

## **The dynamic relationship between property rights, water resource management and poverty in the Lake Victoria Basin**

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*This review aims to synthesize information on the dynamic relationships between property rights to land and natural resources, water resource management and poverty in the Lake Victoria Basin of East Africa. It focuses on the way in which water management systems, under the conceptual umbrella of Integrated Water Resources Management (IWRM), address customary claims to land and water. The water sector in all the three countries is being reformed, decentralized and liberalized to improve efficiency in water delivery. However, it is not clear whether this will result in improved water access for low-income areas, especially remote rural areas. There are concerns that some aspects of the water sector are being emphasized at the expense of others and this may distract attention from some of the socio-economic and political causes of poor water access. Similarly, all three countries are currently in the process of revising land policies and laws. The paper concludes that customary land and water rights remain significant forms of rights across the basin, even though they are not addressed through legal or policy frameworks.*

*Keywords: Lake Victoria, property rights, water resource management*

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### **Introduction**

Lake Victoria has a total catchment area of 184 200 sq km shared among the east African countries of Kenya, Uganda and Tanzania and supports about 28 million of the poorest rural inhabitants in the world (Swallow et al, 2003). Poverty rates in the basin are 50% or more and especially high in the lakeshore areas of Kenya, where the situation is compounded by a high incidence of HIV/AIDS and water associated diseases along water ways (ibid). Major water uses in the Lake Victoria basin include domestic and livestock water supply, irrigation, hydropower generation, transport, fishing and wildlife water supply. Overall, agriculture is the most important water use, representing almost 90% of total use in Tanzania, more than three-quarters of total use in Kenya, and two-thirds of total use in Uganda (Dungumaro, E. and Madulu, N. 2002).

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**Table 1. Freshwater Withdrawal in East Africa**

Country	Agricultural Water Use	Domestic Water Use	Industrial Water Use
Kenya	76%	20%	4%
Tanzania	89%	9%	8%
Uganda	60%	32%	2%

Source: Dungumaro, E. and Madulu, N. (2002)

Given the importance of land access for livelihoods, it is particularly important that governance of land issues is participatory and empowering. Land access is also an important prerequisite, in some cases, for enhanced access to water. Reducing poor people's vulnerability includes putting measures in place that safeguard their access to resources and this may include providing formal recognition to some current customary access regimes, which requires participatory forms of planning and governance at all levels. Devolved systems of governance should allow active participation of users in natural resources management debates. Legislation should enable the poor to access water resources and create incentives for sustainable use, through recognizing and incorporating people's needs and their traditional management systems.

This paper looks at the dynamic relationship between property rights, water resources management and poverty within Lake Victoria Basin (LVB) of East Africa. Poverty and inequality in the Lake Victoria Basin is exacerbated by the inability of some people, due to a variety of constraining processes, to access their full property rights and profitably transform these rights into goods and services. These constraining processes may not be fully recognized or articulated by governments; development agencies and local people themselves, and are not fully addressed by policies and laws at international, national and local levels.

Depending on ones' social, economic and political status in society, some are able to influence decisions governing resource allocation to their advantage at times impacting negatively on the rest of society. Checks and balances in the form of policies, laws and regulations are therefore necessary to guard against such activities. The LVB is undergoing rapid change due to increasing resource scarcity, changing land uses, liberalization of economies and effects of HIV/AIDS which is having a significant impact on livelihoods and the way resources are accessed. Appropriate multi-dimensional property rights systems (including formal/statutory, informal/customary and social systems) that may provide tenure security while accommodating interests of multiple uses and users are therefore needed. In East Africa, as elsewhere in the world, legislation and policy on water management does not take land tenure – particularly customary land tenure systems – into account, and vice-versa. It has been recognized by policy-makers that “the practice of water management cannot be separated from questions of land management since access to water in most cases derives from access to land. Control of access to water in dry land, for example, is often a tenure-building mechanism, affecting land settlement patterns, disenfranchising the less powerful from access to water, in the process creating conflict” (Nyaoro, J. 1999). However, actually designing institutions and policies that allow a true integration between land and water needs is difficult, for a variety of reasons.

### **Poverty-environment linkages**

Poor people rely more heavily and directly on local natural resources for their livelihoods than other socio-economic groups due to lack of alternative livelihood options accessible to them (Rietbergen et al., 2002). The population of LVB is primarily rural with majority heavily dependent on agriculture and livestock husbandry for their livelihood. Water availability largely determines when and where development can take place. Majority of the rural poor who practice rainfed agriculture live in fear of delayed or failed rains. Access to surface or groundwater is therefore of paramount importance and may be determined by how rights to land are contested and exercised. Effective development and management of water and other resources is therefore necessary for sustainable growth and poverty reduction in the Lake Victoria basin.

The local communities in the lake region face serious threats to their livelihood due to a number of factors and processes including abuse of resources and environmental degradation, rapid population growth, economic liberalization, HIV/AIDS and poor health, poor governance, unfair resource distribution and gender discrimination. Abuse of resources has taken the form of deforestation and pollution of the river waters (Ong'or et al., 2001). Flooding during the rainy seasons, inadequate access to irrigation and drinking water, rapid population growth, prevalence of weeds such as water hyacinth on the lake and poor governance continue to affect inhabitants of this region contributing to the state of general poverty in the region.

The rapid increase in population coupled with expansion of agricultural activities and industrialization within the LVB has not been matched by commensurate development of water resources. Between 1967 and 1997, the population of east Africa increased by 260% (from 32 million to over 83 million) coupled with a rapid increase in demand for water (Thompson et al, 2001). In the rural areas, water pans, ponds and other storage facilities which are important in water supply have not been maintained mainly due to shortage of government funds and breakdown in traditional water management systems, intensifying drought spells and changing rainfall pattern (Ochola et al., Undated). Concerning agriculture, inadequate funding, poor management, and lack of ownership of management policies has led to state-run irrigation schemes being ‘handed-over’ to users, with mixed results (see Blank et al, 2002).

