



CFF IMPACT BRIEF | Durban's Transformative Riverine Management

Transforming River Management and Shifting Mindsets in South Africa and Beyond

Durban's Transformative River Management Programme (TRMP) aims to expand existing river management in the city, including eThekweni Municipality's 'Sihlanzimvelo' Stream Cleaning Programme, to all 7,400 km of streams and rivers in the city to strengthen its communities' resilience to the effects of climate change. The 'Sihlanzimvelo' programme has helped to reduce damage to infrastructure from flooding, by keeping rivers and culverts clear of invasive alien plants and litter in 500km of streams so far. Incidences of crime and diseases are also likely to be reduced.

Key to this approach is funding community co-operatives for stream management by internalising future costs resulting from climate-related damages to infrastructure, i.e. damages incurred without the ecosystem services. By promoting local enterprises and creating jobs centred around ecological infrastructure, the city is anchoring the transition to a green economy and encouraging the development of social and economic capital in the city.



The TRMP is a flagship project of international significance, developed with extensive stakeholder consultation and ownership. It has already inspired 17 municipalities in the KwaZulu Natal province to replicate the approach.

"Often we think about infrastructure and climate change in terms of "hard infrastructure" such as bridges or roads in the transport sector. This project distinguishes itself from that as it focuses on ecological infrastructure as a core of how cities respond to climate change and the complex challenges it poses. CFF has provided invaluable support to build mutual understanding among colleagues and different organisations. Moving forward, we are well equipped to tackle crosscutting issues such as climate change and riverine management across different departments while paying attention to social inclusion."

JOANNE DOUWES

Manager of Policy and Implementation, Environmental Planning and Climate Protection Department, City of Durban



Project Context



PROJECT PARTNERS:
The City of Durban



PROJECT SCALE:
7,400 km of rivers and streams



PROJECT INVESTMENT VOLUME:
USD 470 million



FINANCING SOLUTION:
Operational expenditure is financed through the city budget by internalising costs forecasted to occur without the project intervention. GCF funding, green bonds and investments by insurance companies are being explored to finance both the capital and operational expenditure for further investments in ecological infrastructure.



A Scalable and Replicable Model for Cities to Manage Their Waterways Sustainably While Maximising Socio-Economic Benefits

Involving community enterprises leads to sustainable river management becoming both an ecologically and economically viable approach



JOBS CREATED
AT LEAST 10,000
PERMANENT JOBS



POPULATION BENEFITTING FROM INCREASED RESILIENCE
750,000 INDIVIDUALS



SCALE-UP POTENTIAL
7 MUNICIPALITIES IN SOUTH AFRICA ARE NOW PREPARING TRMPS FOR THEIR CITIES



“Usually and naturally, bureaucracies do struggle with working transversally. The CFF supported us in setting up structures to involve different departments. One key was to link the project to the respective colleagues’ work and show concrete benefits for it, which kept different departments engaged and interested. Having the CFF on board and supporting this work on the bigger picture with a focus on financiers opens up doors and opportunities, which we have missed in the past when working on our own.”

JOANNE DOUWES
Manager of Policy and Implementation, Environmental Planning and Climate Protection Department, City of Durban



“By expanding our expertise through the CFF we ended up with a product that is way better than we ever thought we would get. This product is tailored to our context and can be used in many contexts in the developing world. The CFF also helped to get to know funding agencies focus areas and agendas. This is of great value to be successful in applying for funding (...). In our example, river management is in the foreground for the city, but climate change is the key aspect for the donors – and both are equal parts of the project.”

GEOFF TOOLEY
Senior Manager of the Coastal Stormwater and Catchment Management Department, City of Durban



“Healthy ecosystems, including rivers, are intrinsic to the city’s health, and its capacity to protect its people, environment and economy from climate change impacts. Having the city’s leadership and administration buy into the concept of Nature Based Solutions through Community Ecosystem Based Adaptation (CEBA) is one key outcome of this project and the CFF’s support. It is our biggest win. This includes the realisation that rivers are part of our infrastructure and that they need to be cared for and maintained just as with roads, bridges, and any other infrastructure. To further this perspective and solidify it, but also to inspire other cities across Africa and the world, is our task for the future.”

SEAN DONOGHUE
Senior Manager: Climate Change Adaptation, Environmental Planning and Climate Protection Department, City of Durban



“Initially, we thought that cooperating with the CFF would mean to upscale one existing riverine management programme and make it bankable through a business case. Instead, we conceptualized and developed an entirely new and much more strategic riverine management programme, which not only focuses on one river at a time but connects our different projects and interventions into one strategic approach.”

