

Sub - Theme 5: Water Use in Irrigated Agriculture: Challenges and Opportunities in Southern Africa

MOVING FROM SECTORAL TO INTEGRATED WATER RESOURCES MANAGEMENT IN TANZANIA: THE CHALLENGES AND OPPORTUNITIES

By

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ABSTRACT

As in many other countries of Southern Africa, the conventional approach to water resources management in Tanzania has generally suffered from the syndrome of lack of recognition of multi-sectoral water uses and linkages. It has focused more on a sectoral-based development of water resources (e.g., the construction of irrigation infrastructure) and less on holistic management of water resources. However, the new water policy (2002) in the country has set a scene for major changes in the water sector to ensure better integration of water resources management across sectors, which is in essence a move from the conventional (sectoral) water resource management to Integrated Water Resources Management (IWRM). This intends to address participatory, multisectoral, multidisciplinary river basin management and integrate the linkages between land and water uses. Making IWRM happen on the ground is however, a hard work. It requires bringing together on a decision-making table, different stakeholders with diverging interests, complex power relationships and different perceptions: bringing together a very intricate socio-economic reality, the legacy of the conventional water management approach and its embedded practices and beliefs, and the apparently non-reconcilable conflicting demands. It is against this milieu that this paper presents a discussion of the existing water management challenges in Tanzania and the opportunities to build upon. Notwithstanding the complexity of translating the concept of IWRM into practise, the paper underscores the need to have the initial IWRM process focusing on crucial, urgent issues. For Tanzania, the entry point should be that of addressing the existing water resource conflicts, which are becoming rampant, particularly in the Rufiji and Pangani river basins; and facilitate the establishment of functioning Water Use Associations and Apex bodies. These are more likely to solve most of the existing problems of water resources management in the country.

Key words: Integrated Water Resources Management, Sectoral Water Resources Management, Multisectoral Water Resources Management, Holistic Water Resources Management, Tanzania.

INTRODUCTION

It is now widely accepted that Integrated Water Resources Management (IWRM) is becoming imperative in dealing with increasing pressure on water and land resources. Consequently, several countries have started, or have already gone through, a process of putting in place substantial elements of IWRM process in their national water policies and development strategies. IWRM is a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems [Global Water Partnership (GWP), 2000]

IWRM explicitly challenges the conventional water development and management systems. It starts with the recognition that traditional top-down, supply led, technically based and sectoral approaches to water management are imposing unsustainably high economic, social and ecological costs on human societies and on the natural environment (GWP, 2003). If they persist, water scarcity and deteriorating water quality will become critical factors limiting future economic development, the expansion of food and the provision of basic health and hygiene services to millions of disadvantaged people. IWRM is ultimately about changing the nature of water governance, which is defined as ‘the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society (*ibid*). It is considered as a means of achieving three key strategic objectives: efficiency; equity in the allocation of scarce water resources and services across different economic and social groups so as to reduce conflict and promote socially sustainable development; and environmental sustainability.

In Tanzania the new water policy (URT, 2002) sets the scene for major reforms in the country's water sector to ensure better integration of water resources management across sectors. It sets out the future direction for the water sector in achieving sustainable development and utilisation of the Nation's water resources and the increase in the availability of water supply and sanitation services. The policy also embodies the principles of decentralisation and subsidiarity of water supply management whereby this should be devolved to the lowest appropriate level. This also conforms to the public sector reforms currently being undertaken by the Government. The main objective of the new National Water Policy is to develop a comprehensive framework for sustainable development and management of the Nation's water resources, in which an effective legal and institutional framework for its implementation will be put in place (*ibid*). The policy aims at ensuring that beneficiaries participate fully in planning, construction, operation, maintenance and management of community based domestic water supply schemes. The new National Policy seeks to address cross-sectoral interests in water, watershed management and integrated and participatory approaches for water resources planning, development and management. It seeks to lay a foundation for sustainable development and management of water resources in the changing roles of the Government from service provider to that of coordination, policy and guidelines formulation, and regulation; ensure full cost recovery in urban areas with considerations for provision of water supply services to vulnerable groups through various instruments including lifeline tariffs.

