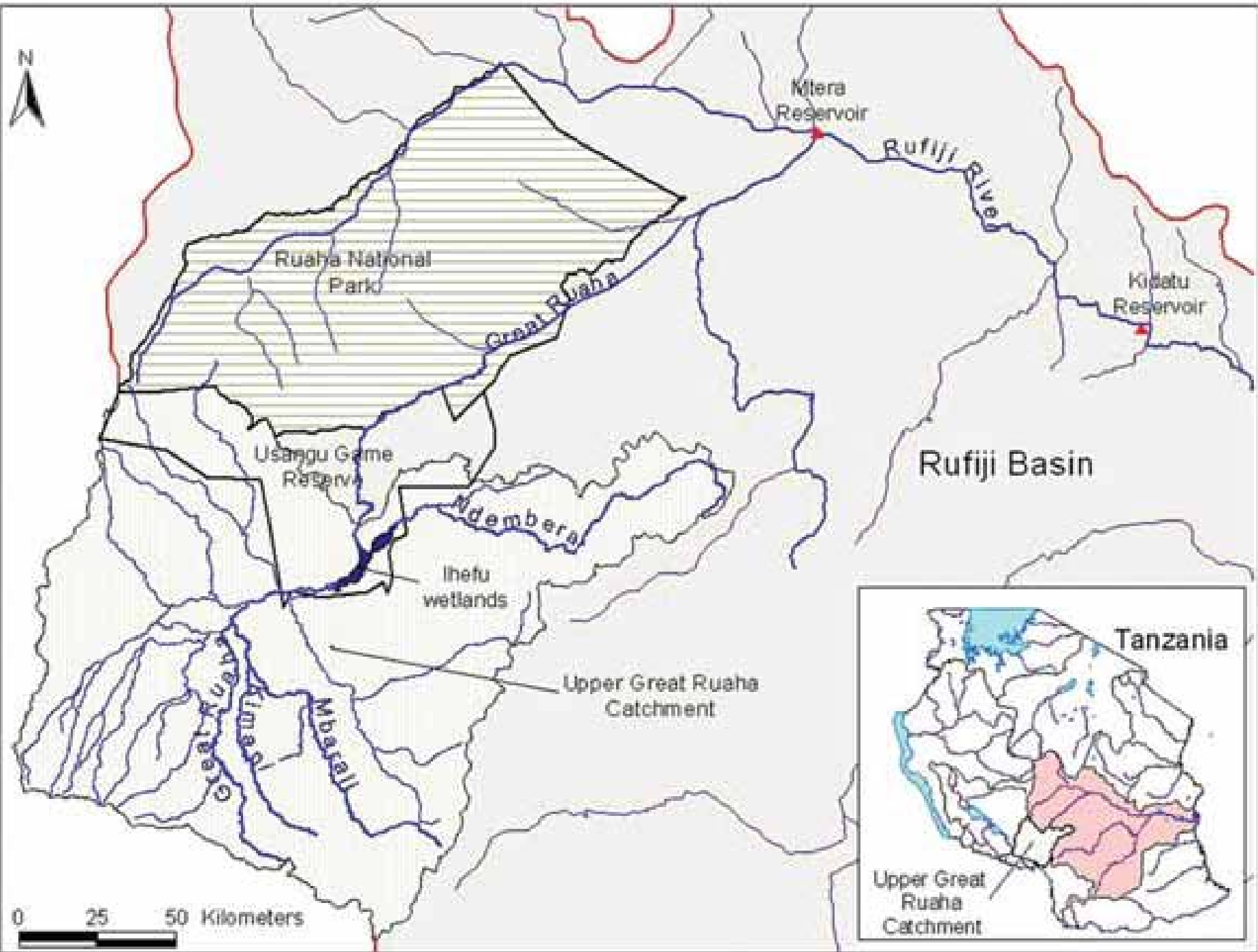


MANAGING THE UPSTREAM FOR MAXIMUM ENERGY PRODUCTION DOWNSTREAM: The Case of Usangu Floodplains Tanzania

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1. INTRODUCTION

- The United Republic of Tanzania is located in Eastern Africa between Longitude 29° and 41° East, Latitude 1° and 12° South.
- Tanzania is the biggest (land area) among the East African countries (i.e. Kenya, Uganda and Tanzania) with an area of 945,000 square kilometers.



Introduction

- Population of Tanzania is estimated at 35 million people with ratios of women being 51% and men 49%

Energy:

- Petroleum, hydropower and coal are the major source of commercial energy in the country. The biomass energy resource, which comprises fuel-wood and charcoal from both natural forest and plantations, accounts for 92 per cent of total energy consumption .



Energy.....

