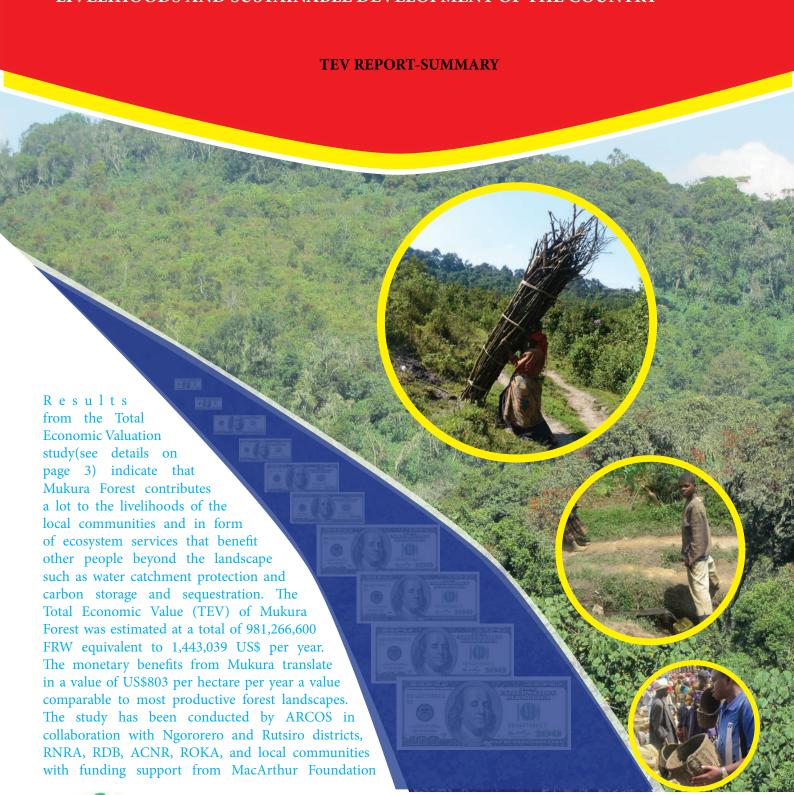# MUKURA FOREST RESERVE PLAYS AN IMPORTANT ROLE IN COMMUNITIES' LIVELIHOODS AND SUSTAINABLE DEVELOPMENT OF THE COUNTRY

TEV REPORT-SUMMARY

Results from the Total Economic Valuation study(see details on page 3) indicate that Mukura Forest contributes a lot to the livelihoods of the local communities and in form of ecosystem services that benefit other people beyond the landscape such as water catchment protection and carbon storage and sequestration. The Total Economic Value (TEV) of Mukura Forest was estimated at a total of 981,266,600 FRW equivalent to 1,443,039 US$ per year. The monetary benefits from Mukura translate in a value of US$803 per hectare per year a value comparable to most productive forest landscapes. The study has been conducted by ARCOS in collaboration with Ngororero and Rutsiro districts, RNRA, RDB, ACNR, ROKA, and local communities with funding support from MacArthur Foundation

COLLABORATIVE ACTION FOR NATURE AND PEOPLE

BACKGROUND

Ecosystem degradation and the loss of biodiversity in the Albertine Rift undermine ecosystem functioning and resilience; thus threaten the ability of ecosystems to continuously supply the flow of ecosystem services for present and future generations. These threats are expected to become greater in the context of climate change and ever increasing human consumption of resources. In order to address the issue of declining ecosystem services and goods within the region, ARCOS is promoting an integrated conservation approach to ecosystem services, including assessments, stakeholders' engagement and piloting payments for ecosystem services aimed at enhancing the flow of benefits to the surrounding communities. In collaboration with its partners, ARCOS mapped and quantified ecosystem services within the Greater Virunga Landscape. The mapped ecosystem services include water, carbon sequestration, non-timber forest products, sediment retention and transport. Through a participatory approach, ARCOS has identified ecosystem services and their monitoring indicators around three important watersheds within the landscapes: Echuya Forest in Uganda, Kibira- Rusizi in Burundi and Mukura Forest in Rwanda. In these landscapes, an integrated landscape assessment and Monitoring (ILAM) framework has been used to assess the biodiversity, community use of ecosystem services and socio- economic status. Baseline studies have now been conducted in all these landscapes as weel as a TEV study commissioned to quantify and valuate objectively the value of the natural capital in these landscapes.