Ability to capture the benefits of water either directly or indirectly may greatly improve welfare and income of the households within the basin. Many poor people around the lake use poor quality water that negatively affects their health and welfare. Investing in more reliable, higher quality, and more conveniently located domestic water or more reliable irrigation can quickly and significantly improve the lives of the poor (Soussan, 2004).

The poor are disproportionately affected by the high variability in the availability of water, as they are the most vulnerable to water related hazards such floods, droughts and pollution because of where they live (e.g. slums and hillsides), their limited access to appropriate technology, and other factors. Thompson et al (2001) found that 'unimproved water sources' (such as pans and springs) tend to be highly seasonal, leaving households prone to water shortages during certain times of the year. Vulnerability can undermine efforts to break the poverty trap and push even the not so poor into destitution by destroying their livelihood through shocks (Soussan, 2004). Hazards including floods and drought can be a formidable source of vulnerability to the poor as they destroy crops, property and life. Better water management can reduce vulnerability of rural production systems through ameliorating the impact of uneven rainfall distribution (e.g. through better water storage) and providing protection against hazards (e.g. through flood protection or pollution control) and can also indirectly provide more secure livelihoods.

But the contribution of water resources to sustainable livelihoods depends on how it is accessed and managed which may be influenced by the laws and policies. Degradation of natural resources that adversely affects livelihoods not only results from improper use of resources but from poor policies as well. Within the basin, agriculture has been given prominence over other forms of land use to the extent that areas that have been traditionally used by pastoralists are being subdivided and taken over by the farming communities (Mwangi, 2003). Pastoral areas have been converted to wheat growing zones in both Kenya and Tanzania. These lands were formerly held communally and ensured the survival of pastoral groups in water deficit areas.

Women are the main managers of many water resources; face the burdens of fetching water for use in the home and of coping when there is not enough water for domestic needs. Empowering them is critical to achieving more focused and effective water management that will benefit many other aspects of life. Women typically develop and maintain rural water supplies as an integral part of their agricultural and domestic management responsibilities. Valuing water as a commodity to be put to productive use tends to minimize the interests of women in water resources management because most financially productive uses of water which can be quantified are in irrigation, livestock and industry -all areas which provide cash output and are mainly managed by men (Maganga, 2002; Torori et al., 1996). Other important water uses including washing children, clothes and health benefits are not 'valued' and difficult to quantify in financial terms. Providing water at a fee might limit women's usage since they generally have less access to cash than men. Privatization and valuing of water as a commodity and selling to whoever can afford may disadvantage women and other marginalized groups further.

## **Customary land and water management systems**

Natural resources in Africa have long been managed under traditional governance systems many of which still function at the local level. The indigenous resource management systems reflected the way communities organized their lives within the constraints of the environment in which they lived. Decision-making institutions focused on utilizing and managing environmental resources based on the knowledge of the community, and on achieving and maintaining social harmony (Kilahama, 1994). Customary systems of resource management generally run on the principle of community interest rather than individual benefit, and can generally be described as 'pro-poor', providing safety-nets for those without secure access to resources. However, there are significant gender-biases and differentiation according to age amongst most customary systems (UDSM et al, 2004).

Water management was usually the responsibility of local institutions with a number of other social and NRM functions. Indeed, land use and water management were often seen as two sides of the same coin. Land and water rights, to a large degree, were treated in indigenous systems as inherently connected. For example, in the Usangu

Plains, customary water rights were attained through the inheritance or renting of irrigated land (van Koppen and Sokile, 2004).

### **Customary water management systems**

It has been noted that customary water regimes have generally been less comprehensively studied than customary land tenure systems (Hodgson, 2004). In recent years, much has been done to better understand the historical and current significance of customary water management systems in Tanzania, for example (see e.g. Maganga, 2002, Sokile and van Koppen, 2004, Huggins, 2003). However, this has been restricted to a few communities in specific geographical areas. There is need for more research, not least because in many cases, local custom has altered and become infused with elements of statutory law, resulting in locally-specific results.

Most indigenous systems of water management in the basin were based on the concept that water for certain, limited uses was a free, open-access resource, while access for other uses was regulated and controlled by specific groups (whether chiefs, elders, clan leaders, or household heads). It is possible to generalize that, amidst the great variation found in water governance systems, the amount of control increases in proportion to the degree of labour invested in the water source (Huggins, 2003). Customary systems of water management were by no means static. Regulations and technologies altered over time, and innovations were introduced as a result of cross-cultural exchange between communities as well as experimentation within single communities. It is often possible to trace the historical patterns of dissemination of water technologies as they spread from community to community. At the risk of generalising, it is possible to say that ownership of water sources was usually invested in the local community rather than the household. The nature of the community unit varied, and might include the clan rather than the village, for instance: this is the case amongst many pastoralist groups. Water was rarely 'owned' exclusively even by these groups however: access by others was often allowed, subject to permission being sought and reciprocal arrangements sometimes being made. There was therefore a link between land tenure and water rights, but this was based on community territories rather than individual land 'ownership'.

### **Customary land tenure systems**

Within the Lake Victoria Basin, much of the land that was held either communally by local communities or in trust by government is increasingly being subdivided and registered as private property with individual titles. This has the effect of weakening the communal systems since they are legally subordinate to the written law (Torori et al., 1996; Doyo, 2003). The Kenyan portion of LVB includes protected state forests, large commercial tea estates, small holder farming areas, irrigated rice and sugarcane farms with property rights to agricultural land being very clear-all under private ownership with registered title deeds. For Tanzania, major land uses identified within the basin include extensive agriculture, extensive and mobile livestock production and, multiple use wetlands with customary rights being more prevalent (Swallow et al., 2001b). In Uganda, most agricultural land within the basin is held under customary systems, with patrilineal rules of inheritance (Place and Otsuka, 2000).