The country's water sector targets are as stipulated in the revised PRS and adopted in the country's Medium Term Expenditure Framework and the Medium Term Strategic Plan of the water sector. These targets include: a) raising the proportion of rural population that has access to safe and clean water from 53% in June 2003 to 60% by 2006, and to 65% by 2009; b) raising the proportion of urban population with access to safe and clean water from 73% in June 2003 to 78% by 2006, and to 90% by 2009; c) raising sewerage service coverage from 17% in 2004 to 25% by 2006, and to 30% by 2009; and d) strengthening water resource environmental and pollution control networks in

order to reduce pollution levels from 20% in 2003 to 10% by 2006; and reinforcing legal and institutional involvement of local communities and the private sector in developing water supply schemes, and water sources environmental protection throughout the country, by the year 2006. The achievement of these targets will have implications for the management of water resources in the country.

The new National Water Policy and other events that help to lay a foundation for IWRM (e.g. the launching of the Country Water Partnership (CWP) in Tanzania, which took place in February 2004 at the Landmark Hotel in Dar es Salaam are some of the important events that seek to address the challenge of ensuring good governance of water resources in the country. The launching of the CWP was followed by in-depth consultations on the development of a Framework For Action (FFA) in order to achieve the Southern Africa vision for water, life and the environment, supported by the Global Water Partnership (GWP) through its Southern Africa Office in Harare, Zimbabwe. All these efforts translate to a move from the conventional (sectoral oriented), to a new (holistic) approach to water resources management (IWRM).

Making IWRM happen on the ground is however, hard work. There are several challenges and difficult trade-offs and choices to be made. But, there may also exist some opportunities for a society or country to build upon. This paper presents a discussion of some of these challenges as well as the opportunities available for addressing them, using the case of Tanzania.

THE CHALLENGES

As in most other countries of the Southern Africa region, the desire to achieve sustainable management of water resources in Tanzania is faced by several challenges. Examples of these challenges include, among others:

- The challenge of moving from sectoral to holistic water and land resources management, loosely defined as the challenge of integrating the linkages between water and land uses
- The challenge of moving from supply fix to demand management, which is discussed in this paper together with the first challenge
- The challenge of infringing the legacy of the conventional approach, and changing its negative embedded practices and beliefs
- The challenge of bringing together the different stakeholders, which is considered in this paper as closely related to the challenges of:
 - Ensuring active participation
 - Ensuring that all stakeholders, at all levels are involved in water development and management and that, the vital role played by women as decision makers and water users is recognised
 - Bringing together the diverging interests and different perceptions
 - Bringing together a very intricate socio-economic reality and the apparently non-reconcilable conflicting demands
 - Moving from the top-down management approaches to stakeholder and demand responsive approaches
 - Moving from command and control to more cooperative or distributive forms of governance
 - Moving from closed expert driven management organisations to more open, transparent and communicative bodies

- The challenge of establishing an appropriate institutional framework for managing water resources, and
- The challenge of creating a knowledge base for IWRM amongst the different stakeholders.

Breaking with the tradition: Moving from sectoral to holistic management

The conventional approach to water resources management in Tanzania has generally suffered from the syndrome of lack of recognition of the multi-sectoral water uses and linkages. The approach has oriented towards development of the water resources rather than management and protection. It has based on regional development using regional master plans as the basis for planning. The effectiveness of this approach to planning was further constrained by limitations in the institutional and managerial capacities to carry out the work. As a consequence, different approaches, standards and criteria were developed, which have often been incompatible with each other. Fragmented planning has characterised the conventional approach without adequate consideration of cross-sectoral water management issues and challenges. This has led to the perception of alienation of smaller but widespread users of water that they are primary losers in the efforts to manage water resources. Planning of water resources has also for long being urban biased, fostering rural inequity.

