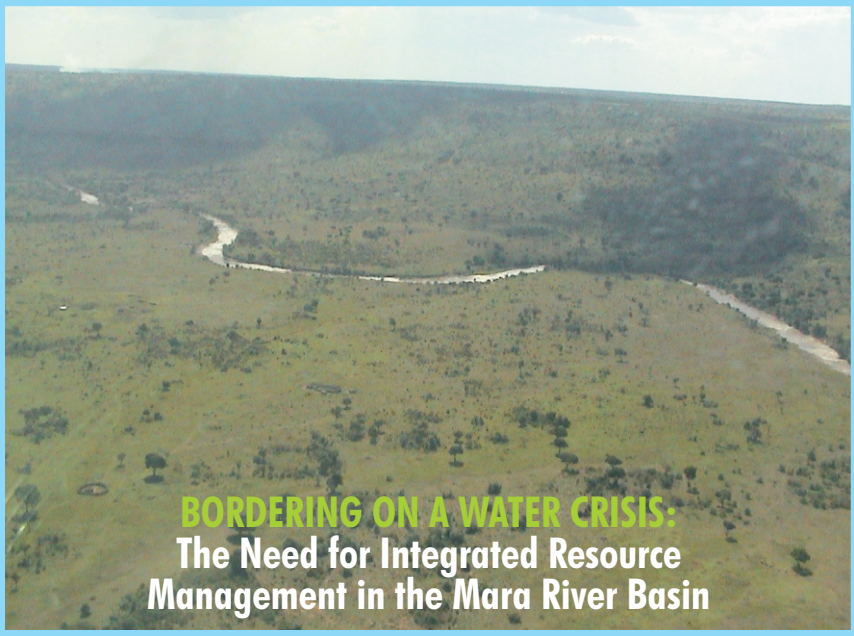



POLICY BRIEF



BORDERING ON A WATER CRISIS:
The Need for Integrated Resource
Management in the Mara River Basin



Bordering on a Water Crisis: The Need for Integrated Resource Management in the Mara River Basin

One of the major constraints on sustainable development in the semi-arid areas of Africa is the supply and access to a range of natural resources underpinned by water. Water is needed to support domestic use, agriculture and the preservation of wildlife. With increasing human populations and drive for development, pressure is exerted to harness water resources for higher economic uses instead of developing and adopting an integrated approach. In an integrated approach the various needs and provisions for sustainable livelihoods and ecosystem conservation are assessed and balanced. However, the linkages between water resource management, sustainable livelihoods and biodiversity conservation are poorly known. As a result river basin management programmes and policy initiatives in Africa have evolved independently, often with overlapping and/or conflicting goals and responsibilities. The outcomes from this have been persistent within-country and trans-boundary conflicts; leading to increased poverty and declines in biological diversity.

Within this context the Mara River basin has been used as a case study to better

understand the potential linkages, conflicts and complementarities amongst existing management programmes and policy initiatives. The implications for sustainable management of the Mara River's water and biological resources for poverty alleviation in Kenya and Tanzania were analysed at a pan-African stakeholder workshop. Principles and recommendations for an integrated resource management policy are made which could provide a framework for future research and policy development which is applicable not only for the Mara River but for other vulnerable river basins throughout the semi-arid regions of Africa. Such a development would provide an important step towards achieving a more sustainable natural resource.

Key Messages

The implications for sustainable management of the Mara River's water and biological resources for poverty alleviation in Kenya and Tanzania are yet to be fully understood.

Many policy initiatives to manage different aspects of the ecosystem services provided by the transboundary river have evolved independently, often with overlapping, even conflicting objectives and responsibilities.

To reap the desired improvements in human livelihoods, biodiversity conservation and water resources in the basin, a holistic systems approach to managing the Mara river and coordination amongst responsible authorities are required.

Investments in targeted innovation systems approaches to understanding the synergies amongst the different sectors and services provided by the river is recommended.

Background

Human population growth, accelerated depletion of natural resources and the impacts of climate change are combining to exert considerable stress on the temporal and spatial availability of water and the ecosystem services they support. Nowhere is this more evident than in the fragile environments of Africa. The consequence of this pressure creates competition and inequality in the provision of sustainable management of water resources for poverty alleviation, socio-economic development, and the environment. The central role of this issue in Africa cannot be ignored.

In the past, policy development in these areas of critical importance to Africa have evolved independently, often with overlapping, even conflicting, objectives and responsibilities and because of this they often failed to achieve their intended goals. As a result, within-country and trans-boundary conflicts have arisen, which have led to decreases in the availability of natural resources and declines in biological diversity which have combined to seriously affect the livelihoods of those people dependent upon such resources underpinned by access to water.

To achieve the desired improvements in human livelihoods, economic growth and the environment, policies and programmes aimed at managing water resources and biological diversity must be designed with an holistic approach to enhance environmental security, social security and economic growth.

It is evident from our initial consultations that the Mara River basin provides the opportunity to quantify the potential for greater integration between resource availability, livelihoods and policy needs to contribute to more sustainable development. Undertaking this work would provide an international show-case of integrated resource management.

The Basis for a Policy Brief

From our knowledge of these issues and the potential to develop a framework to address them the sponsoring organisations held a pan-African stakeholder workshop in Tanzania in March 2008. One of the outcomes of this workshop is the information synthesised into this policy brief.

