

## **Tanzania: Mainstreaming climate change and adaptation into integrated water resource management in the Pangani River Basin**

### **Description:**

The Pangani River Basin drains Mount Kilimanjaro and Mount Meru in northern Tanzania and flows to the Indian Ocean in the township of Pangani in Tanga Region. The River and its Basin are greatly important to Tanzania, in terms of hydro-power production, irrigated agriculture, livestock, fisheries, domestic use, ecological needs, etc, but water demand is rapidly rising while water flows are in decline – largely due to changing climatic patterns.

The Pangani Basin Water Board is mainstreaming climate change into Integrated Water Resources Management (IWRM) in the Pangani River Basin, so that it may support the equitable provision of freshwater for the environment and for livelihoods for current and future generations. The initiative, which is supported by UNDP in partnership with the IUCN Eastern Africa Regional Office, is promoting increased understanding of the environmental, economic and social implications of different river flow scenarios under a range of climate change scenarios. This includes establishing a sustainable local system for collecting and analyzing flow assessment information over time. Community participation in climate change adaptation and IWRM has been strengthened through establishment of sub-catchment and basin-level fora and training Water User Associations to integrate community-, district- and regional-level concerns into basin-level planning.

The objective of the project is to prepare water managers and users for changing climatic conditions (especially reduced flows) through the provision of technical data, planning, and improved allocation, capacity building (conflict management) and awareness-raising. The project focuses on the following three technical areas:

- **Understanding current and future climatic vulnerability (in the broadest sense of the term):** developing and using information for equitable water allocation in a changing hydrological regime
- **Negotiated outcomes to minimize future climatic vulnerability and future climatic risk:** Continuing dialogues to sustainable water resources management
- **Mainstreaming climate change adaptation in the water sector:** national linkages and lessons learned

These three technical outputs will lead to a single measurable outcome: Management and allocation of water in Pangani Basin considers the changing climatic regime and a sound Integrated Water Resource Management (IWRM) framework incorporates environmental considerations and adaptation measures. It is one of the first field-based climate change adaptation projects in Eastern Africa with strong links to basin and national planning and policy, and as such will build national and regional capacity, provide lessons and serve as a national and regional demonstration site.

The project is funded by the SCCF - US\$1m, with an additional US\$3.74m in co-financing.

## **Challenges**

*(as of mid-2010)*

The project team has been grappling with issues concerning climate change modeling at the basin level. Underlying methodologies that need to be applied are complex, budgets required to undertake the work in a rigorous manner are excessive and technical competencies required to support the work is often not available at the local level. Experts' review of the original climate change modeling process found deficiencies in the methodology. This resulted in delay in conducting the final workshop for the flow assessment to conclude the Flow Assessment component. The Project Steering Committee made recommendation on how to proceed with the climate change modeling and avoid further delay in concluding the flow assessment component, which allowed the move towards finalizing component 1.

## **Results achieved**

*(as of mid-2010)*

The project implementation started in 2007 with an aim to mainstream climate change adaptation consideration into the IWRM Plan development process at the Pangani River Basin. A climate study to attain scientifically robust climate predictions for the Pangani basin was completed. The climate information generated through the climate study is considered in the water allocation scenario analysis and development policy options analysis based on the Integrated Flow Assessment (IFA). IFA was completed to predict implications of different water allocation scenarios, derived from 15 development policy options, on environment and socio-economic status of the basin. All technical reports from the flow assessment are now available online at [www.iucn.org/water](http://www.iucn.org/water). IFA scenario analysis resulted in draft conclusions that include policy recommendations with implications on hydrology, river ecology, and socioeconomic situations of the basin. Combined, the climate study and the IFA will better inform policy makers on future adaptation strategies and options for the basin. Summary of the different scenarios as well as the analyses will be published as a book titled "Future of the Basin report". The project also initiated demonstration activities to reduce vulnerability to climate change at three pilot communities in the basin.

## **Lessons Learned**

The initiative is currently under evaluation to measure the impact of the interventions to date.