Most communities within the Lake Victoria basin are patriarchal and therefore family property (e.g. land) is inherited along such lines. This system of resource acquisition has impoverished women who despite catering for family needs do not have full rights over such property. Traditional institutions involved in natural resource management do not have balanced representation as men tend to dominate in most committees. Decisions emanating from such institutions may not be sensitive enough to women. Men also dominate decisions concerning investment, use and conservation of natural resources. Women have the traditional obligation of securing the family's food supply while men concentrate in income generating activities. Even though men and women may have equal chances to access common resources (e.g. land and water), women have very little control over their use and benefits accruing from the resources (Ong'or et al., 2001). Strict gender-specific division of labour in which specific roles are declared men's only while others are women's only is common among many communities. Where access to water is contingent on property rights in land, women may find it difficult accessing water for commercial but not domestic uses.

Among those communities where women have been inheriting land from their parents like the Baganda (Nyangabyaki, 2002), the problem remains as to how they can assert exclusive rights to such lands. Portions of

lands given to daughters can only be registered in their maiden names even when she is married. Clan elders support the idea to ensure the land does not pass to the clan of the man who marries their daughter (through co-ownership) or land being inherited by children of another clan while women support it to ensure that their husbands do not claim it (ibid).

Despite the declining influence of customary NRM systems, they still apply to some rural areas. Within the Nyando River basin, access to grazing materials may be allowed on private lands. After harvesting of annual crops for example, animals are found to be moving freely on such fields feeding on stalks left behind. At times, people restrict grazing because of degradation that may result and soil conservation structures present in their lands (Swallow et al, 2001a). Free ranging livestock have discouraged farmers from investing in private or public conservation structures, water pans or trees. In certain parts of Tanzania (Rufiji Basin for example), access to land and water for irrigation is still regulated according to customary arrangements where irrigation is carried out by gravity and simple canals constructed to divert water from their sources (Maganga, 2002). Here, villagers organize themselves into informal associations to construct irrigation systems in areas of erratic and unreliable rains with the construction becoming the exclusive property of those who participated though they need a permit for water use. Right to water for irrigation can be got either through the formal system where one applies to the relevant authorities or using the customary systems administered in various levels where customary law operates (local water committees, council of elders, village authorities etc).

### **Transformation of customary systems**

Tenure security under indigenous system is weakening due to a number of factors including growing population pressure, a growing economy that is increasing the demand of outsiders and entrepreneurs for land, improper adjudication and a private land market. Introduction of private ownership upsets the social taboos that regulate communal natural resource management in the rural areas.

A good proportion of young people are moving out to urban areas looking for formal employment. This impacts negatively on the customary NRM systems since it is this group that is supposed to enforce decisions made by elders in a community. Due to increasing population, rural poverty and opportunities for income generation in towns, migration is becoming more common with people of different backgrounds settling together-(for example in irrigation schemes, markets and towns). This heterogeneity is weakening the influence of customary systems since it can only apply to people with some sort of relationship (usually clan or ethnic) that shares some common belief and practices (Huggins, 2003). Also, alternative systems have been put in place by the state, such as village councils in Tanzania, or the chief system in Kenya, which have competed with customary institutions for influence. Where traditional institutional arrangements have broken down, common property systems have been transformed into open access systems creating the false impression that the two systems are inherently similar (Akech, 2001).

The rapid population growth in urban areas partly due to migration from rural areas by those in search of employment is putting pressure on the infrastructure that were laid down immediately after independence to cater for a few people and coupled with poor management of some urban systems, the low income areas find it increasingly difficult to access water.

Communities in the LVB have been severely affected by HIV/AIDS and are having an increasing number of households headed by widows and orphaned children. Cultural practices such as “wife inheritance” have been blamed for the high prevalence of HIV/AIDS among certain ethnic groups. This impact negatively on the regions economic development in terms of human resource waste due to deaths and monies used in disease management. Women widowed due to HIV/AIDS sometimes lose rights to land as in where they are expected to marry husbands’ relatives but fail to do so (Loevinsohn and Gillespie, 2003). Many customary tenure systems provide little independent security of tenure to women on death of their husbands, with land often falling back to the husbands’ lineage (Drimie, 2002). This aggravates hardship and dislocation faced by women due to the many AIDS related deaths. Orphaned children also suffer because safety nets that existed in form of absorption by members of the extended family are breaking down due to the huge burden imposed by this disease. HIV/AIDS also destroys social capital through erosion of the knowledge base of society and weakening production sectors. It

decimates the fragile asset base of the poor when resources are used in managing diseases (Drimie, 2002). Disruption of the dynamics of traditional social security mechanisms and forced disposal of productive assets to pay for medical care and funerals leaves affected members in a precarious situation as ownership or access to rural land is central to many African families well being. In Tanzania for example, Rugalema (1999) found that HIV related illnesses affects time allocation, puts pressure on children to work, divert household cash and leads to disposal of productive assets like land.

Pastoralism though recognized as a viable land-use system in the arid and semi arid areas is being given very low importance by governments, development agencies and research institutions (Barrow, 1996). Many pastoral people e.g. the Maasai evolved sound ecological strategies and practices to enable them live in harmony with their environments. In all the three E.African countries, many of these enlightened indigenous knowledge systems and the associated institutional arrangements are in danger of breaking down as a result of “misguided” modern interventions. The trend has been to replace pastoralism with other lifestyles, not to improve and make the system more sustainable. A clear case in example is provided by the introduction of Ranching and Re-settlement Schemes in Kajiado district by the Kenya Government (Mwangi, 2003; Krugmann, undated). Such subdivisions created farm boundaries that excluded others from water sources (Mwangi, 2003). This has resulted in serious environmental degradation around watering points and new challenges to the pastoral groups. Pastoral property rights systems supported mobility across large areas with their land generally held communally with no one person having absolute rights to property (Kameri-Mbote, 2002). The traditional ways of pastoral grazing are therefore being subjected to more and more changes, leading to new problems. In Tanzania, allocation of rangelands to conservation bodies that do not incorporate the needs of pastoralists in their activities have denied them access to water and grazing areas (Kihacha, 2002).

