THE UNITED
REPUBLIC OF TANZANIA

Realising Water's Potential to Support Growth in Tanzania

Produced by the Research and Analysis Working Group of the MKUKUTA Monitoring System,
Ministry of Planning, Economy and Empowerment

Tanzania has considered water as a scarce resource and as a consequence, a constraint to, rather than enabler of, growth. However, the potential of water to support growth in the economy has not been fully explored. In reality Tanzania has an adequate supply of water resources to meet the requirements of users. This brief recommends that the country re-positions water as a growth enabler by focusing on the governance of water resources; strengthening both the management of the resource and the infrastructure for conserving it. This resource should be proactively managed to support the growth of the economy.

The Facts: Abundant Water Resources

Overall, Tanzania is blessed with abundant water resources. It shares three of the largest freshwater lakes in Africa with neighboring countries. According to FAO, Tanzania had 2,466.9 and 2,291.2 m^3/capita of renewable water resources for 2006 and 2007 respectively. Due to population growth, the figure is expected to drop to 1,500 m^3/capita by 2025. This will still be above the 1,000 m^3/capita mark for a country to be considered water scarce.

Furthermore, according to the National Irrigation Master Plan, it is also estimated that the current levels of water use require less than 1% of the total rainfall received annually (see Table below).

General Water Balance in Tanzania Mainland (Annual Mean Supply (million m^3))

	Annual Mean (Million m^3)	
	Inflow	Outflow
Rainfall	921,032 100%	
Evapo-transpiration		827,313 89.8%
Runoff (into lakes and oceans)		89,530 9.7%
Ground water recharge		3,725 0.4%
Water use domestic, irrigation and livestock, (excluding non-consumptive use)		5,116 0.6%

Source (URT, 2002)[1]

As shown above, Tanzania does have sufficient water overall, but there is a widespread perception that water is generally a scarce resource for this country. It is necessary to examine the underlying reasons for this perception because this influences current strategies for water use.

The Perception: Scarce Water Resources

First, Tanzanian water resources are unevenly distributed, both in its timing, and its geographical location. Some parts of Tanzania receive over 1,600mm of rain annually, while the central dry areas of the country receive around 600 mm. This spatial and temporal variability in water supply creates localised and intermittent shortages, which in some cases limits economic activity. In light of population growth and projections of increasing variability in climate change, the current shortages are cause for concern. Left unchecked, intermittent and localised shortages may worsen to limit production year round.

[1] *United Republic of Tanzania (2002) The National Immigration Master Plan. Main Report*

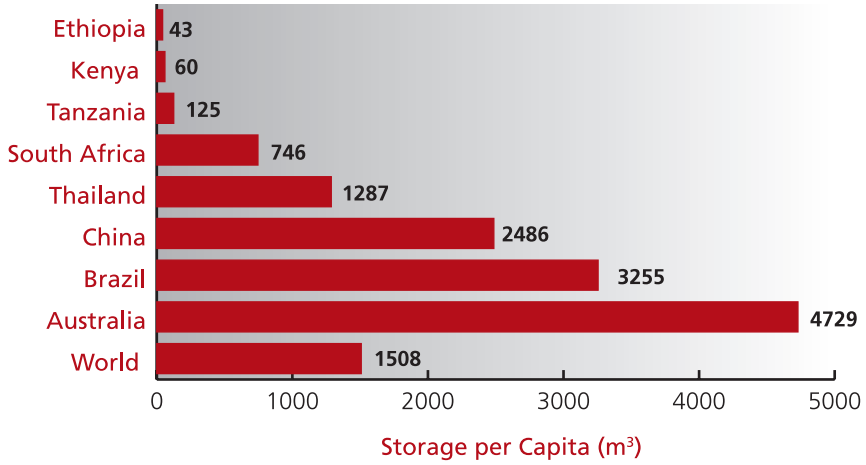
The uneven distribution of water is not, however, the main reason for these shortages. Rather, the current inadequacies in national capacity to manage water resources significantly underlie these shortages, as discussed later in this brief.

The second reason for the perceived shortage is inadequate water storage capacity. Tanzania has not been able to satisfactorily harness its water resources to achieve water security[2], in part because of the lack of strategic, multi-purpose, artificial (man-made) water storage facilities. Currently, the country has 22 reservoirs. However, apart from several large reservoirs built to regulate water flows for power generation (e.g. Mtera and Nyumba ya Mungu), most other dams have small installed capacity (0.5 – 2.5 million cubic metres).

Tanzania has plenty of natural storage in the form of perennial rivers, lakes and groundwater, but again these are inaccessible to large segments of the population. This failure to strengthen the infrastructure for harvesting and storing water reduces the potential for access to and use of an otherwise abundant water supply.

