



CASE STUDY

Tanzania: Pangani River Basin: Building consensus on water allocation and climate change adaptation

Climate change and increasing water users have led to the overexploitation of the Pangani river basin resources. Action has been taken to establishing environmental, economic, and social implications of different river flow scenarios which helped prioritizing the allocation of water resources to meet basic human needs and those of ecosystems. Providing a platform for key stakeholders and increasing knowledge about the climatic variability are essential for water management solutions.

Background

The Pangani river basin covers an area of 43,650km² with 95% in Tanzania and 5% in Kenya. The river begins as a series of small streams draining from Mt. Kilimanjaro, Mt Meru and the Pare and Usambara mountain ranges and flows into the Indian Ocean.

The river basin is a diverse ecosystem with fertile soils and ample rainfall. Also called the breadbasket of Tanzania, the region is used by over three million people for agriculture and fisheries. A series of hydro-electric power stations along the 500km long river also contribute about 17% towards Tanzania's national electricity needs.

Climate change has had adverse effects on the Pangani Basin. Flows have been reduced from several hundred to less than 40 m³ per second. A model from the Pangani Basin Water Board (PBWB) indicates that different flow patterns are essential for maintaining the river's natural equilibrium. In addition, population growth, deforestation, increasing numbers of livestock and the expansion of cultivated land, as well as fishing, mining and hydroelectric power activities have led to excessive pressures on the basin's water resources. All of these adversely affect essential ecosystems on which the poorest depend the most.

A previous 'sectoral' approach created conflict due to the differing priorities of the stakeholders involved within the basin. This pointed towards the need for a transition to a sustainable water management plan which would address demand within the limits of availability to prevent over-allocation.

Actions taken

Working with the Pangani Basin Water Board (PBWB), WANI convened a stakeholder platform in 2002 to look at options for Integrated Water Resources Management (IWRM). WANI and partners focused on the implementation of effective monitoring and data collection systems which would provide information on environmental, economic and social implications of different river flow scenarios under expected climatic conditions.

Simultaneously, WANI supported global learning initiatives related to water governance, environmental flows and environmental economics. Pangani stakeholder platforms brought people together and provided a space for discussion and negotiation.

Rather than shaping new policies for water management, WANI worked closely with the Government of Tanzania to operationalize reforms focusing on the establishment of catchment water forums and planned allocation of water resources.

The initial interventions were essential to build trust between stakeholders, understand natural resources management at the local level, explore options for scaling-up, and test and develop new methodologies. A roadmap for the establishment of a sub-catchment forum was drafted and workshops with local government and water users helped raise awareness about IWRM and climate change.

The PBWB coordinated key sectors and stakeholders to lay the groundwork for eventually developing an IWRM plan. Since 2007 the framework has been taken forward with a variety of government structures across the basin being created to promote community participation in IWRM planning and implementation.

Outcomes

Through the sub-catchment forums, water users have been empowered to participate in IWRM and climate change adaptation processes through dialogue and decentralized water governance.

There is now an increased understanding of environmental, economic and social implications of different river flow scenarios under expected climatic conditions and increased capacity to collect and analyze such information. The water sector's vulnerability to climate change is now better understood and pilot actions have generated lessons in adaptation. "With these kinds of realities, we have to work together," says Chairman Yusuph M. Yusuph, a rice, maize and ginger farmer in the lowlands. These activities have simultaneously built up the capacity of country institutions through training and workshops and disseminated knowledge about the basin among water users.

Institutional and information gaps between the basin and national level processes have now been bridged through studies, exchange of knowledge and collaboration between climate change and water sectors. The Pangani Basin Water Board now has the information needed to manage the basin in ways which support nature as well as people and their livelihoods.

With WANI and donor interventions finally having come to an end in 2011, the focus is now on the Pangani River Basin stakeholders and the government of Tanzania to continue working towards a future where water resources are used sustainably, maintaining both ecosystems health and people's livelihood security. Stakeholders are now gaining understanding of social, economic and environmental trade-offs for different water allocations through the development of a number of scenarios. The PBWB and the Tanzanian team of specialists have the tools and skills to help the basin's stakeholders further explore outlined scenarios, or to investigate new ones, as they seek the optimum trade-off between development and resource protection for this basin. The Pangani Basin has strong social and governance structures that can help identify this desired trade-off point and drive the process of setting up a basin-wide water-allocation plan.

Lessons Learned

With a large number of water-related conflicts in the Pangani Basin, providing space for stakeholder dialogue through small-scale infrastructure development was essential to make scaling-up possible.

Sub-catchment forums can empower water users to participate in IWRM and climate change adaptation processes through dialogue and decentralized water governance.

Detailed data on the economic, social, and ecological impacts of changes in river flow is needed. Combined with hydrological data, climate change effects, and environmental trade-offs, longterm scenarios can be formed to assess development pathways and guide water-resource planning decisions.

The environmental flows approach and tools demonstrated in the Pangani Basin have global resonance. This case should be used as a pivotal element in developing holistic water management solutions.

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Organisation

[International Union for Conservation of Nature - IUCN](#)

Year

2014

Country

[United Republic of Tanzania \(the\)](#)

Region

[Africa](#)

Keywords

[Stakeholder engagement](#) [Climate Change](#)

Thematic Tagging

[Water services](#) [Gender](#) [Youth](#) [Climate](#) [Ecosystems/Nature-based solutions](#)

Language [English](#)

Supporting Materials

[IUCN Water Programme](#)

[GWP Southern Africa](#)

[Tanzania: Pangani River Basin: Building consensus on water allocation and climate change adaptation](#)

Related IWRM Tools

[Basin Management Plans](#)

Local Authorities
Civil Society Organisations
Multi-Stakeholder Partnerships
Training Water Professionals
Youth Engagement and Empowerment

Source <https://beta.toolbox.venthic.com/case-study/tanzania-pangani-river-basin-building-consensus-water-allocation-and-climate-change>
URL: