Unrestricted access to stormwater drains, leading to misuse for sewage and garbage disposal, was observed.

Background

The Dar es Salaam City population is currently estimated at 7.05 million people giving a density of 5,061 people per sq km according to 2022 National population census. The City Council administration is headed by the Lord Mayor. The City is located within the Dar es Salaam region and administered through the City Council and Regional go vernment bodies. The elevations of the city range from less than 5 meters above Mean Sea Level (MSL) in the lowlands along the coast, to 60-150 meters above MSL. The residential areas are predominantly composed of gentle slope terraces and hilly, or flat plains, ranging from 5-20 meters above MSL. This becomes one of the city's challenges in urban planning – mitigating and controlling the risk of flooding in lowland areas. The city receives over 1,000 mm of rainfall per year, with two defined rainy seasons in a year (March to May; and October to December).

Institutional Setting

The Dar es Salaam Metropolitan Development Project (DMDP) aimed to improve connectivity and mobility within the city while reducing flooding through structural and non-structural measures. The project successfully constructed 67km of stormwater drains out of the required 200km, and focused on capacity building for local government experts, solid waste management, and urban greening initiatives.
However, the DMDP also noted several problems and challenges faced by the city in managing drainage. These include the impacts of climate change, such as floods, storms, heat, drought, and sea-level rise, as well as an insufficient stormwater drainage system due to a lack of adequate corridor and space for detention ponds, especially in unplanned areas.

Furthermore, there is unrestricted access to the stormwater drains, which are often used for domestic sewage or informal garbage disposal. Encroachment on the Riparian Zone is also a significant issue, with fast-growing and unplanned settlements encroaching on riparian zones, and inadequate enforcement of the corridors. Finally, the impact of urbanization is also a significant concern, with roughly 70% of the population in Dar es Salaam living in unplanned settlements, mostly in highly exposed locations.