Resulting shortages have led to increased socio-economic pressures and sometimes conflicts among users, particularly during prolonged dry periods. In contrast, other countries that face similar rainfall unpredictability have invested heavily in multi-purpose storage facilities, consequently they are able to better handle adverse conditions. Expanding water storage continues to be the main strategy employed by these countries to meet increased water needs arising from population growth, weather variability and the demands of water dependent productive activities.

Water Storage per Capita for Selected Countries[3]



Source: Adapted from World Bank 2005

Weak management by institutions which manage water resources is the third reason for perceived shortages. In Tanzania, Basin Water Offices are the responsible body for local coordination of water utilization and reinforcing standards in relation to pollution, water source degradation and trans-boundary management. There are nine offices, one each for the nine main river basin areas. Rufiji, and Pangani began operating in the 1990s, the other seven offices after 2000. All offices face considerable management challenges, especially insufficient financial resources, technical shortages and administrative weaknesses.

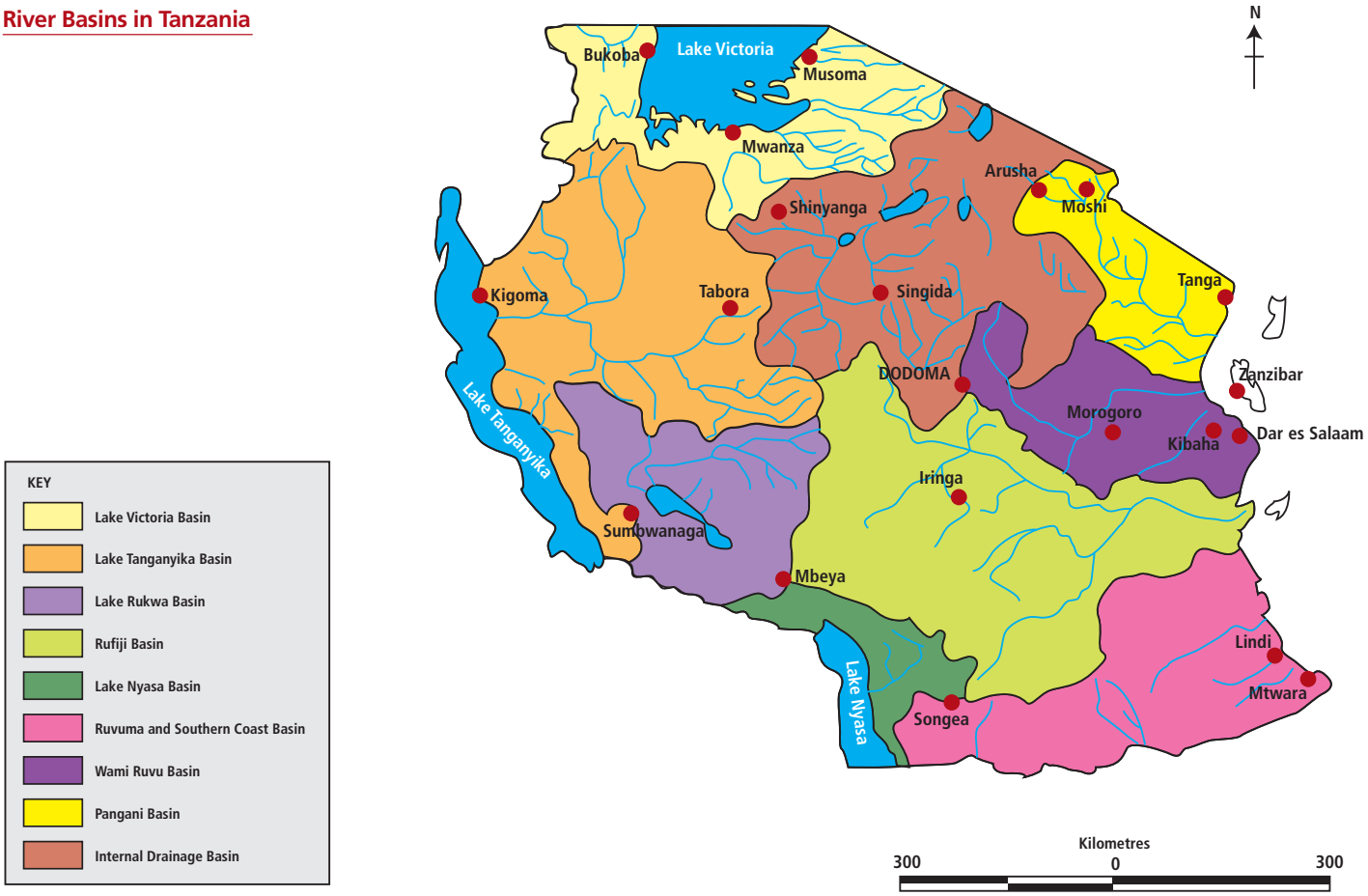
For example, although these Basin Water Offices are responsible for coordinating planning of water resources utilisation, there is inadequate basin wide hydrological information, limited inventories of users, few comprehensive development plans to support monitoring of water use and guide investments, and weak human resource capacity. The offices also face a complex task of undoing the cumulative impact of past uncoordinated sectoral and local water utilization. In addition conflicts amongst water users augment the problem.