Customary tenure rights within the basin are evolving toward stronger, more alienable individual rights as population pressure on land increases, technologies change and agriculture becomes more commercialized (Bruce et al, 1994). Freehold land is widely distributed on the Kenyan side of the Lake Victoria Basin. Despite the individualization of land ownership within the area, access to large water bodies (streams, rivers and lakes) is usually guaranteed. It is only the small water bodies like springs that can be found completely enclosed within a private land that access could be a problem. In areas where land is predominantly private, development of rural water supplies may lead to misunderstandings. In Kisii District (Kenya) where land tenure system is mostly private and characterized by high population density, land owners fear locating of public water pumps or pipes near or across their land holdings as this may give the government an opportunity to claim their land citing a public interest (Torori et al., 1996). Property owners on the other hand fear that allowing construction of public facilities (e.g. hand pumps) on private land will encourage encroachment on their property by outsiders seeking to use the facilities.

More than 50% of the lake basin population does not have access to piped water (WHO and UNICEF, 2004) hence depend on natural sources like springs, streams and rivers. Such sources should therefore be protected from any form of degradation. Unfortunately, urban centres along the shores of the lake throw their industrial and domestic waste into the lake and other water bodies. Government departments that are supposed to control pollution or degradation of water resources are still not decentralized in their operations, lack finance and human resources to effectively carry out their mandates.

Post-independence approaches to land reform and settlement differed among the three countries. Villagisation that took place in Tanzania in 1970s resulted in the formation of cooperative (ujamaa) settlements which were characterized by resettlement of Tanzania's scattered rural population into planned and permanent villages (Mascarenhas and Veit, 1994). The process involved significant changes in land-use rights for the purposes of redistributing land for infrastructure, agriculture and habitation with some groups losing their traditional land-some in more fertile places and some near homesteads. Resettlement also meant that some people could not reach their farmlands easily like in cases where they are ten kilometers away. In certain areas like Njombe, accessing land is a problem because much of the good land taken over by the government for ujamaa farms in the past cannot be

accessed by villagers unless they pay rent for a plot of land (Kihacha, 2002). The Village land Act and the Land Act 1999 recognizes customary land rights with certificates issued to protect customary property ownership.

Despite the nationalization of all land in Uganda in 1975, different tenure regimes are still common (Place and Otsuka, 2000). The most common are the customary tenure systems based on patrilineal rules of inheritance. Mailo land tenure system where the land belongs to the kingdom with individuals getting rights from allocation by the King is also common. Kenya's formalized land rights in many areas soon after independence. As a result, property rights to agricultural land are generally quite clear with most agricultural land being privately owned with clear title deeds (Swallow et al., 2001a). The extensive formal land registration carried out in Kenya has not improved land access or productivity (Bruce, 1994) due to interference with traditional system of ownership and production and speculation by absentee landlords. Moreover, many customary aspects cannot be simply 'legislated away'.

Liberalization of the market where governments no longer fixes both agricultural and livestock products prices has also created suffering and conflicts within households and between different groups due to lack of reliable and just market. Men have been forced to leave the cash crops they use to grow like cotton for food crops like sweet potatoes and other legumes that they sell to get some ready cash. This is denying women the control they have had over food crops and also the income they used to get from men.

Whereas traditional systems were communal in nature, introduction of private ownership has broken down the social bonds that regulated resource use and conservation. For the poor or the landless, individualization and registration of land as private property may mean losing access to necessary resources like water, grazing areas and firewood. Contrary to the belief that individual land title improves security of tenure and production, Akech (2001) found that individual tenure had not significantly improved agricultural production in Kenya where land had been subdivided and registered under individual titles. Moreover indigenous systems had the advantage of being flexible allowing various forms of land borrowing and leasing arrangements that accommodate needs of the landless.

## **National statutory systems of resource management**

In all three countries, statutory systems were imposed by the colonial authorities. In most cases, the intention was to provide tenure security for settler communities, and for land- and- water uses which were economically and politically significant for that community. The resource management systems were completely 'top-down' in nature, centralized, and based on a 'command-and-control' ethos. Often – as in the case of Kenya, for example – laws were made to retroactively legalize situations which already prevailed, and the result was an opportunistic and inherently skewed policy and legal context (Kameri-Mbote, 2003)

### **Land management**

Statutory laws may become a major source of livelihood uncertainty to the poor (Meinzen-Dick and Pradhan, 2002). Land registration considered by many people to enhance security against disputes is associated with complications and costs in the registration process and therefore discourages people from registering. Such costs include direct application fees and the transactions costs of time and travel involved in the application process. In Uganda, the 1975 land reform law that prevents people who did not previously register their land from obtaining freehold is a constraint while in Kenya, Bruce et al.(1994) found that titling by state tend to favour prospective investors because their claims to land lack legitimacy under indigenous systems while pastoralists and other seasonal users of resources are stripped of resource rights through cadastral survey and titling by elites and dominant ethnic groups.

Attempts to promote investment for wealth creation have often involved land being used as an incentive for potential investors. Local people have been dispossessed of their land and relocated elsewhere to give room for the investors. In Tanzania, villagers have been relocated wherever mineral reserves are discovered or to give room for industrial development without adequate consultation and compensation. Mostly such investment does not always benefit local people and may sometimes result in serious conflict.