The issue of uncoordinated sectoral development plans can be exemplified by the development of irrigated agriculture in the Pangani and Rufiji Basins. The government, through the Ministry of Agriculture and Food Security, has emphasised on developing new irrigation infrastructure and upgrading the indigenous ones [examples include the establishment of projects like the Externally Modified Smallholder Irrigation Systems (EMSIS) and several projects to build Large-Scale

Smallholder Irrigation Schemes (LSSIS) as discussed in detail by Kadigi and Mdoe (2004)]. In Rufiji basin, for example, the following EMSIS and LSSIS schemes were established:

- ❑ The Usangu Village Irrigation Project (UVIP) (1985 – 1996) – funded by FAO
- ❑ Women in Irrigated Agriculture (WIA) – funded by the Netherlands Government and implemented by FAO
- ❑ The Kapunga Rice Project (1988 – 1992) – which established the Kapunga National Agriculture and Food Corporation (NAFCO) farm with 3000 ha, the Kapunga smallholder irrigation scheme, and improved the existed smallholder irrigation schemes abstracting from the Chimala river
- ❑ The Kimani Irrigation Project (KIP) (1991 – 1994) – planned to upgrade 4300 ha of irrigated agriculture in Kimani Sub-Catchment, of which only 500 ha were completed
- ❑ The Smallholder Irrigation Improvement Programme (1997 onward) – part of the World Bank funded River Basin Management and Smallholder Irrigation Improvement Programme (RBM-SIIP), and
- ❑ The Kapunga and Madibira LSSIS (commissioned in 1998).

These schemes were planned and established on a sectoral basis with less integration of the needs of other sectors [e.g. wetland and wildlife conservation, and hydropower generation (Kadigi and Mdoe, 2004; Kadigi *et al.*, 2004, Mbonile et al., 1997; SMUWC, 2001)].

In general, the conventional approach to water resources management in Tanzania has suffered from uncoordinated planning for water use, inadequate water resources data and inefficient water use, which have resulted into water use conflicts between different users (e.g. the energy and irrigation sectors, irrigation and the water ecosystems, hydropower and the ecosystem, and between upstream and downstream users). The existing competition and conflicts over water resources in the

Pangani and Rufiji Basins (Sarmett *et al.*, 2005; Kadigi and Mdoe, 2004; Kadigi *et al.*, 2004; Mbonile *et al.*, 1997), exemplify the type of troubles caused by uncoordinated development between sectors. In these basins conflicts are experienced, for example, between the hydropower sector mainly by the Tanzania Electric Supply Company (TANESCO) and upstream irrigators, between groups of farmers (upstream and downstream), between the farmers and pastoralists, and between water managers and farmers (*ibid*).

In general, the conventional approach to water resources, which has largely based on 'supply fix' and less on demand based strategies, has proved to be beyond the financial capacity of the government. Continuing with the same will imply exacerbated conflicts over the allocation of water goods and services with potentially disastrous economic and social consequences.

It is now increasingly recognised that as the demand for water continues to rise rapidly and new sources of supply become scarcer, demand management tools (e.g. tools that aim at conserving the available water) are becoming important. Most donors (e.g. the World Bank) are increasingly changing the direction of future investment priorities for agricultural water use by focusing on improving the productivity of existing system. This will not only defer the need for investment in new sources of water, but will also potentially protect natural resources and the environment by making water available for natural stream flows.

The development of water resources without appropriate assessment of the available resources in quantity and quality has also led to under-designing of projects which cause their failure or over-designs which are not cost effective (as it has proven to be the case with most of the NAFCO irrigation schemes in the Upper Rufiji – in Usangu Plains); over-exploitation of surface water resources resulting in the drying of some of the key rivers (e.g. the Great Ruaha River in the Ruaha National Park, has almost ceased to be a perennial river following its incessant drying up during the

dry season since early 1990s), thereby causing serious environmental degradation and many different types of water and land use conflicts.