Issues

The Mara River, which rises on the Mau Escarpment in Kenya, is one of the most ecologically important trans-boundary river basins in sub-Saharan Africa. It straddles both the Masai Mara National Reserve in southern Kenya and the



Box 1 **Key Environmental, Social and Economic issues affecting the Mara River**

- *Deforestation for commercial logging and fuel wood*
- *High levels of erosion and river sediment load*
- *Unregulated water extraction for industry, power production, domestic use and agriculture*
- *Industrial and domestic pollution*
- *Urban development and human population increases*
- *Resource demands and impacts of tourism*
- *Land use intensification and encroachment*
- *Unsustainable fishing methods*
- *Eutrophication of Lake Victoria*
- *Wildlife displacement and population imbalances*
- *Water flow reductions through over-abstraction*

Serengeti National Park in northern Tanzania. The Mara River is also an important component of the wider Serengeti - Mara Ecosystem which covers some 25,000 km² and supports the last viable large-scale migration of grazing mammals on Earth. Some two million wildebeest, zebra and gazelle move from the short-grass plains of the southern Serengeti to the dry season refuge of the Masai Mara each year. The migratory and resident populations support one of the largest concentrations of predatory mammals and birds in the world.

A number of key resource management issues are having an effect on the future sustainability of this unique and important river, with potentially detrimental impacts for the ecosystem as a whole (Box 1). These are further exacerbated by weak institutional frameworks, inadequate enforcement of legislation, sectoral conflicts over resource allocation, climate change, food security and other key drivers of sustainable natural resource management. These combined present unique challenges to any cooperative, trans-boundary actions to manage the Mara River.



Box 2 **Gaps in current knowledge**

- *Lack of use and capture of indigenous knowledge systems*
- *National financial flow information*
- *Joint methodological protocols for data collection and analysis*
- *Linkages between water, biodiversity and livelihoods either at research, implementation or policy*
- *Analysis of conflicts between laws and decrees and Acts at both national and international level*
- *Livelihood opportunities for park adjacent communities*
- *Multiplier effects of tourism and hunting*
- *Other resource requirement (not financial) required by governments to implement knowledge collection.*
- *Species baseline data*
- *Economic value (costs and benefits) of environmental resources*
- *Human health statistics linked to ecosystem changes*

Whilst WWF have made significant achievements in the downstream towards establishing the Lake Victoria Basin Commission, there are currently no trans-boundary agreements between Kenya and Tanzania for the Mara River basin. Different policies, ministries and programmes exist (e.g. Wildlife, Food, Land, Conservation, Water, Fisheries, Tourism, Agriculture, Forestry and Environment) but they are implemented independently of each other in both countries, in the absence of any cross-compliance or synergism.

The workshop identified there was a number of opportunities for sharing experiences and data that could be used to assist in providing evidence for use in

policy development. The detail of which is provided under the following three headings.

Building on Current Work

An exploration of the range of issues and their largely single focus been developed and a web-hosted, interactive database resource and information system created for policy makers, researchers and practitioners, detailing information on existing research, policies and management initiatives aimed at integrated water resource management, conservation of biodiversity and sustainable livelihoods in the Mara river basin.

Examples of recent research projects and management initiatives within the Mara River catchment that are attempting to address some of these issues across more than one aspect of Integrated Resource Management e.g. Tanzania National Parks' Serengeti Ecosystem Management Project and the International Livestock Research Institute's Reto-O-Reto project, but most are still neither interdisciplinary nor trans-boundary and many gaps in current knowledge still exist (Box 2). A notable exception is the World Wide Fund for Nature's Mara River Basin Management Initiative.

Challenges of an Integrated Resource Management Policy

The current lack of any explicit policy instruments that take an holistic approach for the whole of the Mara River ecosystem highlights the urgent need for the integration of the social, economic and ecological aspects of water management in a single, trans-boundary resource management policy. There are a number of challenges in attempting to implement such a policy. Key amongst these is the need for political commitment from within both Kenya and Tanzania to ensure that regulatory frameworks for the legal enforcement of any policy put in place are based on principles of accountability, transparency and participatory democracy. Funding mechanisms must take account of sovereignty, governance, water land tenure rights issues. Potential impediments to policy implementation that need to be overcome include the conflicting aims and objectives of the various sectoral and institutional stakeholders as well as the needs and concerns of people living within the Mara River catchment area whose livelihoods are inextricably linked to the goods and services the ecosystem provides.

Benefits of an Integrated Resource Management Policy

Despite the inherent constraints, risks and challenges in drafting and implementing a trans-boundary integrated resource management policy, a number of critical benefits and outcomes would arise from its implementation. These include a reduction in the conflict between the water resource users, a sustained water supply with improvements in quality and availability, equitable benefits from the use of natural resources, the protection of unique natural resources and ecosystem leading to improvements in livelihood opportunities and food security and the potential for regional economic development and investment.

Key Next Steps

As pressures on the environment continue to increase, it is ever more critical to find sustainable solutions to environmental management. Reconciling the impacts of these pressures requires an understanding of how human and natural systems interact, their interdependencies and their changing relationships over time. Solutions require an understanding of the consequences of different management approaches, an ability to balance the needs of society and the environment, a willingness to develop dialogue with relevant stakeholders to focus both on the fundamental drivers of environmental problems and on strategies for their management now and into the future.

Key steps to achieving an integrated resource management policy are:

1. Investment in targeted transdisciplinary research to close the gaps in current knowledge
2. Definition and harmonization of key demands of society and environmental stakeholders
3. Reconciliation of social and environmental needs with targets for economic growth
4. Characterisation of effective regulatory mechanisms for the benchmarking and monitoring of water users
5. Implementation of guarantees for the transparency and accountability of policy measures
6. Recognition of effective governance in water provision and use
7. Investments in targeted innovation systems approaches to managing water, biodiversity and livelihoods in transboundary river basins.

One of the major constraints on sustainable development in the semi-arid areas of Africa is the supply and access to a range of natural resources underpinned by water



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