Where registration of land and titling do take place, policy makers need to realize the danger of cutting off rights of household members other than the owners, and consider ways of preserving those rights as inherent flaws in the application of property rights to natural resources create serious threats to both sustainability and rural poverty alleviation (Shilling and Osha, 2003). Individualization has led to land concentration and increased marginalization and landlessness as people in positions of economic and political power take advantage of the less powerful (Bruce et al., 1994).

Land in Tanzania is categorized as either village, general or reserved land. On general land, allocations will be made under granted right of occupancy. In this the ultimate authority is the Commissioner for Lands. He is to be advised by Land Allocations Committee composed of officials from the Land Ministry appointed by the Minister. Village land is land that falls under the jurisdiction of existing registered villages while the rest would fall under general land. Village lands are to be managed by village councils under the supervision of the Commissioner. The Village Councils are ultimately accountable to the Commissioner thus by-passing both the village assemblies as well as elected local authorities. The commissioner has powers to take away the management of village lands from village councils under certain circumstances. In short, to all intents and purposes, the administration of land at the village level is top-down under the direct control of the Commissioner by-passing all elected organs at local level.

The policy of villagisation resulted in forced resettlement of millions of rural dwellers in over 8000 villages in Tanzania. In practice this meant a radical disruption of the land tenure system. Yet villagisation was not conceived or implemented as a programme of land reform. According to Shivji (1977), the havoc created by villagisation in the land tenure system was fully appreciated only in the 1980s when, as a result of liberalisation, former customary owners in villages began filing hundreds of lawsuits threatening to evict new settlers and thus reversing villagisation. This was one of the major reasons behind the appointment of the Presidential Commission to Inquire into Land Matters in 1991. The legislation which resulted offers some protection to customary land rights. Longstanding occupation or use of land has been recognised and is to be secured by the law. This is envisaged under section 3(1) of the Land Act, 1999 which protects people who have acquired land and are using the land without apparent lawful title to its use and occupation. The Land Acts also provide security of land tenure through a Certificate of Customary Right of Occupancy whereby a person who has a certificate under customary rights of occupancy is entitled to own land indefinitely.

### **Water management**

The three countries under discussion here have all subscribed to many of the fundamental principles underlying the Integrated Water Resources Management (IWRM) paradigm. IWRM seeks to address in an integrated, coordinated and balanced way, the needs of upstream and downstream users, current and future beneficiaries, different water uses (such as environmental, agricultural, pastoral and industrial uses), supply and demand factors, social and economic benefits, and other aspects of water management (see e.g. McGranahan and Satterthwaite, 2004; and Maganga, 2002) IWRM is based on the Dublin Principles, of which subsidiarity and participation of water users in management are important elements. The Principles agreed at the International Conference on Water and Environment, held in Dublin in 1992, are as follows:

- Freshwater is a finite and vulnerable resource, essential to sustain life, development, and the environment.
- Water development and management should be based on a participatory approach, involving users, planners, and policy makers at all levels.
- Women play a central part in the provision, management and safeguarding of water.
- Water has an economic value in all its competing uses and should be recognized as an economic good.

The use of the hydrological basin and catchment units for planning purposes, rather than administrative units, and improved coordination between different sectors and government departments are significant.

While IWRM is undoubtedly the current hegemonic paradigm in global water management, it is not without its critics. In order to problematize such a dominant concept, it is first important to identify the nature of the phenomena itself. As with any paradigm, IWRM is a product of a discourse, or an exchange of information and



ideas between various actors. Information becomes validated and seen as ‘authoritative’ through processes of repetition and refinement which take place within networks of influential actors, such as scholars, scientists, policy-makers and donors. Seminars, conferences, and websites form importance nodes between networks, as Escobar (1998) notes in the case of the ‘biodiversity’ discourse. The funding which allows publication, research, and discussion of the ideas is very important in driving or shaping the process. It is useful to note a few significant aspects the process by which an idea becomes hegemonic. First, although the documents and data used to build the concept may make reference to the local level, actors at the village level are completely excluded from the process. In the case of water management, much of the discussion has until recently been based on ‘hard science’, to the exclusion of the ‘soft sciences’, such as social or legal anthropology (Swatuk, undated). Secondly, although the IWRM paradigm is often portrayed as a neutral, ‘rational’ and ‘scientifically-based’ concept, it is inherently political – as it determines the processes by which important resources are distributed – and those who are involved in IWRM bring both conscious and unconscious ideologies to bear on the exercise (Swatuk, undated). Thirdly, the development of a dominant discourse is rooted in temporally and geographically specific events. For example, the “assumption that water scarcity is a matter of physical, not economic, scarcity” (UDSM et al, 2004) was influenced, in the 1990s, by the frequency of drought events in Eastern and Southern Africa (Swatuk, undated).

For example, IWRM is heavily influenced by narratives of water scarcity, particularly at national and global levels, which has led to an emphasis on increased efficiency of water use and demand management. While water scarcity is a reality, in many areas inadequate water access results from poverty (itself a product of political, institutional or economic factor) rather than scarcity, and often the poor remain unable to access safe water even where water is plentiful (McGranahan and Satterthwaite, 2004). In some cases, efficiency and institutional self-sufficiency have become management priorities to the detriment of other issues which may better represent the needs of most local people, and in particular the poor. This is the case in Zimbabwe for example, where new institutions “emphasize resource management and generation of revenues, not the water-related development projects of greater interest to poor communal and customary area farmers” (Derman et al, 2002). Across East Africa, in contrast to parts of Southern Africa (particularly South Africa) and the West, most major river basin flows remain ‘open’, with some water available for allocation, rather than ‘closed’ due to abstraction of all available water (other than that base flow necessary to support environmental functions).