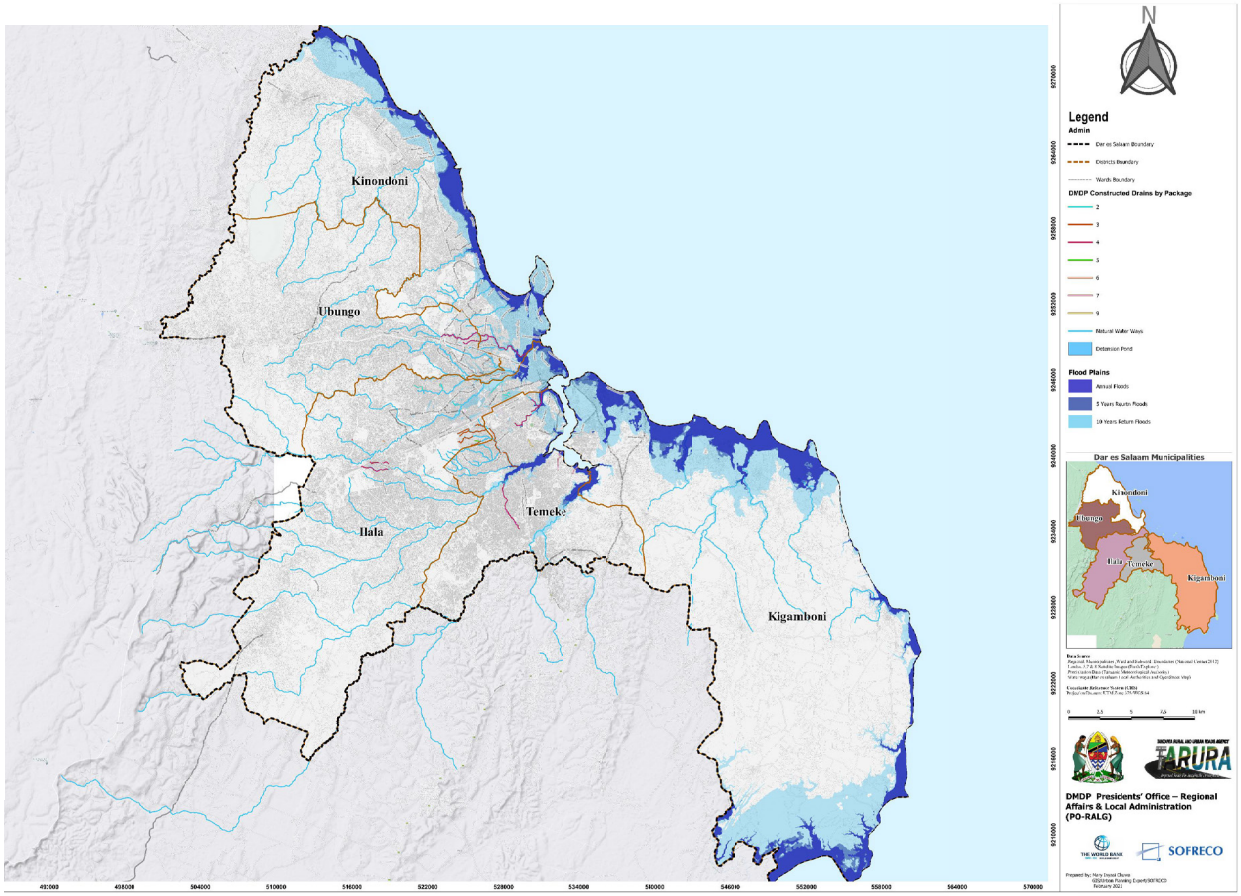


Figure 1 - Dar es Salaam Flood Plain Map

Approach

The project employed diverse methodologies such as flood modelling, surveys, hydraulic modelling, hydrological fore-casting, and land cover analysis. These were conducted by an independent engineering firm, with the results discussed for intervention implementation. It also established grievance redress committees at various levels to ensure community representation, including marginalized groups like people with disabilities and children. While the project's direct impact on climate change mitigation or adaptation varies, its use of multiple approaches enhances community resilience. The establishment of grievance redress committees fosters a community-driven disaster risk reduction approach, bolstering adaptation efforts to changing climatic conditions.

Outputs

The greening sub-component of the project focused on addressing flooding in Tanzania through the implementation of greening guidelines, flood modelling, and Sustainable Urban Drainage Systems (SUDS). This included identifying and mapping flood-prone areas and constructing storm drains and Storm Water Detention Ponds to regulate water flow. Specif-ically, 67km of storm drains were built, and three detention ponds were constructed upstream of rivers. These efforts aimed to reduce flooding impacts and improve the quality of life for all residents, including vulnerable populations, through capacity building, community awareness, and maintenance initiatives.

Sinza River Stormwater Drain in Kinondoni MC

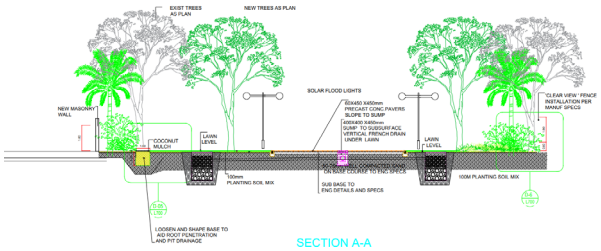
Discharge of industrial effluent in Food Security one Stormwater Drain in Ilala

Deposition of sediments in Mpogo stormwater drain in Ilala MC

Greening by planting trees, grasses and shrubs in Mpogo stormwater drain in Kinondoni MC

Lessons

- Early warning systems are crucial: It is important to have an effective early warning system in place to alert people of potential floods. This allows people to evacuate and take necessary precautions to minimize damage and loss of life.
- Community involvement is essential: Engaging with local communities and involving them in the planning and implementation of flooding control projects can help to build trust, ensure sustainability, and foster ownership of the project.
- Multiple approaches are necessary: Flooding control projects often require a combination of approaches, such as structural measures (e.g., dams, levees) and non-structural measures (e.g., land-use planning, flood forecasting, and warning systems)
- Flexibility is important: Flood control projects should be designed with flexibility in mind, as changing environmental and social factors can affect the effectiveness of the project over time.
- Monitoring and evaluation are critical: Monitoring and evaluating the project's effectiveness is essential to ensure that the project is achieving its goals and making a positive impact. This also allows for adjustments to be made to the project if necessary.
- Collaboration and coordination are key: Flood control projects require collaboration and coordination between multiple stakeholders, including government agencies, local communities, and other organizations involved in the project. Effective communication and coordination are essential to ensure the project's success.
- Long-term planning is necessary: Flooding control projects require long-term planning and commitment. The effects of flooding can be devastating and long-lasting, so it is important to plan for the long-term to ensure that the project



MNAZI MMOJA OPEN SPACE FRENCH DRAINS DESIGN

CONSTRUCTED FRENCH DRAIN

MNAZI MMOJA OPEN SPACE - BEFORE

MNAZI MMOJA OPEN SPACE - AFTER

Transfer

The Government of Tanzania, through the Disaster Management Development Programme (DMDP), has put forward the proposal to upscale the National Urban Guidelines, aiming for a multiplier effect across various regions. This initiative involves utilizing community engagements and establishing guidelines, as well as ensuring the establishment and protection of catchment areas. For instance, projects like the Msimbazi Redevelopment are safeguarding green zones. Moreover, the adoption of these guidelines is being facilitated through capacity building and training initiatives. Through these concerted efforts, the government seeks to enhance urban resilience and disaster preparedness nationwide.

Conclusion

The Dar es Salaam Metropolitan Development Project (DMDP) has made significant strides in mitigating flooding and enhancing resilience in Tanzania's largest city. Through a combination of structural and non-structural measures, such as stormwater drain construction, community engagement, and capacity building, the project has addressed pressing challenges exacerbated by urbanization and climate change. However, ongoing efforts are needed to tackle remaining obstacles, including the impacts of climate change, inadequate infrastructure, and rapid urbanization. By prioritizing early warning systems, community involvement, and long-term planning, Dar es Salaam can continue its journey towards a more sustainable and resilient future.

Connective Cities – International Community of Practice for Sustainable Urban Development

Since 2013, Connective Cities promotes the worldwide exchange of municipal expertise, disseminates proven-practice solutions for sustainable urban development, and supports peer learning between German and international experts from municipalities, as well as the jointly development of project ideas within the framework of structured learning processes.

Connective Cities is a joint project of the Association of German Cities (Deutscher Städtetag), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Engagement Global with its Service Agency Communities in One World (SKEW). The project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

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