Breaking with the tradition: Infringing the legacy of the conventional approach

The legislation related to water resources management, which serves as a primary instrument for implementing the National Water Policy, has developed over time through amendments to the original primary law. This has in turn led to a lack of clarity in the legislative provisions – has led to the legislation not reflecting the institutional and organisational changes necessary to implement the new National Water Policy. The legislation governing water management in the country is the Water Utilisation (Control and Regulation) Act No. 42 of 1974. This has been amended several times by the:

- ❑ Water Utilization (Control and Regulation) (Amendments) Act No. 10 of 1981
- ❑ Water Laws (Miscellaneous Amendments) Act No.8 of 1997
- ❑ Written Laws (Miscellaneous Amendments) Act No.17 of 1989
- ❑ Water Laws (Miscellaneous Amendments) Act of 1999
- ❑ Regulations issued in 1975, 1994, 1996 and 1997.

The thrust of the Water Utilization (Control and Regulation) Act No. 42 relates to the administration of granting of rights to the use of water. The Amendments Act No.10 of 1981 established two advisory levels of boards, the Central Water Board and Basin Water Boards, and respectively, the Principal Water Officer and Basin Water Officer. The 1981 Amendment also introduced pollution control measures, water quality standards, and permissible effluent standards. The Water Quality Standards in Amendment Act No. 10 of 1981 were temporary, pending

formulation of a permanent set of standards. Amendment No. 17 of 1989 increased the penalties against water pollution, which were seen to be inadequate.

The Water Utilisation Act is primarily a tool for allocating water through water rights and preventing water from point source pollution. The Regulations provide in detail for the granting of water rights (1975), and determine water use fees for various water uses (1994, 1996). The Water Laws (Miscellaneous Amendments) Act No. 8 of 1997 created the Central Water Board and Basin Boards, and made the Basin Boards financially and administratively autonomous. The Water Utilisation (General) Regulations, 1997, provided for the implementation of Act No. 8, including the constitution and methods of working of the Basin Boards.

In addition to the formal or statutory legislation, there are customary and other informal laws related to water resources management. But, as also argued by Sokile and van Koppen (2004), the former (formal) institutions (including water laws and rights) tend to overshadow the latter (informal) institutions although they actually guide the day-to-day water use interactions.

Breaking with the tradition: Bringing together the different stakeholders

The current institutional framework for managing water resources in Tanzania has a central focus in the Ministry of Water and Livestock Development (MoWLD) but is complex, both in law and in practice. It has a number of overlapping responsibilities, duplications and omissions. Furthermore, the mechanisms for effective consultation and consensus building, and participation of stakeholders in the decision-making process are not adequately defined and implemented. In rural areas, the Government, External Support Agencies, and NGOs are planning and constructing water supply schemes at village level, with little involvement or participation of the benefiting communities. The Government has also owned and operated a number of these schemes. This has led to a lack of

commitment by the beneficiaries to safeguard the facilities, and an unwillingness to contribute to the cost of operation and maintenance.

The current legal and institutional frameworks for coordination and collaboration among stakeholder sectors are weak and do not provide enough room for stakeholder sharing of experiences, agreeing on collaborative actions and enhancing dialogue for water sector management and development at all levels. This has led to duplication of efforts, gaps, and misallocation of the resources available. Water resources management without active involvement of stakeholders and water users has caused many different types of water and land use conflicts, which pose a serious challenge to the management of water resources.

Water supply projects, for example, have for long time been implemented without active participation of the stakeholders in planning, construction and management. Ownership of water supply facilities has for long time in the past been not legally vested in stakeholders. This has led to a lack of commitment of ownership, operation and maintenance. It has led to lack of acceptance by the communities of their responsibilities for the sustainability of the water supply schemes; failure of communities to appreciate the need to pay for water; lack of maintenance of facilities by communities; and poor state of facilities.