CHUMISA THENGWA
Deputy Head of the Environmental Planning and Climate Protection Dpt., City of Durban

The TRMP has been designed with a holistic and innovative vision for riverine management in South Africa

The TRMP project will create community-led cooperatives for the management and removal of waste and alien vegetation in the project areas. The cooperatives will employ local disadvantaged populations and therefore provide a valuable contribution to securing the livelihoods of local communities.

The TRMP significantly increases the city’s resilience to climate change through ecosystem-based and community-based transformative adaptation of the city’s rivers and streams. Outcomes include:

- Adaptation to the effects of climate change by building resilience against flooding and urban heat island effects.
- Establishment of functional riverine ecosystems, which generate sustained life-supporting and risk-mitigating ecosystem services.



Conceiving Rivers as Crucial City Infrastructure

Just like roads, bridges and other built infrastructure, well-maintained rivers contribute to a city's livelihood and increase the quality of life for residents.



A high-leverage business case is at the core of Durban's approach to transform 7,400km of watercourse and increase the city's resilience to the impacts of climate change. The business case is driven by a thorough Cost Benefit Analysis (CBA) and guided by a hydrological modelling and climate vulnerability assessment. The complex analysis of ecological and financial benefits encouraged the city to prioritise, expand and fund partnership-based river management in Durban. The CBA predicts a conservative minimum Benefit Cost Ratio ranging from 1,8 to 3,4 euro in benefit per euro spent, depending on land ownership.



As part of the CFF's capacity building efforts, multiple exchange formats were organised to bring together experts from within the city and other organisations to share experience and build each other's capacities. The additional training called the 'Climate Emergency Masterclass' focused on the global climate emergency and its local effects. Participants learned about the significance of climate change in Durban while also providing guidance on how city officials can combat future impacts.



Riverine communities tend to be disadvantaged communities, with a high reliance on female-earnings. The CFF and Durban developed a set of principles for all riverine interventions to ensure gender- and inclusion sensitive design. The principles contributed to the cooperative businesses approach aiming to provide economic opportunities to vulnerable communities living along the rivers.



Knowledge-sharing formats allowed for Durban to share its experience with municipalities in the Central KwaZulu-Natal Climate Change Compact. Through these exchanges, Durban municipal staff helped strengthen colleagues' capacities in other municipalities and assisted them to develop their own proposals. This has led to 17 communities starting their own riverine management programmes using an adapted model.



At the core of the TRMP program, is the creation of long-term partnerships with the private sector, riverine communities and property owners to implement the project. The city has also prioritised partnerships with national and global climate agencies and funders.



► SOCIAL INCLUSION

"The TRMP is conceptualized as a transformative project that can change the way we look at riverine and open space management. Crucial to this perspective is the socio-economic inclusion of riverine communities that are marginalised and deprived from economic opportunity. The TRMP is more integrative and aims to create economic value in these areas while rehabilitating our rivers. The CFF acted as the facilitator of this project by bringing in finance, technical knowledge and guidance, allowing the project to be developed in an innovative way and giving us a head start on implementation."

ZANE ABDUL

Project Manager, Economic Development Unit, City of Durban



► CIRCULAR ECONOMY

"Poverty and lack of opportunities to work are key challenges in many communities along rivers. We are targeting these ecologically and economically vulnerable communities by providing them employment within river management. Together with the CFF, we shaped this project to not only clean up rivers but create upcycling industries. For example, our colleagues in one cooperative are producing paving materials out of plastic found along rivers. This means that our partners are not only collecting trash but are also learning to build something new out of it for their own economic benefit – this means true uplifting in social and economic terms. In addition, many of our colleagues in cooperatives are women."

► INTEGRATING EXPERT INPUTS

"Some aspects of the project were done in previous community-based river management projects, but we outsourced them. This time, we did some of it ourselves with the support of the CFF. Not outsourcing means we are able to do parts of the business case preparation again and again on our own. Other highly technical aspects were outsourced this time as well to external contractors. It is very difficult to attract the right people to do this well, but CFF helped us in doing so in the fields we could not do ourselves."

SEAN DONOGHUE

Senior Manager: Climate Change Adaptation', Environmental Planning and Climate Protection Department, City of Durban

KEY CHALLENGES

- One of the key challenges the project faced entailed a shift from a focus on grey infrastructure to ecological infrastructure. Through a thorough cost-benefit analysis, the project was able to demonstrate the considerable benefits of an ecological infrastructure approach, as well as community based adaptation projects. The CFF-supported studies made a convincing case that investing in river management is a valuable investment for the city.
- The global Covid-19 pandemic and lockdowns constrained the project's participatory approach. Despite the use of innovative virtual formats for participation, the conditions posed a challenge to capacity building efforts and negatively affected the ability of city officials to become actively involved in the cost-benefit analysis.

