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Climate change induced risk analysis of Dar es Salaam city (Tanzania)

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CLUVA (CLimate change and Urban Vulnerability in Africa; http://www.cluva.eu/) is a 3 years project, funded by the European Commission in 2010.
The main objective of CLUVA is to develop context-centered methods and knowledge to be applied to African cities to assess vulnerabilities and increase knowledge on managing climate related risks. The project estimates the impacts of climate changes in the next 40 years at urban scale and downscales IPCC climate projections to evaluate specific threats to selected African test cities. These are mainly from floods, sea-level rise, droughts, heat waves, and desertification. The project evaluates and links: social vulnerability; urban green structures and ecosystem services; urban-rural interfaces; vulnerability of urban built environment and lifelines; and related institutional and governance dimensions of adaptation.
The multi-scale and multi-disciplinary qualitative, quantitative and probabilistic approach of CLUVA is currently being applied to selected African test cities (Addis Ababa – Ethiopia; Dar es Salaam – Tanzania; Douala – Cameroun; Ouagadougou – Burkina Faso; St. Louis – Senegal). In particular, the poster will present preliminary findings for the Dar es Salaam case study.
Dar es Salaam, which is Tanzania's largest coastal city, is exposed to floods, coastal erosion, droughts and heat waves, and highly vulnerable to impacts as a result of ineffective urban planning (about 70% unplanned settlements), poverty and lack of basic infrastructure (e.g. lack of or poor quality storm water drainage systems). Climate change could exacerbate the current situation increasing hazard-exposure alongside the impacts of development pressures which act to increase urban vulnerability for example because of informal (unregulated) urbanization.
The CLUVA research team - composed of climate and environmental scientists, risk management experts, urban planners and social scientists from both European and African institutions – has started to produce research outputs suitable for use in evidence-based planning activities in the case study cities through interdisciplinary methods and analysis. Climate change projections at 8 km resolution are ready for regions containing each of the case study cities; a preliminary hazard assessment for floods, droughts and heat waves has been performed, based on historical data; urban morphology and related green structures have been characterized; preliminary findings in social vulnerability provide insights how communities and households can resist and cope with, as well as recover from climate induced hazards; vulnerability of informal settlements to floods has been assessed for a case study area (Suna sub ward) and a GIS based identification of urban residential hotspots to flooding is completed. Furthermore, a set of indicators has been identified and the most relevant for Dar es Salaam has been selected by local stakeholders to identify particular vulnerable high risk areas and communities. An investigation of the existing urban planning and governance system and its interface with climate risks and vulnerability has inter-alia suggested severe institutional deficits including over-centralized institutions for disaster risk management and climate change adaptation. A multi-risk framework considering climate-related hazards, and physical and social fragilities has been set up.