These institutional weaknesses, coupled with inadequate infrastructure exacerbate the common misconception that there is a scarcity of water, which in turn leads to the impression that access to water must be contested.

[2] Water security is defined as the reliable availability of acceptable quantities and quality of water for production, livelihoods, health combined with levels to mitigate risks caused by unpredictable weather.

[3] The figure for Tanzania is estimated by adding up the installed capacities of main reservoirs of Mtera, Nyumba ya Mungu and dividing this figure by the total population. Figures were provided by Water Resources Management Department - Ministry of Water

River Basins in Tanzania



Source: Ministry of Water and Livestock Development, Water Resources Division

Strategic Use of Water Will Enable Growth

The case for better water resources management is clear, this should be achieved by aligning potential resource use with the national growth agenda.

Strategy I: Matching potential resources with potential uses – a basin wide approach

Water resource assessments are important frameworks that match potential with a spectrum of activities/uses. These identify potential users, raise institutional requirements needed, guide allocation and provide a basis for monitoring utilization. Sectoral assessments have also been carried out for irrigation and electricity generation and ecosystem integrity. These assessments are not a new concept for Tanzania, they were first implemented in the 1970's. However, these sector focused assessments must be set within a basin-wide strategy to ensure balance and avoid bias and conflicts.

Basin Water Offices should use these assessments to develop basin-wide strategies for allocating water, and ensuring the replenishment of water resources. Taking a basin-wide view will facilitate the water basin offices coordination role and enable local users to understand potentials beyond their local administrative boundaries. Integrating sector uses with upstream and downstream requirements calls for a strategic approach which pulls together all plans and water requirements. In practical terms this will provide a framework for issuing permits, water allocation, and monitoring.

Strategy II: Aligning water resources with the growth agenda

Water will be a key enabler for Tanzania's main growth drivers (described in Brief 3 of this series). Water Basin Offices should ensure that local strategies link and complement the national growth strategy. This aligns well with Government's policy of water allocation articulated in the Water Sector Development Strategy[4]. This policy is forward looking in its recognition that it is not feasible to allocate water solely on the basis of central criterion, acknowledging the distinct characteristics of each river basin. Some basin areas will play a stronger role in enabling national growth drivers than others.

[4] *URT, 2007*

It is crucial that there is an alignment of water use in order to support both services and productive activities. To demonstrate, if water conservation is required upstream for the generation of electricity generation, then provision should be made to allow for irrigation activities downstream, rather than upstream. An example would be promoting irrigation in the Rufiji Basin along the Kilombero and Rufiji valleys which have about 1 million hectares of potentially useable land[5] and very low irrigation coverage, while regulating the scale of irrigation upstream where water is needed for power generation. Another example is ensuring the protection of the water quality in areas where biodiversity is paramount, such as the northern tourism circuit.

This illustrates the need for strong and empowered institutions such as Water Basin Offices to mediate user needs. Political backing at both national and local levels will be vital, because while the national level may promote growth drivers which require water as an enabler, local level users will be required to act in the national interest of growth by adhering to tighter standards of water use and limited abstraction.

[5] *URT, 2002*

Conclusion

This brief highlights the importance of water for the economy, and challenges the commonly held notion that water is a scarce resource in Tanzania. The case is made for strengthening the operation of Basin Water Offices, and raises the fundamental need for proactive and balanced basin-wide strategic plans.

Strategic choices are required so as to ensure that public investment decisions in the water sector mutually reinforce the national growth agenda, and balance the various user demands, while still safeguarding natural resources. High level and local political support are needed. Focus must be on:

- Optimal water resource planning and management which proactively balances the requirements of local users and the national growth priorities.
- Infrastructure improvement (in terms of multi-purpose man made storage) which addresses locality and temporal shortages of water.
- Reducing conflict through unlocking unutilized water catchment areas as a strategy to draw activities from congested areas.

These propositions reinforce the National Water Policy and the more recent Water Sector Development Strategy.

This brief is a summary of Chapter 10 of the 2007 Poverty and Human Development Report for Tanzania. The 2007 PHDR provides key information and data on national indicators, gives a framework for determining a strategic approach to growth, and also provides a new type of social sector analysis - illustrating the water sector's potential as an enabler for growth. There are further briefs concerning the 2007 PHDR:

Brief 1 summarises the status of MKUKUTA's Cluster I – Status of growth and poverty reduction
Brief 2 summarises the status of MKUKUTA's Cluster II – Improvement of quality of life and social well-being
Brief 3 summarises a framework for determining a strategic approach to growth

The 2007 PHDR is available in electronic copy, and printed reports can be obtained from:

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