



Management of water resources for all users and all purposes on equitable and sustainable manner was the key challenge facing the catchment

- Avail credit facilities from micro-finance institutions eg. for new technologies.

3.5 Some Observed Positive Changes

Change in attitudes and practices of stakeholders: - communities are now better aware of the water resource management issues with due understanding of the implications of their practices on others. The community has begun to openly discuss issues about equitable water allocation, conflict resolution, and integration of water related interventions. One clear manifestation of the increased awareness is the interest shown by the downstream Wereda to contribute to the conservation program at the upstream Wereda. The Upstream district "Atsbi Wereda" also revisited its plan to introduce about 100 water pumps because of the raised awareness of the local authorities.

Moreover, water efficient technologies like drip systems are being introduced and a plan has already been prepared for artificial groundwater recharging

Decline in Local Conflicts: - Water related disputes and conflicts have been minimized as a result of establishment of the multi-stakeholder platforms. Working together is now viewed as a way to resolve water issues at the local level and two key conflicts in the catchment have already been resolved through this IWRM process without any need for legal or administrative interventions.

The lessons that can be learnt from the piloting exercise in Ethiopia include:

- A combination of both water demand and supply management mechanisms on case-by case basis could result in a more sustainable water resources management. Supporting good water demand management policies with operational guidelines would facilitate proper implementation of demand management policies.
- The interventions in the Berki catchment were implemented mainly through building on the traditional knowledge and practices of the communities in collectively managing the common water resources. The local communities have the tradition of designating respected elderly men as 'Yewuha Abat' (literally means Father of Water) to oversee proper and fair use

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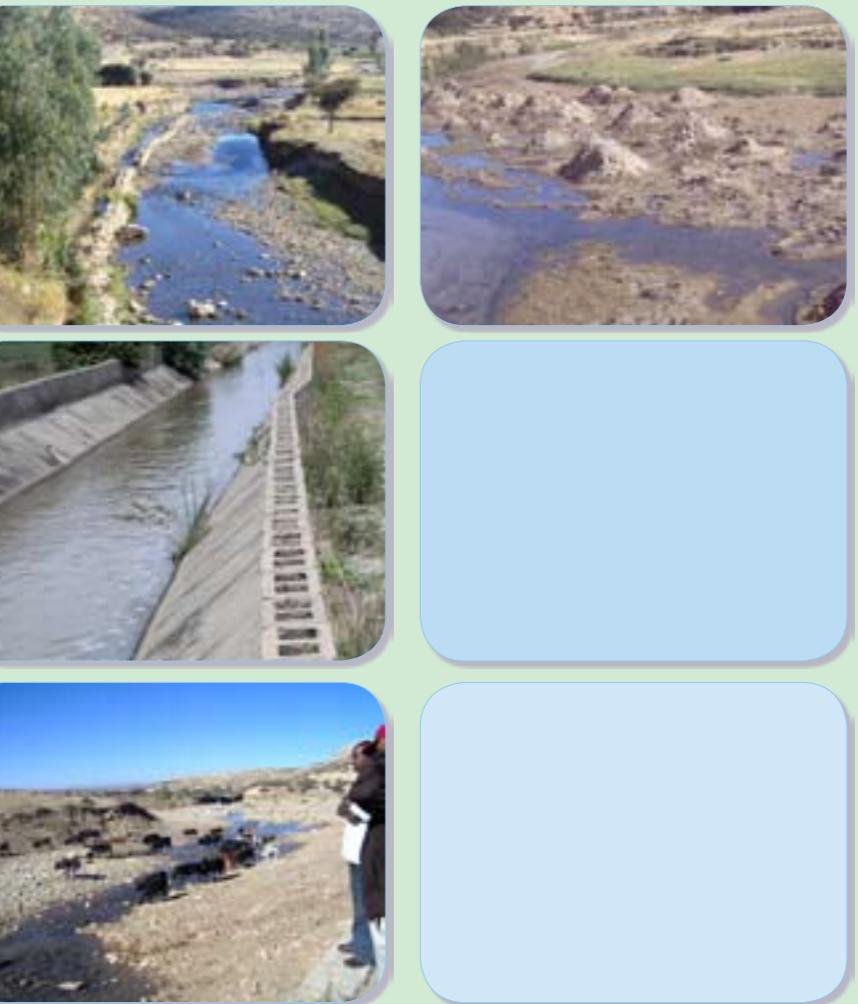
of a local water use point and to arbitrate any disputes that may arise in connection with water use by the community members. This practice has contributed towards rapid creation of water partnership platforms especially at station/village levels as the 'Fathers of Water' were assigned to lead the platforms.

- Broader awareness and appreciation of water management issues of a catchment by users and other stakeholders facilitates efficient use of water resources.
- Stakeholder dialogue helps to gear water management towards meeting the needs of the society without wastage.

About the Project

The pilot IWRM project was implemented during 2006-2008 at two selected catchments in two regional states of Ethiopia, Berki (Tigray National Regional State) and Messena (Amhara National Regional State). The major objectives of the project were to promote application of IWRM and to establish framework for IWRM implementation that can be scaled up to bigger catchments. The Project was funded by the United States Department of State (USDoS) and implemented by the Ethiopian Water Partnership.

