

# Scoping the potential of 'rewards for environmental services' in the Usambara Mountains of Tanzania

A study by PRESA partners indicates that time is right for 'rewards for environmental service schemes' to be implemented as part of a suite of strategies to halt degradation in the Usambara Mountains.

A homestead on the forest line at the Usambara Mountains, Tanzania (Photo \ J. Jabbour)

The Usambara Mountains are an important source of water for north eastern Tanzania. The towns of Lushoto, Mombo, Korogwe, Muheza and Tanga rely on water from the Usambara Mountains. The Pangani River, which flows from Mt Kilimanjaro, receives significant inflows from the Usambaras. The river is used for irrigating farms and powering a series of hydro electric stations.

Deforestation, poor land management practices and inadequate funds for watershed management pose a threat to the long term supply of quality water from the Usambaras to downstream communities.

The direct adverse impacts are immediately seen in agricultural production, municipal water supply and hydropower

generation.

The PRESA project is working with site partners to link upland farming communities with urban water utilities, hydro-power generators and downstream agricultural producers. This will result in greater co-operation for restoring and sustaining a healthy catchment ecosystem.

PRESA's main partner in the Usambaras is the Selian Agricultural Research Institute (SARI) working closely with the African Highlands Initiative (AHI).

## Activities

In 2009, SARI carried out a research to take stock of rewards for environmental services initiatives in the area. This included analysis of relevant institutional contexts specifically at the West Usambara Mountains, Lushoto and Korogwe

Districts. A survey was conducted to generate information on the status of rewards for environmental services including a quick appraisal of existing mechanisms and how local institutional foundations can facilitate fair and workable reward schemes in Lushoto district.

The project was appreciated and seen to be promising in terms of halting the escalation of environmental degradation. For example, River Soni has become a seasonal river due to destruction of the ecosystem around its source. Stakeholders emphasized the need for 'sellers' and 'buyers' to cooperate in ensuring sustainable flow of water and other environmental services.

The intention of the study was to draw attention to stakeholders, including farmers, on the different types of rewards for environmental

services that may benefit them. Cash payments were discussed as well as other modes of payment, which are determined by environmental stewards (in most cases communities) and the buyers through negotiations

## Opportunities and remaining challenges for PRESA

Conservation activities that can link to different types of reward systems were identified as follows:

**Water conservation:** The highlanders can be rewarded for their conservation efforts by downstream water users. Potential buyers are large scale water users particularly sisal processing factories in Mombo, Mkumbara, Mazinde, Kwembaguru and all other sisal plantations in Korogwe district. Other buyers are the Mombo irrigation scheme and the Tanzania Electric Supply Company Ltd (TANESCO). Government authorities could emerge as honest intermediaries to ensure fairness, equity, and maintain law and order.

**Carbon sequestration:** Where farmers have planted trees, measurement of carbon sequestered can be carried out - the amount of carbon per unit area can be aggregated to reach the tradable volume. Government and other Institutions like the Food and Agriculture Organization (FAO) and the Eastern Arc Mountains Conservation Endowment Fund may be the potential buyers while farmers are sellers.

**Soil conservation:** Through the use of soil conservation technologies, farmers contribute towards enhanced water infiltration, increased soil carbon and fertility, increased food productivity, and in general, nature conservation.

## Potential barriers to provision of ecosystem services

Most of the conservation activities are expensive. For instance, terracing which is key to soil conservation and water infiltration, is labour intensive and many farmers shy away from it. Tree planting requires buying of seedlings yet the majority of farmers are living below the poverty line of a dollar per day.

Land is a limiting factor due to increasing population and poor land productivity. This has resulted into small land holdings and possession of several small pieces of land in different places within or outside the village. The study by SARI found that 50% of the land is leased and the occupants may not be willing to invest in conservation work on land that does not belong to them.

By-laws are necessary to enhance ecosystem conservation efforts. However, the lack of by-laws in favour of natural resource conservation was mentioned in some villages. This has contributed to failure in implementing measures to improve environmental services. For those villages with adequate by-laws, enforcement is a problem as the capabilities of law enforcers in the rural areas are limited. Besides, most penalties are too low to stop violators from repeating the same offense.

On the other hand, communicating payments for ecosystems services should be done carefully, so as not to raise local expectations, possibly disorganize existing structures and negatively affect social norms.

PRESA – Pro-poor Rewards for Environmental Services in Africa is working at sites in Kenya, Tanzania, Uganda and Guinea to facilitate fair and effective agreements between stewards and beneficiaries of environmental services. Voluntary, conditional and negotiated agreements can reward poor farmers for good land use practices, while ensuring a clean and sustainable supply of environmental services for local and global communities.

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## Partners

- African Highlands Initiative (AHI)
- Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)
- Tanzania Forestry Research Institute (TAFORI)
- Selian Agricultural Research Institute (SARI)

## Stakeholders

- Tanzania National Electric Supply Company (TANESCO)
- Pangani Water Basin Office (PWBO)
- Local farmer organizations
- Local planning and agriculture authorities

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