Breaking with the tradition: Establishing appropriate institutions

The current institutional framework for water resources management in Tanzania can generally be said as inadequate in meeting the challenges of effective management of the resources and in providing an adequate mechanism for effective consultation and consensus building, and participation of stakeholders in the decision-making process. A number of different Government departments or agencies in the country deal with various aspects of water resources management

according to their own mandates or needs, and also their own legislative provisions, with little integration towards holistic basin-wide planning and management. In addition to this multiplicity of organisations, effective IWRM is further constrained by limitations in the technical, human and financial capacities in these organisations.

The lack of an effective institutional framework for IWRM has led to overlapping roles and responsibilities between various institutions leading to inefficient use of human and financial resources, duplication of efforts, and gaps in effective management; inadequate cross-sectoral coordination between various government institutions; inadequate communication and awareness building between these institutions and local organisations and water users; and fragmented water resource planning and allocation, and consequent water conflicts.

Breaking with the tradition: Building capacities of stakeholders in IWRM

The core to successful water resources management lies not only on building effective institutional base at the national, basin and local level but also building the knowledge and skills to utilise the relatively new and multidisciplinary tools of IWRM. With the advent of the present approaches to water resources management, which emphasise integration of sectors, comprehensiveness, participation and, subsidiarity, and which treats water as both a social and economic good, the focus of knowledge and skills now goes beyond the traditional skills of hydrology and engineering, to include economics, law, environmental and the social sciences and skills for water conservation and water-demand management. Also, specific tools such as River Basin Modelling and Decision Support Systems, as well as strategies for communicating and engaging with communities and stakeholders are now essential. In Tanzania, the absence of adequate capacity and expertise to implement different water resources management activities has led to ineffective water resources

assessment, inefficient water allocation, and inadequate follow-up on water use and enforcement of water law.

THE OPPORTUNITIES

To meet the national sustainable development goals and tackle specific water challenges, Tanzania needs not only to make investments in water infrastructure but also to invest in improving management of their existing water resources. This implies the creation of an IWRM and water efficiency strategy which will ensure that the country gets the most from the investments in the water sector, that benefits are equitably distributed, and that gains are sustainable and not bought at the price of ecosystem health.

In an effort to encourage a move towards more sustainable approaches to water development and management, the World Summit on Sustainable Development (WSSD) in 2002 called for all countries to craft IWRM and water efficiency strategies by the end of 2005. Such strategies are intended to support countries in their efforts to meet the development goals, such as reducing poverty, increasing food security, fostering economic growth, protecting ecosystems and tackling specific water challenges, such as expanding access to water and sanitation and addressing increasing competition for water and water scarcity.

It is however, generally accepted that making IWRM happen on the ground is hard work because it requires bringing together on a decision-making table, different stakeholders with diverging interests, complex power relationships and different perceptions. It implies bringing together a very intricate socio-economic reality, the legacy of the conventional water management approach and its embedded practices and beliefs, and the apparently non-reconcilable conflicting demands. Yet, IWRM is a process of change - a process, which can start from small beginnings (GWP, 2003).

There is no such thing as a perfect IWRM system and the search for perfection can lead to actions atrophy. Policy makers need to think in terms of gradual, incremental change; identify opportunities (the entry point) for reform as circumstances alter and use all windows of opportunity to nudge the reform process forward.

Choosing an entry point, defining issues and setting priorities

In theory, a comprehensive approach that seeks to optimise water's contribution to sustainable development across the board should have a greater impact. In practice, starting with concrete issues can yield better results. Being too ambitious at the outset – ignoring the political, social and capacity problems that must be solved for effective implementation – can result in a strategy that looks great on paper but doesn't translate into doable actions. Experience suggests that major initial reforms are not essential to catalysing change – first steps that can easily be implemented are often enough to begin the process of moving towards more sustainable water development and management (GWP, 2004).

For Tanzania, the entry point should be to address the existing water resource conflicts, which are becoming rampant, particularly in the Rufiji and Pangani river basins; and facilitate the establishment of functioning Water Use Associations and Apex bodies. These are more likely to solve most of the existing problems of water resources management in the country.