LESSONS LEARNED

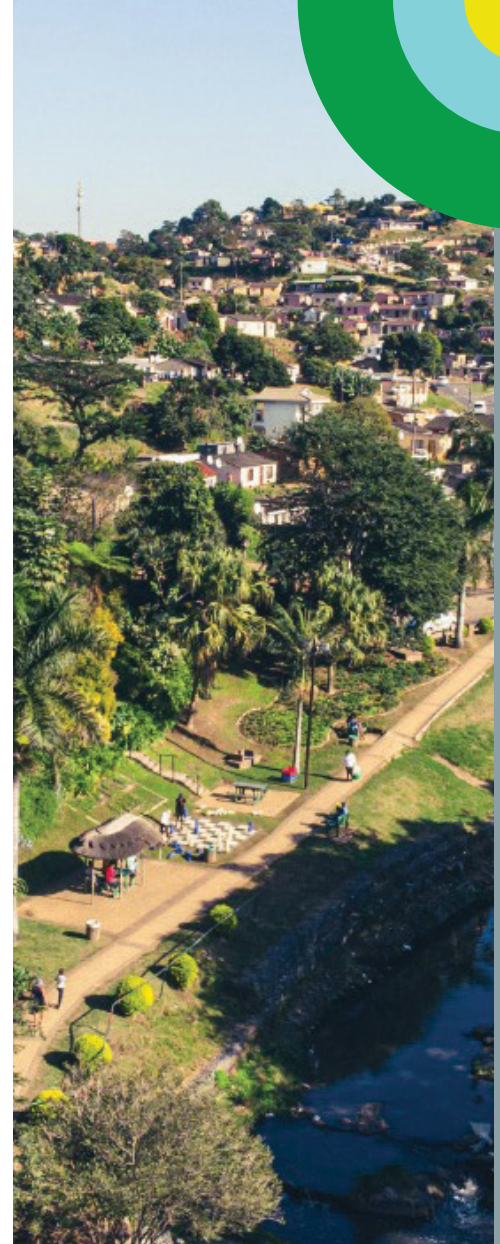
- Accounting for the complex interplay of flood risk factors in riverine adaptation projects is key for the sustainable management of urban rivers and streams. For example, solid waste loading and alien vegetation encroachment can block culverts and amplify flood damages, while development patterns and densities in the surrounding catchment can further exacerbate these impacts by increasing surface water runoff during rainfall periods.
- For holistic and effective riverine management approaches, it is essential to distinguish between root causes and symptoms of riverine health and risks. Root causes of flooding and degraded rivers usually necessitate long-term management of entire catchment areas. Measures relating to symptoms of degraded riverine corridors or floodplains are usually short-term in nature and involve bank stabilisation and reforming, silt removal, flood warning systems, solid waste and invasive alien plant removal and revegetation of river banks with indigenous species. Both types of interventions require different investment approaches for different timeframes.
- As rivers are dynamic systems and interact with urban systems, continuous operational maintenance needs to be accompanied by rigorous monitoring and evaluation of riverine and hydrological data. A partnership-based approach to riverine management has the benefit of keeping ears and eyes open to what is happening on the ground.

BEST PRACTICES

- A comprehensive project management structure adapted to the complexity of the TRMP project was identified ahead of the project. It allowed for an inclusive and mandated project governance structure composed of all relevant city departments.
- The project developed an approach to understand the possible impacts of climate induced flooding that integrated available climate circulation models with a hydrological model and a vulnerability assessment methodology that will be extremely useful for cities facing similar challenges. Key tangible outcomes of the project include an Ecological Toolkit, Riverine Service Delivery Models and a corresponding Regulatory Framework.
- The developed products and knowledge sharing formats facilitated by the CFF allowed for 7 municipalities to undertake their own riverine management programmes.

OUTLOOK

- A draft implementation plan was completed in 2022 based on the Business Case. It will allow for funds to be raised for ecological infrastructure and institutionalise the river management partnerships for various river catchments.



“Everyone understands that finding funding sources is crucial but putting together a project proposal that appeals to funders is no single colleague’s day job. On top, climate change is not a single issue, but cuts across many departments. It requires a lot of different people’s input and we had to engage with many colleagues and external stakeholders in order to get all the key information. CFF was key in resolving our own institutional gaps to be able to do this on our own, also in future projects. Now, we are looking to resolve this in the next three to five years through a dedicated intervention within the city administration.”

CHUMISA THENGWA

Deputy Head of the Environmental Planning and Climate Protection Dpt., City of Durban