

Executive summary Jean Carlos Rodriguez de Francisco

This thesis investigates the use and users of environmental services related to domestic water supply and irrigation water in the Ethiopian Central Rift Valley (CRV). Additionally, it analyzes the existing institutional policy framework in Ethiopia and other preconditions for designing and implementing schemes for Payment for Environmental Services (PES). The core idea of PES is that beneficiaries of environmental services make payments to land users in return for adopting land and resource uses that secure the delivery of these services. In this study, PES relates to water availability and/or water quality for downstream beneficiaries, i.e. domestic water supply and irrigated agriculture.

The applied methodology consists of questionnaires for governmental organizations at the federal, regional, zone and local level with qualitative and quantitative information requests on the policy environment, irrigated land areas, awareness, etc. In addition, interviews were held with groups of irrigation users, domestic water supply offices and non Governmental Organizations (NGO's).

The analysis of the policy framework shows that water resources in Ethiopia are open-access resources, which contribute to their unrestricted use and the risk of depletion. There are no policy instruments available to promote a more efficient use of water. Recent and new policy strategies aim at limiting the open-access nature of water resources through the development of fee systems for water users. Both in the Federal River Basin Councils and Organization proclamation as well as the Oromia Regional State Water Resources Management Regulation such fee systems have been proposed. However, there seems little coherence in both policies developed at federal and regional level and it is still unclear how both policy strategies (including apparent competing fee systems) will be implemented.

Based on information of *woreda* administration offices, the study made an inventory of the irrigation schemes and an estimate of the total irrigated area in the CRV. The study estimates the current irrigated area in the CRV at around 12.000 ha of which 3338 ha in the Ketar watershed, 1315 ha in the Meki watershed, 3782 ha around Lake Ziway, 468 ha along the Bulbula, 3072 ha based on (mainly shallow) groundwater and 207 ha based on springs. Many of the irrigated agriculture in the Meki area is based on shallow (up to 10 m deep) groundwater accounting for 25% of the total irrigated area in the CRV. The study further subdivides the irrigated area in each

watershed according to land managed by private investors, cooperatives and water user associations.

The domestic water supply services reach about 79% of the total urban population in the CRV (280.000). Main urban centers in the CRV are the cities Butajira, Asella (largest with 75.000 inhabitants), Ziway and Meki. Domestic water supply depends on a mixture of spring, river and lake water depending on the location of the urban centers. Based on daily per capita water consumption and the urban population the total domestic urban water supply is estimated at about 1 million m³ water and neglectable compared to the water extraction for irrigation in the CRV.

The awareness of stakeholders concerning water availability and water quality varied among location and type of stakeholder in the CRV. For example, problems with water availability were always mentioned by farmers, government organizations and NGOs in the Meki watershed. Erratic rainfall and competition among water users were identified as major reasons for this problem. In the Ketar watershed water availability was less recognized as a major issue. Also around Lake Ziway, water availability problems are less recognized by stakeholders as the lake acts as a buffer. Stakeholders associate the seasonal change in the level of Lake Ziway with the rainy and dry season and not with the upstream extraction of water in the Meki and Ketar watersheds. The potential risk of salinization of Lake Ziway due to over-exploitation of water resources was only recognized by NGO's working around Lake Ziway. The pollution risk of Lake Ziway is recognized by domestic water users in Ziway town. Stakeholders downstream along the Bulbula River and close to Lake Abijata associate low water availability with the upstream water extraction by flower farms.

Based on a limited survey sample (60 farmers) the study also explored whether lowland farmers are willing to pay for irrigation water. The majority of these farmers argue that they already pay for water through pumping costs, and 25% of the farmers consider water as a gift from nature and also opposed the idea. However, in situations with more competition (along Meki) and in the highlands where farmers use mainly gravity irrigation, the willingness to pay for irrigation water may be different.

To implement a PES, a robust and competent institutional structure is required. Both the development of the River Basin Organizations (RBO) for the Rift Valley Lakes Basin and the Rift Valley Lakes Basin Integrated Resources Development Master Plan Study Project offer

opportunities to design and implement PES or any other incentive for sustainable use of land, forest and water resources. Monitoring and enforcement capacity of the regulation and PES agreements can be part of the responsibilities of the RBO, in close collaboration with Oromia Environmental Protection Office (i.e. water quality) and the Oromia Water Resources Bureau-OWRB (i.e. water quantity). In order to make this work it is necessary to improve the presence of the OWRB authorities at the local level. However, the establishment of a public system for PES is hampered by high national fiscal deficit - 7.4% of the GDP, which prioritizes investment in other areas than the environment. The high cost of conservation is an obstacle for the development for a public PES model. An alternative model for PES schemes could be the combination of a private and public model, which could be linked to the RBO under development for the Rift Valley and bringing together the private and public sector.

The study calls for an integrated assessment of the development potential of irrigated agriculture in the CRV against the background of the limited availability of water resources and the potentials that irrigation offers to reduce the high poverty levels in the CRV. In addition, the study argues that the current land tenure system does not provide incentives to invest in land improvements, which could hamper the introduction of any type of PES in the CRV. In short, low levels of environmental and water law implementation and monitoring, high conservation opportunity costs, lack of institutionalism and a low level of problem awareness among users suggest that it is too early to develop a PES for the CRV. In addition, the lack of incentive mechanisms for the sustainable land, forest and water management in Ethiopia calls for the establishment of other incentives. For example, differential land tax incentives to reduce land degradation or environmental taxes so that generated tax revenues could be re-invested into resource conservation.