

TEEB - Tanzania



THE RUFJI RIVER BASIN

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TEEB Project in Tanzania

The study aims at creating and comparing alternative quantitative scenarios for land management of the Rufiji River Basin in Tanzania.

The Rufiji watershed is critical for Tanzania's development;

- ▶ draining 21% of the country,
- ▶ The basin offers a variety of ecosystems and biodiversity services including (food, timber, Carbon sequestration, biodiversity etc
- ▶ There are competing water use and land use options in the basin; afforestation of mountain grasslands, planned dam construction for irrigation and HEP, and water-intensive farming practices



In 2010 the GoT launched **Southern Agricultural Growth Corridor of Tanzania (SAGCOT)** initiative as a PPP;

Unlocking the agricultural potentials of the basin

- ▶ 350,000 hectares in profitable production, serving regional and international markets.
- ▶ tens of thousands of smallholders become commercial farmers, with access to irrigation and weather insurance.
- ▶ at least 420,000 new employment opportunities created in the agricultural value chain

Main Objective

- ▶ “To examine major land uses/cover in the Rufiji river catchment and conduct policy scenario analyses to inform policies for better land management in the basin; through detecting long-term trends and changes in stream flows and how the changes are correlated to land use/cover changes”.

Scope of the Study

- ▶ In *the Mountain Highland zone* (1,900 - 2,700 m.a.s.l.), examined and compared impacts of continued traditional conversion of mountain grasslands to *pine* and *eucalyptus* forest and agricultural expansion
- ▶ In *the Midlands zone* (1500 and 1900 m.a.s.l.), examined the impacts on ecosystem services under the BAU scenario, under traditional conversion of natural woodlands or forests into tea plantations, fruits plantations, as per the BRN initiative.

- ▶ ***In the Lowlands Rufiji River Delta zone (0 to 2 m.a.s.l.), considered the BAU scenario involving continued traditional conversion of mangrove forest to traditional shifting paddy cultivation***

Scenarios

► Business As Usual (BAU)

simulated to estimate projected changes in the Kilombero cluster under continuation of existing trends (e.g. population growth, agriculture) and related impacts on the environment (e.g. carbon sequestration and water yield)

► SAGCOT Scenario

Simulated to estimate projected changes in the Kilombero cluster under the SAGCOT strategy

Aspects: water, food, carbon sequestration, land use changes

Research Findings

- ▶ Highest sediment yield is observed in the uplands and midlands regions.
- ▶ Lowlands have lower sediment yield because the wetland acts as sediment trap.
- ▶ Between December and April the basin experiences a water surplus due to excess of rainfall over evaporation.
- ▶ Between May and October the evaporation exceeds the precipitation and results in water deficits
- ▶ Decline in carbon sequestration

Policy Implications

BAU

- ▶ Population growth is projected to increase over time following the historical trend, which will lead the number of inhabitants to double by the year 2030
- ▶ Population growth will cause a steady increase in agriculture land to cover the demand for food, which increases at the same rate as population
- ▶ Total income from agriculture, which is the sum of profits from smallholders and the labor income of farm workers, will increase at its historical rate
- ▶ Land conversion takes place to increase the amount of agriculture land and urban area to accommodate the needs of the growing population

SAGCOT

- ▶ Expansion of farmland by 52,000ha (2018-2022)
- ▶ growth in food production for domestic and export and income
- ▶ risk of overusing surface and ground water
- ▶ gains from SAGCOT may be short-lived, as side effects and competition for water could emerge in the medium term
- ▶ attractive for the population and businesses (more land for settlement and agriculture)

Policy Recommendations

- ▶ both scenarios, the expansion of agriculture land bears the risk of over-extraction of surface water especially dry months
- ▶ Need for identification of suitable crops for dry months and investments in water efficiency technologies
- ▶ Need for assessment of water budget for proper planning of the basin (hectares, crop types)

Conclusion

“There is need for TEEB project not to end up with NO or YES answers but balanced scenario (negotiated from BAU and SAGCOT) to advice the decision makers for the development path that will maximize benefits and minimize externalities to the environment”

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