This type of “problem-based” approach more readily leads to an action strategy based on tangible and immediate issues and can help win broad public support. However, it can also lead to a dead-end or to the same kind of myopic decision-making found in the conventional (sectoral) approach to management of water resources. The keys to avoiding these dangers are to ensure that the strategy is firmly linked to larger sustainable development goals and that the objective is not simply to solve

a particular problem but to take the opportunity of putting in place processes that will facilitate better water development and management decisions on an on-going basis.

Other opportunities

Other opportunities for achieving IWRM in Tanzania include, among others, the existing enabling policy environment – more specifically, the new National Water Policy in Tanzania (URT, 2002), which intends to streamline the current institutional framework for water resources management in the country to meet the challenges of effective IWRM.

According to the new Water Policy (*ibid*), the roles and responsibilities of the different stakeholders will be clearly defined to ensure the participation of stakeholders. The role of Government will change from that of a service provider to that of co-ordination, policy and guideline formulation, and regulation and hence a new institutional framework that will involve organisations at different levels and promote financial sustainability and autonomy at the basin level. Among other things, the new institutional framework will:

- Focus water resource management practices on preventing negative environmental impacts of human activity, ensuring that water is used beneficially and efficiently, and ensuring that water related activities aim at enhancing or causing least detrimental effect to the natural environment

- Introduce a Demand Responsive Approach (DRA) to water resources management through the use of demand management approaches together with water conservation measures – these will entail the adoption of water management approaches focusing on how water is best used, including efficiency, effectiveness, and conservation of the resource for each use;

enforcement of the use of demand management instruments such as water user fees and other charges, and restrictions; promoting the research and adoption of technologies that increase water conservation and demand management; raising awareness on the best use and conservation of water; and applying economic and administrative instruments

- Review the existing water resources management legislations, harmonise the conflicting water related laws and regulations, integrate the relevant customary laws into statutory law and enshrine the powers and responsibilities of new water resources management institutions in the new laws, and
- Establish communications and advocacy mechanisms to enhance information and experience sharing to keep stakeholders aware of sector problems, successes and needs, so as to facilitate knowledge of the sector and its reforms by the general public and provide mechanisms for joint action.

In nutshell, the new Water Policy and other IWRM related reforms and efforts in Tanzania – e.g. the recent efforts to launch the Country Water Partnership (CWP) in February 2004 [which was supported by the Global Water Partnership (GWP) through its Southern Africa Office] and its subsequent task of conducting in-depth consultations on the development of a Framework For Action (FFA) in order to achieve the Southern Africa vision for water, life and the environment, mark a move from the conventional, which was sectoral oriented, to a new (holistic) approach to water resources management in Tanzania. This is key to ‘making the difference.’ It is key to ensuring coordinated development and management of water, land and related resources.

CONCLUSION

Making IWRM happen on the ground is hard work because it requires bringing together on a decision-making table, different stakeholders with diverging interests, complex power relationships and different perceptions. This implies bringing together a very intricate socio-economic reality, the legacy of the conventional water management approach and its embedded practices and beliefs, and the apparently non-reconcilable conflicting demands. However, it is also important to note that, IWRM is a process of change and can start from small beginnings. There is no such thing as a perfect IWRM system and the search for perfection can lead to destabilized actions. Policy makers should, therefore, think in terms of gradual, incremental change; identify opportunities for IWRM reforms as circumstances alter and use all windows of opportunity to push the reform process forward. Notwithstanding the complexity of translating the concept of IWRM into practise, the paper underscores the need to have the initial IWRM process focusing on crucial, urgent issues. For Tanzania, the entry point should be to address the existing water resource conflicts, which are becoming rampant, particularly in the Rufiji and Pangani river basins; and facilitate the establishment of functioning Water Use Associations and Apex bodies. These are more likely to solve most of the existing problems of water resources management in the country.

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