While the design of different IWRM institutional structures have similarities from country to country, the implementation of the system of course differs greatly. One important decision at the start of the process is whether the concept should be piloted before the national-level legal and institutional structure is put in place. This is an important political question, especially in areas experiencing high levels of inequality between stakeholders. According to Manzungu (2004) the ‘progressive’ approach taking in South Africa, where basin institutions are established progressively over time and the legal framework is established later, at a pace set by the stakeholders involved, risks the entrenchment of powerful interests in the process. In Zimbabwe, by contrast, the legal framework was put in place and then the formation of WUA’s followed. In Tanzania, the ‘progressive’ route has been followed. While the power relations between stakeholders may not be as blatantly skewed as in South Africa – where white-owned farms and industries largely control water allocation at the expense of local smallholders – this approach does risk the dominance of some stakeholders. For example, the prominent role of the state electricity utility, TANESCO, in funding and supporting certain activities within the IWRM and basin-management context in Tanzania has been perceived negatively by some actors.

As for irrigation, the capacity of the government to manage large scale irrigation schemes has collapsed and farmers are taking over such responsibilities informally (Blank et al., 2002). In the past, the state owned the land and cultivators became lessees with temporary occupation licenses which recognized only the allottee and his/her spouse, and allowed the state to evict them. The state regulated the kind of transactions that may be conducted, crop planting timetables and marketing of crops. Land tenure was very insecure and a major disincentive for any investment by the cultivators. In Mwea Irrigation scheme Kenya, for example, the National Irrigation Board which used to run irrigation schemes did not manage to carry out its role effectively leading to misunderstandings between Irrigation Board Management and farmers. At some point, the board couldn’t control the crops grown and illegal water use (Kabutha and Mutero, 2002). Finally the Board had to pull out and leave the management to

farmers cooperative. Unfortunately, farmer's cooperatives currently do not have the human and financial resources needed to run the scheme.

Though holders of private property have the right to determine the use of their property and dispose of it, the state has the right to establish easements on private land, which limits the right of landowners. Creation of easements involves taking from owners some of the rights to use their land in public interest as is the case with zoning or other land use regulations (Torori et al., 1996). Easements provide access to water resources which would otherwise be prevented by private land ownership. This is particularly important in rural areas in order to provide access to surface water for livestock and domestic purposes for those who are not riparian owners. Easement is also essential for the development of public water supply systems which require piping water across large distances (e.g. from source to market centres or schools). Easements are therefore important because they disaggregate the bundle of rights associated with land ownership into distinct functions including, the right to pass over private land (Torori et al., 1996).

Governments have too much power and rights over water in terms of ownership/ trusteeship and the regulatory functions hence other stakeholders are often not adequately involved in the decision making process more so due to the centralized approach usually adopted when dealing with water issues. This may create conflicts over water resources as some of the decisions taken may not take cognizance of different but important needs, resources and management systems found in different areas. Even though individuals do not own water, there is need for some compensatory measure to be put in place for those owning the land where water sources are found.

Men still dominate the decision making process. Women need to be more involved in the planning, operation and management of water and sanitation programs. If they get reliable, safe portable water supply, they will be able to re-channel their time, energy and labour into more income generating endeavors and social activities. But as much as water interventions should be gender- sensitive, it should not be seen as women's problem but rather everybody's concern and therefore men should also contribute time, labour and cash towards such activities more so if such interventions are to be sustained and have significant impact.

In Kenya, the Ministry responsible for water has been the principal agency responsible for the management, development, operation and maintenance of water supplies, sewage disposal and pollution control. The Water Service Regulatory Board (WSWB) under this ministry is the top organ for water management decisions and issues licenses for water use. Immediately below it are the seven Water Service Boards namely Nairobi, Central, Coastal, Rift Valley, Lake Victoria North, Lake Victoria South and the Northern.

Some applications are made to the Water Catchment Boards while some are made to the district water boards depending on whether it is going to have an inter-basin transfer or not. The Water Catchment Boards approve water permit applications from within their catchments; formulate recommendation on water use and conservation and are supposed to monitor and enforce water use regulations in the catchment area. Though functional, catchment boards lack resources, political support and legal power to have their decisions implemented. District Water Boards on the other hand follow the administrative boundaries and have stronger affiliation with the provincial administration (Huggins, 2003).

Tanzania is characterized by a pluralistic legal system where land and water resources are regulated by different pieces of legislation and institutions including statutory law and customary laws of the 120 plus ethnic groups among others (Maganga, 2002). In cases of conflicts over natural resources, authorities tend to refer to state laws which do not necessarily protect the interests of the poor and other marginalized groups.

Five levels of water management recognized in the 1995 Water Policy include the National, Basin, River Catchment/ Sub-Catchment, District and Livelihoods/Water User Association Level which are a mixture of hydrological and administrative units (Huggins, 2003). The 'ten-cell' group or ten-house unit is the lowest level of governance in Tanzania whose leader is 'co-opted' in the village council. Village councils elected from village assembly are vested with the legal authority and political power to initiate and manage development activities and

have the responsibility of running their small water supply systems while running of larger systems remain the responsibility of regional/national authorities (Maganga et al., 2001). It was hoped that the village system would provide a viable institutional basis for locally based management of natural resources but poor definition of responsibilities and development goals and attempts by some councils to take control of development projects for their own benefit makes them unpopular (Huggins, 2003). As for the Village councils they may not be impartial due to their close linkage with local politics and therefore should be replaced with users association because not all villagers use a given water resource (Huggins, 2003).

For a long time, Uganda has had no clear policy on water. Instead there have been legislations scattered in different sectors, limited in scope and aimed at management and distribution of urban waters (Ntambirweki and Dribidu, 1999). The Water Statute (1995) is one of the major pieces of legislation dealing with water in Uganda. The right to investigate, control, protect and manage water in Uganda for any use is vested in the government and exercised by the Minister or Director of water development. It is an offense to allow or waste, misuse or excessively consume water. The Minister is authorized to prescribe time; manner and places from which water may be extracted for use or in times of shortage/anticipated shortage regulate water to be used for particular purposes. Some government departments have many responsibilities but without the necessary resources to undertake such responsibilities. UNEP/UNDP (1999) found that the water policy committee charged with the responsibility of advising the minister not to be operational due to financial problems even though it could have gone a long way in assisting the government to come up with good policies.