Mukura Forest plays a vital role in communities' wellbeing

What is Total Economic Valuation (TEV)?

Total Economic Valuation (TEV) is a tool that provides an objective way of estimating the benefits derived from natural resources, including direct, indirect, option and existence values of these resources. For the forests and associated landscapes, the TEV includes benefits such as wood and non-wood forest products, ecosystem services such as water catchment protection, pollination, recreation, amenity, soil erosion and landslide control.

The concept of TEV brings out the monetary values of conventional landscape benefits such as timber and poles, which are traded directly through formal markets. Benefits consumed at subsistence level that do not pass through formal markets such as domestic water, firewood, wild fruits, vegetables and those that are not directly consumed such as bird watching, water catchment, soil erosion control, pollination and climate modulation. This helps to clearly point out the realistic economic contribution of landscapes to the economies, compared to conventional methods that only focus on the contribution of timber and a few forest products.

Ecosystem degradation results in different environmental problems such as land slide, etc

DATA COLLECTION AND ANALYSIS

With a good understanding of the TEV approaches and questionnaire, participants (including ARCOS staff, Rutsiro and Ngororero district officials, RDB, RNRA, ACNR, ROKA and local communities) were grouped in four teams to conduct interviews in the Sectors of Bwira, Ndaro, Rusebeya and Mukura adjacent to Mukura Forest. The questionnaire focussed on identified key ecosystem services and monetary returns from the relevant benefits. The data collection lasted for three days and was conducted through visualising and predicting situations, where the wellbeing or utility of individual benefits are derived by a production process, in which natural resources are used as inputs; and estimating the contribution of different resources to such utility or wellbeing; commonly referred to as the production function approach. The Market Prices Method was used to value direct use values, and most important for valuation of products, whereby the value was estimated from the price in commercial markets, considering the law of supply and demand. The Productivity Method was also used for specific goods and services. The Contingent Valuation Method (CVM) was also used for tourism and Non-Use values. This method involved asking

ARCOS team conducting surveys on socio- economy in Mukura Forest

people directly how much they would be willing to pay for specific environmental services, as one of ways to estimate the Non-Use values. After field data collection, preliminary data computation was carried out and a basic analysis done to generate monetary values from the benefits. Detailed computation and data analysis was carried out to produce the report on Total Economic Value of resources from Mukura Forest.

STUDY FINDINGS

The TEV study of Mukura landscape was conducted by ARCOS in collaboration with RDB, RNRA, ACNR, Ngororero and Rutsiro districts, ROKA and local communities, with funding support from MacArthur Foundation through the project termed "Enhancing Ecosystem Services Resilience and Sustainable Benefits to Local Communities in the Albertine Rift region" or ESLOC .

The results from the study indicate that Mukura Forest contributes a lot to the livelihoods of the local communities and in form of ecosystem services that benefit other people beyond the landscape such as water catchment protection and carbon storage and sequestration. The Total Economic Value (TEV) of Mukura Forest was estimated at a total of 981,266,600 FRW equivalent to 1,443,039 US$ per year. The monetary benefits from Mukura translate in a value of US$803 per hectare per year a value comparable to most productive forest landscapes.

Notable among the key benefits valued from Mukura Forest was water, which is used for domestic purposes and for livestock watering and contributes a total of up to 477,469,000FRW (702,160 US$). The high value of such a resource is enough justification for investment in the management and conservation of Mukura Forest.

Water is among the key benefits from Mukura Forest

Other important resources valued that have very significant importance are wild fruits, vegetables and mushrooms that do not only contribute to cash income for some communities, but also contribute a lot to food and nutrition security for the local communities. Results from the TEV demonstrate that Mukura Forest and other landscapes have important resources that contribute to income, livelihoods and food and nutrition security for Rwanda. As indicated by the monetary estimates, it is clear that the ecosystem services can be important inputs to national development

Baskets sold at the mark provide income for the community. The forest provide raw materials for this handcrafts making

TABLE 1: SUMMARY TEV MUKURA FOREST

Variable	TEV (FRW)	TEV (US$)
Net Total Economic Value for Mukura Forest	981,266,600	1,443,039
Net Benefits per Hectare per Year	545,755	803

RECOMMENDATIONS

The study recommends that the TEV results should be used to inform policy and decision makers to prioritise investments management and conservation as a way of protecting the natural capital that is important for economic development.

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