Tanzania: River Basin Management and Smallholder Irrigation Improvement project

Tanzania’s ability to manage scarce water resources became a national issue in the early to mid-1990s. New opportunities in agriculture, and the greater demand for water for irrigation and hydropower, together with the long dry season and several years of less-than-average rainfall, contributed to water scarcity and conflicts, while the lack of information on water quantity and quality, and an inadequate framework for tackling cross-sectoral water issues severely constrained sustainable water resource management. Tanzania has defined 9 river basins for water resources administration. The Rufiji is the largest basin, covering 177,000 square kilometers, or 18% of mainland Tanzania. Irrigation and hydropower account for 99% of all abstractions in the Rufiji and Pangani basins, with hydropower located downstream of irrigated areas and urban water abstraction points. The IDA credit of US$26.3 million equivalent was used to implement the project (1996-2004) whose objectives were: (i) to strengthen the government’s capacity to manage water resources and address water-related environmental concerns at the national level, and in the Rufiji and Pangani River basins; and (ii) to improve the irrigation efficiency of selected smallholder traditional irrigation schemes in these 2 basins. The project components included River Basin Management, and Smallholder Irrigation Improvement.

Impact on the ground

- The project spearheaded the review of the policy, institutional and legal framework, and laid the foundations for strengthening national and basin water resource management. The new National Policy, approved by the Cabinet in July 2002, integrates the principles of multisectoral use, treats water as a social, economic and environmental good, recognizes the financing of water resource management through the application of water users’ fees, and promotes autonomy at the basin level.
- Irrigation efficiency more than doubled for all schemes. The average efficiency has increased from 8% to 19% in the wet season, and from 11% to 27% in the dry season.
- Five thousand three hundred and seventeen families have benefited from improved irrigation and drainage facilities on 15 schemes in the 2 river basins, covering a total area of 5,059 ha.
- Rice yields and total production have increased in schemes rehabilitated by the project in both basins – the average yield has more than doubled from 1.98t/ha to 5.27 t/ha in schemes located in the Pangani basin.
Lessons learned

- Irrigated agriculture is the largest and least efficient water abstractor, and is located upstream of all other users. Agriculture is in many river basins the most important, and in some basins the only economic activity and potential source of income to finance integrated water management. The project has demonstrated that it is possible to increase agricultural productivity and irrigation efficiency simultaneously. Addressing irrigation development from a river basin, multi-stakeholder perspective helps put integrated water resources management on the agenda of a sector known for its high and inefficient water use. At the same time, sustainable integrated water resources management requires the involvement of and relevance to farmers, the basins’ largest stakeholder group.

- Policy and institutional reforms, and the transformation of Basin Water Organizations into accountable, transparent, financially autonomous and independent organizations are slow and difficult, but necessary for improving water resources management while reducing poverty.

- Limited but targeted investments in irrigation and drainage infrastructure improvement can provide an adequate incentive in terms of increased productivity as a “carrot” to encourage farmers to reduce water wastage and to consider the water demands of other users.

- An investment of approximately $2,000 per hectare in upgrading small-scale irrigation schemes using participatory methods, when coupled with adequate agricultural advice, can bring a measurable improvement in the welfare of smallholders at acceptable rates of return.

Annual household farm incomes of farmers operating in irrigation schemes rehabilitated by the project have increased from 1.06 t/ha to 4.86 t/ha in Pangani schemes, and from 1.08 t/ha to 3.34 t/ha in Rufiji schemes.

- Forty-three hydrometric and 11 weather stations in the Rufiji Basin, and 28 hydrometric and 8 weather stations in the Pangani basin have been rehabilitated.

- Through improved water use efficiency, downstream water users have benefited from the re-establishment of base flows in several areas.

- Other smallholder irrigation projects are using the participatory planning, design and implementation procedures established by the project. Water User Associations and /or User Groups are being formed on a demand-driven basis – these groups play an important role in managing water resources at the local and catchment level. Fifty-one local water user groups and two apex, pilot sub-catchment organizations have been set up, in collaboration with Basin Water Offices and District Councils. The environmental cell, established within the Ministry of Agriculture and Food Security, is assisting with Environmental Impact Assessments in other agricultural development programs.

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