Why Payment for Water Services Matters for Effective Conservation of the Eastern Arc Mountains of Tanzania?

Key Messages

- The concept of Payment for Ecosystem Services (PES) has the potential to incentivize forest managers and owners towards strengthening conservation and management activities.
- Payment for water services could be a possible financing solution to complement government's budgetary allocation for the forestry sector.
- Some forms of payment for water services exist but the mechanism to which this payment is portioned and reinvested back to enhance conservation of water sources is not clear.
- The presence of the EAMCEF as a funding mechanism, and its experience in mobilizing resources and issuing grants for conservation activities offers an opportunity to channel payments for ecosystem services such as water, for the conservation of the EAMs ecosystem.

1. Introduction

Payment for Ecosystem Services (PES) is defined broadly as a scheme, which involves payment to the owners/managers of land and natural resources in exchange for the services provided by the land/natural resource, over-and-above what would otherwise be provided without such arrangements.

Ecosystems Services, as simply defined by the Millennium Ecosystem Assessment Report of 2005 - are the benefits people obtain from the ecosystem, including provisioning services such as food and water, regulating services such as flood and disease control, cultural services such as spiritual and recreational benefits, and supporting services such as nutrient cycling that maintain the conditions for life on earth. Through studies supported by the EAMCEF and other parties, key services of the EAMs ecosystem were identified, and total economic value estimated, for services categorized as – agricultural products, water resources, extracted forest products, biodiversity, standing timber, tourism, value of existence, carbon sequestration, and floods and erosion control. PES in this case would mean setting up an effective mechanism where some of the key services provided by the ecosystem (mostly not listed in market prices) are paid for, in return, to allow for owners and managers to enhance availability of such services and/ or to compensate for the opportunity costs for conserving and protecting such areas for the services provided.

This brief does not focus on all ecosystem services provided by the EAMs ecosystem but rather on water services alone due to its direct impact on major economic activities in the country, also for easy demonstration of the PES concept.

This brief answers three main questions: Why pay, who should pay, and who should be paid for water services?

2. The EAMs forests as water catchment sites

The Eastern Arc Mountains (EAMs) stretching from Southern Tanzania to South East Kenya, covering an area of up to 23,000 square kilometres, forming an arc-like chain of mountain blocks. The EAMs are formed by 13 Mountain blocks of North and South Pare, West and East Usambara, Nguu, Nguru, Ukaguru, Uluguru,

Malundwe, Rubeho, Udzungwa and Mahenge in Tanzania as well as Taita Hills in Kenya. Twelve of the blocks are on the Tanzania's side. On the Tanzania's side the mountain blocks spread in over fifteen districts in five regions of Tanzania namely, Tanga, Kilimanjaro, Morogoro, Dodoma and Iringa.

The EAMs are covered by rainforests and grasslands. Forests of the EAMs are important water catchment areas – or simply referred to as watersheds. By being watersheds, the forests collect rainwater and or run-off waters and channel them into rivers, dams, lakes or into underground water systems – thereby controlling flow of water into the ecosystem and beyond at all times. Water as a critical environmental service is important to the survival of the existing biodiversity and for human activities downstream. Rivers originating from the EAMs supports about 25% of the country's population. Many rivers of the eastern Tanzania source their waters from the EAMs. The EAMs are a major source of water for hydropower generation, small and large-scale agriculture (e.g., Paddy/Rice, Maize, Sugarcane, Forest Plantations and Tea.), domestic and industrial use. Major towns and cities surrounding the EAMs ecosystem such as Dodoma, Iringa, Tanga, Dar-es-Salaam, Morogoro, Ifakara, Lushoto, Mwanga, Same, Mombo, Korogwe, Kilosa, Muheza, Kibaha, Mpwapwa, Mvomero, Turiani, Kilindi, Gairo, Mikumi, Chalinze, Handeni and Kilolo rely on water whose sources originate from the EAMs. Main rivers originating from the EAMs include - Ruvu, Zigi, Wami, Kilombero, Little Ruaha and Pangani rivers.

On electricity, the total economic value of the hydropower potential of the EAMs ecosystem is estimated at USD 66 billion which is 28% of the total economic value of the entire ecosystem. The EAMs are a source of water responsible for over 90% of Tanzania's Hydro-Electric Power produced in major power stations of Kidatu, Mtera, Kihansi, Pangani Falls and Hale power stations and Nyumba ya Mungu Dam. The Julius Nyerere Hydropower Station (JNHS) depends upon the EAMs for water supply.

3. Why Pay, who should pay, and who should be paid for water services?

Why pay, who should pay, and who should be paid? These could be three main questions that this brief answers. Water is a nature-given resource and that it flows in a continuous cycle within the earth and atmosphere. In the water cycle, the EAMs forested landscape play the role of water catchment. Considering the important water catchment roles these forests play, the government designated the EAMs as protected areas and prioritized conservation activities, and efforts to address key drivers of deforestation and forest degradation to ensure that there is continued flow of water services. Despite inadequate budget allocations from the government, responsible authorities have been intensifying measures at a scale to protect critical areas.

Currently, major users of water downstream are already paying for water services in some forms but the extent to which payments are channeled back to support forest managers is not known. This brief advocates for the need to set up a proper mechanism to which major water users, and other users contribute to the management of water catchment areas through payments for water services. Under the current arrangements where for example domestic water users pay their monthly bills (calculated per total volume consumed) to Water Authorities, it is not clear on how much of the collection is portioned to support conservation of water sources upstream. Private commercial companies using water in their industrial activities, make profit from their products but the extent to which these companies contribute to conservation activities is not clear. A clear mechanism is needed to guide major users of water, voluntarily, to channel back resources 'pay for water' in support of the conservation activities. This mechanism can also facilitate on how payments are channeled to local communities partnering with forest owners on conservation activities.

About the EAMCEF

The Eastern Arc Mountains Conservation Endowment Fund is a Trust Fund that was established and functions as a long-term and reliable funding mechanism to support Community Development, Biodiversity Conservation and Applied Research Projects, which promote the biological diversity, ecological functions and sustainable use of natural resources in the Eastern Arc Mountains of Tanzania. The EAMCEF operates as a Not-for-Profit Conservation Finance Trust Organization, mobilizes financial resources and issues project grants to Government Departments (Central and Local Governments), NGOs, CBOs, Local Communities, Research Institutions, Academic Institutions, Private Entities as well as interested individuals.

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