Non governmental organizations are also involved in water supply and sanitation, some concentrate on water supply and sanitation as core activities while others see this as complementary to their main activities such as health and agriculture. At times, they are more effective than government due to their small size, flexibility and cost effectiveness in operations reflected in their ability and willingness to experiment with new technologies. Some also have grass root links with communities. A weakness common to many NGOs is that at times they do not stay long enough to evaluate the performance of projects they initiate. Agreements reached with private land owners concerning the siting of wells and water tanks may at times be disregarded after the sponsors pull out with some land owners excluding other people from using such 'communal' property. Some of the technologies introduced by NGOs to help the poor may be inaccessible to them due to the high costs involved.

A number of regional organizations formed by the three governments with the assistance of development partners have been instrumental in the managing the Lake's resources and surrounding areas. The Lake Victoria Fisheries Organization and Lake Victoria Environmental Management Program are some of the regional bodies with mandates over shared natural resources. Though they can assist in coordinating the use and management of the basin's resources, the limitations such regional bodies face include the fact they can only make policy recommendations but not implement since only national governments are mandated to do so. But with current moves towards a unified East African community, such regional bodies need to be strengthened to help in coordination of regional efforts in managing shared resources.

## **Performance of statutory systems**

For a long time, legislation governing natural resource use in east Africa has been sectoral and uncoordinated. Such laws formulated during the colonial period have weaknesses because they were aimed at resource exploitation rather than resource conservation. Currently efforts are being made to revise most of the policies and legislation to reflect the current situation. The Environmental management and coordination Acts are being used by the three countries to coordinate and promote sustainable management of the environment. Committees comprising heads of various departments and representing different groups have been formed from the National to lower governance levels. This may help in coming up with relevant management systems that takes into consideration the prevailing local conditions

Systematic land registration exercises are usually followed by widespread failures to register transfers and successions leaving the accuracy of registry records in doubt. Also most smallholders continue to consult family or relatives before selling or mortgaging their land contrary to expectation that registration will allow them to carry out such transactions independently. This is because some of the important issues are not given adequate attention. Some people may not be aware of the formal legal provisions while some might find it costly in terms of time and money especially where courts and legal service providers tend to be concentrated in urban areas. Systematic titling and registration may only be appropriate where land has become valuable, is the subject of intense competition and disputes and where customary tenure is failing to cope with the conflicts or land is being distributed by the state in connection with a project involving resettlement (Bruce et al., 1994). For the government departments concerned with land registration, refusal to register land transactions, successions and transfers, resulting in double dealings and changing of minds compounds the problem as they cannot settle all the cases. Land control boards at lower level of governance charged with regulating land transfers and mortgages are ineffective, give economic growth priority over equity and can be easily manipulated by powerful people.

Success of private property regimes depends on the availability of an extensive legal and governmental infrastructure; on whether property owners or claimants to use rights can afford the costly legal system; and on whether there are mechanisms to recognize public goods and enforce community interests (Shilling and Osha, 2003). These conditions are rarely realized by the rural poor in developing countries. Registration of land for individuals especially for the poor can be exceedingly burdensome, if even possible. In areas with weak institutions, rights are not enforced and individuals are left without legal recourse even where properties can be assigned to individuals.

Knowledge of rights and information about the way government functions is lacking in rural areas making it hard for rural population to put pressure for change in systems that discriminates against them both in the allocation of resources and in pricing policy of their produce. In all the three countries, a large section of the population is not adequately informed about such issues as water rights-what they are entitled to, when permits are needed, procedure involved in applying for such rights, water user fee and their responsibilities. In Tanzania, lack of an effective mechanism for disseminating information on water rights applications and decisions contributes to resentment and suspicion as some of the rural communities have very low literacy levels (Huggins, 2003). As publication of water rights application in local newspapers may not be sufficient for the people to follow such regulations, summaries of the various water Acts and other major decisions should be produced in Swahili and other local languages for easier understanding and to raise awareness as widely as possible (Huggins, 2002). Swallow et al, (2001a) found government support and enforcement of existing legislation against improper natural resource use being weak in western Kenya just like other parts of the basin.

Ministries in charge of water affairs have been highly centralized and therefore not able to fully involve local communities in planning, monitoring and management of water resources yet they cannot carry out all these functions satisfactorily. There are cases where water abstractions permits issued have exceeded the water available within a basin due to lack of up to date information. Water bailiffs, officers of the water boards responsible for monitoring and enforcing water use permits have been manipulated in the past by applicants to influence the outcome of their application by inviting and paying for their visits during periods of high flows. Ideally, inspections should be done during dry periods and results compared with long term averages before a decision may be reached. But considering the limited resources allocated to the ministry together with the lack of up to date information on all water sources, this has been difficult to follow.

The sectoral nature of water management has not helped matters either. It has been found out that giving responsibility of conserving water resources to so many institutions is not effective and creates procedural difficulties and tendency of failing to take action hoping the other will.

Irrigation schemes have byelaws governing water use (e.g. water distribution regimes) and management issues which are hardly enforced. Water theft remains common among farmers having neighboring plots breaching walls of the schemes to water their crops out of turn and not paying any fee (Gikonyo, 2003; Huggins, 2002). Difficulty

in enforcing these bylaws can partly be attributed to the lenient fine or penalties and lack of resources by those supposed to enforce such regulations (e.g. the irrigation unit). Until 2002, fines for water related offences in Kenya hardly exceeded US\$14 (Mr. Nyaoro-Registrar of Water Rights; pers.comm). Also rules governing membership of management committees are not often followed with some individuals serving for too long thereby compromising rules and regulations (Huggins, 2002). Changing irrigation technology where people are relying more on small pumping and water-lifting devices owned and operated by individuals to irrigate their land has also created a new challenge to governments in the region as policing such people becomes difficult (Blank et al., 2002).

