

# F04 Climate Change Mitigation and Adaptation on Local Level - A Case Study in Durban, South Africa

## Problem Statement

Durban is the third biggest city in South Africa, located at the Indian Ocean in the eastern province KwaZulu-Natal and crossed by the Umgeni River, which confines the inner city in the north. The city with its subtropical climate falls under the administration of the eThekweni Municipality and has to face different flooding hazards, such as storm surges, river floods and heavy rainfall, which constitutes the main topic for the project work of F04. The investigation area is situated in the inner city and limited by the Umgeni River in the north. With the Umgeni Road as a baseline the area is called "Umgeni Road Corridor", which is affected by the already mentioned flood hazards.



Since flooding hazards cannot be related to climate change yet, the project chose the disaster risk concept as a main approach to examine and decrease floods triggered by urbanisation processes. Flooding events are likely to increase - in magnitude and frequency - due to climate change in long term. However, natural hazards cannot be treated isolated. In the case of Durban the disaster risk management, as appliance of the disaster risk concept, needs to be combined with two other major spatial aspects, such as gentrification and informality, which are essential for reaching a comprehensive understanding of the area.

## Research Question

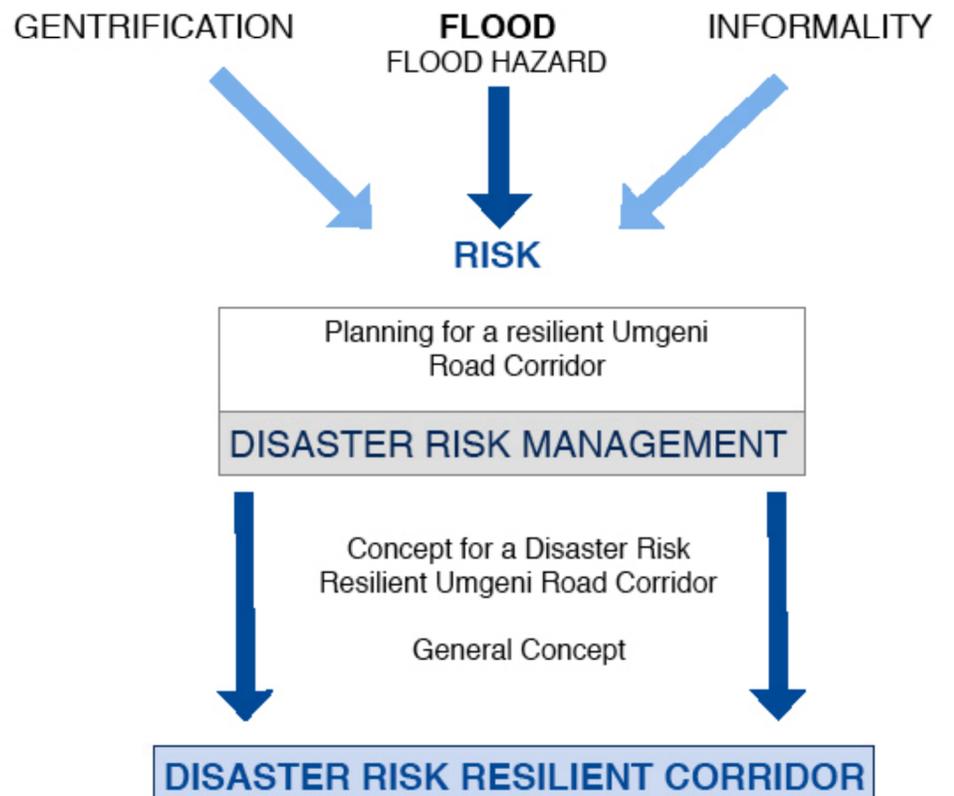
**"Which planning interventions are necessary to establish a disaster risk resilient corridor towards flooding in the Umgeni Road Corridor, while taking relevant urban transformations into account?"**

The main approach hereby is the disaster risk management and the concept of resilience which constitutes the final outcome. Since the investigation area of the project is the Umgeni Road Corridor in the eThekweni Municipality, the focus within the disaster risk concept is put on flood hazards, due to the circumstances of this area.

## Research Methods

- Excursion: Expert Interviews, Site Visit, Inventory, Surveys
- Case Study Approach
- Literature and Internet Research
- Urban Rapid Appraisal
- Statistical Data Analysis
- Group Working Session
- Spatial Analysis
- Point Patterns
- Aerial Photograph Analysis
- Vulnerability Examination

## Disaster Risk Concept



## Concept for Disaster Risk Resilience

The project's resilience building approach focuses on disaster risk mitigation by developing suitable resilience building measures to reduce the flood risk. The development of the concept is based on the analyses of the exposed areas in the Umgeni Road Corridor and the respective susceptibility and coping capacity towards occurring hazards. The development of the concept focuses on all dimensions of resilience building and therefore requires both technical and non-technical approaches to reach an overall equilibrium. On the one hand, technical measures have a physical effect which aims to reduce the susceptibility towards hazards. On the other hand, the simultaneous application of non-technical measures, following the equitable objective, minimises the impacts of hazardous events and improves the capacity to respond.