- Electricity subsector contributes about 0.6 per cent of total energy consumption. Electricity is mainly generated from hydropower - which is prone to draught effects- so some thermal power stations have been installed.
- Only three quarters of the country (mainly urban areas) is connected to the national grid. It is intended that the rest of the country, including an estimated 8,200 villages should be supplied with electricity to curb deforestation.



Energy

- There are other indigenous alternative sources of energy which include coal, wind and solar energy.
- Tanzania has 1,200 million metric tons
- Use of solar energy is on the increase especially in rural areas where electricity is not available. Very little attempts has been made to utilize wind as source of energy which could be a viable alternative source to reduce use of wood and oil



Energy

- Biofuel is another important source of energy. Biogas has been used in some rural areas in northern and western Tanzania where they keep livestock. The use of biogas is on the increase.

Natural Resources

- The country is endowed with significant natural resources, which include forests and woodlands, wild animals, rivers, lakes and wetlands. All these resources play big roles to the economy in terms of the social and economic goods and services, which they provide



IMPORTANCE OF UPSTREAM FOR ENERGY PRODUCTION

- The upstream waters on energy production are of big importance in the energy sector.
- Tanzania has three main sources of electricity namely hydro, coal and petroleum.
- The costs related to these three sources are such that hydro is cheaper when compared to petroleum and coal in the long run.



Importance of upstream

- Highland areas gets more rainfall amounts than the lowlands
- The water which is flowing downstream is the one which is then used to produce electricity in the hydro power stations.
- If the uses of various consumers on the upstream are very high then there is shortage of water downstream especially during the dry season thereby causing problems to hydro electric power production.



Importance of upstream

The case of Usangu Plains

- Over the past 50 years, the population of the Usangu headwater catchment has risen steeply. Between 1950 and 2000, the population on the Plains increased from less than 50,000 to more than 210,000, largely through the immigration of people from all over Tanzania. They include farmers and pastoralists



Importance of upstream

- The total irrigated area increased from approximately 5,000 to 45,000 hectares (ha)
- Between 1973 and 2000, the total area of bare soil and cultivation on the Plains and in the immediate vicinity, increased from 121,200 to 874,300 ha



Importance of upstream

- The large influx of people and the increase in demand has led to increased competition and conflict over water, especially in the dry season.
- Historically, the Great Ruaha River was perennial; flow lasted throughout the dry season.
- Since the early 1990s, water levels have dropped and consequently flows downstream have ceased in the dry season every year
- The drying up of the river coincided with power shortages in Tanzania, which the national power company, attributed to reduced dry season inflow



Importance of upstream

- Government of Tanzania promised to re-establish a “year-round flow” by 2010 (former Prime Minister, Mr. Frederick Sumaye, speaking at the Rio +10 preparatory meeting, 6th March 2001, London).



MANAGEMENT OF UPSTREAM

- The government ordered for the removal of all livestock in the area in 2006,
- The government requested the irrigators to ensure that excess water from irrigation is returned to the main river.
- The local government in the area ordered for closure of some canals



Lessons learned

- **The need for large-scale, long-term interdisciplinary research**
- **Challenging entrenched normal professionalism**
- **Understanding the role of the powerful elite**
- **The need for local water development solutions in managing basin-level water scarcity**



CONCLUSION AND RECOMMENDATIONS

- After the decision by the government of Tanzania to remove all livestock from the Usangu Plains, closure of some canals and the return of irrigation water to the main river, it was noted that the actions were proper and were appropriate for the interest of the country's economy and the livelihoods of the communities downstream.



Outcomes

- An increase in the water levels and downstream flows (visual observation and not based data although the data is available but time was too short to collect such information)
- The dams whose levels had dropped so much and experts estimating that it will take about ten years to be filled up again, was full by 2007,
- Power production was back to normal in the hydro power stations downstream



Outcomes

- The dry season flows were stable and no drying up of the river noted during the dry season, and
- Inclusion of the floodplains into Ruaha National Park will ensure proper protection of the area.



Challenges

- Siltation caused by upstream activities such as cultivation is causing reduction in water carrying capacities of such important structures,
- Delayed action by the government caused some complains which means action should have been taken at the beginning of the problems such as the pastoralists invasion into the area
- Preparation of areas to send livestock to was not thorough enough thereby causing complains



Way forward

- Proper management of upstream is a key to sustainable hydro power production downstream and therefore all the key stakeholders must be well vested with the management plans for managing such areas.
- Upstream management is very important to not only energy production downstream but to other users such as aquatic animals, human beings who depend on this water for their livelihoods and other living organisms and plants that live downstream.



Way forward

- Governments, Non Governmental Organizations, Private sector as well as international community should put their efforts together to ensure sustainable management of upstream for improved livelihoods of the people in concerned areas and the globe as a whole.



- Thank you for attention