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Lessons from Ethiopia IWRM Implementation Pilot Project

1. Challenges of Managing Water Demand in Ethiopia

Although Ethiopia is referred to as the water tower of Eastern and Horn of Africa with a potential of about 122 annual surface runoff and 2.9 Bm³ groundwater, its water resources are not harnessed to contribute to the development of the country. For instance, access to clean and safe water supply is about 50% while irrigated land and hydropower development stand at only 6% and 2% of the potential respectively. The major problems related to water resources management in Ethiopia include drought, flood, deforestation, land degradation and pollution.

2. Water Demand Management Tools

Water demand management refers to a combination of measures to motivate people and their activities to regulate the amount, cost and manner in which they access, use and dispose off water, thus alleviating pressure on freshwater supplies and protecting quality. It is in fact conserving water by controlling demand through the application of measures such as regulatory, technological, economical and social. Demand management reflects a major shift in the approach to water resources management, away from traditional supply development (construction of physical infrastructure to capture more



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of the catchment and the willingness of the local government agencies and the communities to collaborate in the implementation of the model project. The outcomes of the intervention confirmed that Berki is an ideal catchment to apply the principles and techniques of IWRM. The catchment represents a profile that ranges from a degraded highland upstream area to irrigable fertile land in the downstream.

3.2 The Baseline Conditions

Berki catchment covers an area of about 410 Km² in the Tigray National Regional State of Northern Ethiopia. It is mainly shared by two Woredas (districts), Atsbi at upstream and Wukro at downstream. The third Woreda (Enderta) too has a very small share. The water resource management issues of the catchment include:

Competing water uses: - drinking, irrigation (three modern diversions and one traditional diversion on Berki river, shallow hand dug wells, pumps),



environmental demands, domestic and animal use, church services, and small businesses).

Water scarcity: - water is a scarce resource and is not adequate to satisfy all the demands. The different water use activities have therefore put heavy pressure on the available water, especially for far downstream users. Consequently, communities downstream of the catchment who depend on the Berki River for their water supply already suffer from shortage of water due to the pumps and diversions at the upstream locations. They are forced to travel long distances to access water especially during the dry seasons.

Water conflicts: - local conflicts have started to emerge between upstream and downstream irrigation users; upstream and downstream districts/communities; private water users and the already developed schemes as well as water regulators and users.

Water management: - lack of knowledge on the resource base, inefficient use of water including flood/furrow irrigation practices, pollution by upstream uses of water for washing clothes and animal drinking, poor catchment management due to deforestation, and poorly regulated water abstraction are the major water management issues that require immediate attention.

Poor collaboration: - there were no mechanisms to enhance collaborative/coordinated management of water resources of the catchment.

Poor awareness: - understanding of integrated water management issues by all the stakeholders was very poor due to the low level of their awareness.

Key challenge: - management of water resources for all users and all purposes on equitable and sustainable manner was the key challenge facing the catchment.

3.3 The Intervention Process

Water resources assessment:

- Assessment of water and other natural resources, and the socio-economic dynamics of the catchment was carried out by a technical committee composed of members from the Regional and District water bureaus, Mekelle University and Tigrai Agricultural Research Institute, all operating in the Region.

Participatory approach:

- Participation forums were established at various levels ranging from communities to districts and catchment levels with members drawn from the major stakeholders involved in the management, development and conservation of the catchment. The platforms are non-registered bodies owned by the stakeholders and facilitated by the respective water organizations at the Regional, Woreda and Station/Village levels. These platforms helped to create a common understanding by all the stakeholders about the water resources potential and challenges of the catchment; and to agree upon the mechanisms for water demand management.

3.4 Agreed Water Demand and Supply Management Mechanisms

A combination of both water supply and demand management was found to be the appropriate approach to address the grave social and economic problems of the Berki catchment as a result of excessive and inequitable exploitation of the water resources beyond the natural limits of the system. The following activities were identified and included in the Berki Catchment IWRM Plan.

- Rehabilitating the upper catchment area through soil and water conservation measures;
- Strengthening of Water Use Associations through legal backup, training of the members of the committees established at different levels on conflict resolution and the Concept of IWRM;
- Enhancing water supply through artificial recharge techniques such as trenches, pits and check dams;
- Harvesting water through dams, ponds, and roofs at the middle and lower catchments
- both for artificial recharge and direct use;
- Introducing water efficient technologies, cropping systems, practices, etc. (e.g. replacing unlined open furrows and leaking pipes, and use of drip and sprinkler irrigation);
- Development and enforcement of local rules/regulations for water demand management and proper land use systems.
- Preparation of guidelines for efficient and equitable utilization of water and land resources.



3. Developing Appropriate Demand Management Mechanisms

3.1 Selection of the Berki Catchment for the Pilot IWRM Project

Berki Catchment was selected by a rigorous evaluation process using relevant criteria developed jointly by EWP and GWP EnA for this purpose. Eight catchments including Berki were considered as potential sites for piloting IWRM in Ethiopia. The main criteria included the water resource situation of the catchment, existence of multiple uses and users of the catchment water resources, the size

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