### **Customary land and water rights in water resources management**

Due to the many challenges being faced in the water sector, new strategies for managing water resources have been initiated. Included is the greater involvement of private sector and water users in management of water resources. These approaches are expected to improve the management and delivery of services by bringing together the different stakeholders and mobilizing the necessary resources which governments lack.

Rural communities are being encouraged to form water user associations (WUA) to help in addressing their water needs. Such associations are often more able to mobilize labour and other resources needed to improve water body management through establishing and enforcing rules of access and duties of the users. They have been born partly out of the need to complement government efforts in water supply, increase user's participation in water resources management and to establish dialogue between water users due to increasing scarcity. Their involvement in water management is expected to improve access and fair distribution of water among the different users and help in the conservation of catchment areas. This approach is considered useful alternatives to the poorly functioning centralized approach to water resource management that has contributed to undermining sustainable community practices and traditional knowledge on water management (World Bank, 2004).

Attempts to involve users in water management have been viewed differently by various groups. While some see it as a reaction by governments to pressure from development partners to hand over the responsibilities they cannot afford to take care of, others view it as the only way through which authority may be devolved and users empowered to participate in the management of resources. It is feared that creating new institutions including smallholder irrigation scheme user associations that emphasize resource management and revenue generation and not water-related development will neither broaden access to the new institutions nor address equity in water distribution. They may instead disadvantage the poor when they distort customary institutions (Derman et al, 2002; Van Koppen et al., 2004). In Tanzania which has a long history of irrigation, formalization of water rights created a large number of illegal users that the government found hard to deal with (Maganga et al, 2003)

Results from involvement of users associations in water management are mixed. In certain areas, they have provided mechanism for allocating water to different users (as water rights are usually given to organizations and companies) and solving conflicts that arise from the competing uses while in other areas, they have encouraged excessive extraction of water by organized groups especially where members pay for the water as they try to get the maximum from their water rights. It is therefore important that adequate measures are put in place to ensure that WUA help in promoting equitable water distribution among the different groups. Given adequate local leadership and commitment, some communities are able to rise above the constraints of poverty and provide viable services as alliances can help disadvantaged groups have a stronger negotiating position (Meinzen-Dick and Pradhan, 2002).

As much as formal natural resource-based associations may provide a significant step towards improved management systems, they are not necessarily equitable or representative unless positive steps are taken to make them so. Public access points or rights should be provided to those who do not own riparian land where such association exists to avoid excluding local rural population from accessing water. Public interest (both present and future) must be taken into consideration and this can only be possible if government retains ownership of water body itself otherwise such exclusion may be passed over to future generations.

Even though privatization of water services has focused more on drinking water, access to water for agricultural production is equally important considering that it is the main source of livelihood for majority of the basins

population. The greatest impact as far as poverty reduction is concerned could be felt through addressing the problems facing this sector. The changes being instituted in the water sector though well intended may come at a cost to certain income or livelihood groups in society unless appropriate measures are put in place to protect the very poor and marginalized groups. Rural areas in east Africa have generally been left behind in terms of water infrastructure coverage. Thomson et al. (2001) found that despite a decrease in water supply coverage from 83 to 80 percent in urban areas between the year 1990 and 2000, it was still much higher compared to rural areas whose coverage increased from 36 to 40% between the same years. This underscores the need to address causes of poverty and greater disparity between urban and rural areas even as new water management approaches are being put in place. For certain communities, access to water for irrigation or watering animals may be important. Their concern will therefore be on how the new management systems may improve access to unimproved water sources and not necessarily drinking water.

In certain areas, it has been found that inadequate water access results from political, institutional or economic factors and leads to water deprivation even where it is plentiful (McGranahan and Satterthwaite, 2004). Under such circumstances there may be little to do with efficiency which is one of the major arguments being advanced for involvement of the private sector in water resources management. Where expansion of the water supply infrastructure is key to improving water access for example, tenure problems that may have hindered extension of public utilities will still remain even with the involvement of the private institutions. Debate or arguments over private sector involvement should focus widely on the socio-economic issues as well.

Apart from encouraging the formation of water user associations, there is need to ensure that users are not only adequately represented but also effectively participate in decision making. Devolved governance system is supposed to provide such opportunity but experience from Uganda shows that users are still left out when it comes to making important decisions. Privatization of water services has been largely discussed at the national level despite the presence of devolved governance structure.

Change in management of water supply and distribution is needed but the government must retain some measure of public investment, state planning and regulation as complete private ownership of water resources is neither likely nor desirable due to equity and strategic national development considerations. Because of the overwhelming public interest in water, popular participation in decision-making is necessary. Reservations about adopting demand-driven principles wholesale are partly because the approach tends to be biased towards urban dwellers.

## **Conclusions**

- Currently, land tenure issues are not adequately addressed in water legislation and policies in the three countries
- Customary land and water rights remain the most significant forms of rights in most parts of the basin. However, they are not addressed through legal or policy frameworks
- Changing irrigation technology involving the use of small pumps is creating additional challenge in policing of water resources
- Reforms in the water sector should focus on productive uses of water as well
- Information collection and sharing should be improved for better decision making
- Regional institutions need to play a more active role in the management of shared resources

Areas for further research include:

- Connections between Village Councils and Water User Associations in Tanzania: are those Village Councils that are involved in land use planning at the local level, also involved in the allocation and management of water rights? If so, what does this mean for the relationship between land and water rights regimes?
- Performance of Water User Associations. How can they be made more effective in safeguarding water rights of the poor?

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