



Rural Water Tenure in East Africa

A comparative Study of Legal Regimes and Community Responses to Changing Tenure Patterns in Tanzania and Kenya

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Christopher Huggins

*Research Fellow
African Centre for Technology Studies (ACTS)
Nairobi, Kenya*

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Introduction

“The people from the government came and said, ‘The water belongs to the nation, and you must share it.’ But the villagers said ‘No, the water is ours’ and armed themselves in order to fight”.

Anna Sembeo of Oldonyosambu village, Arusha Region, Tanzania

This paper looks at the water policy of Tanzania, and makes comparisons with the situation in Kenya. It focuses especially on recent attempts to move towards a participatory, demand-management approach to rural water supply. This focus on rural water availability is motivated by the fact that approximately 80% of the population of Africa is found in rural areas, and only about 37% of these people have access to ‘safe’ water sources.¹ The paper is based on research conducted by ACTS² in the Arusha Region of Tanzania, and the case studies from this specific area are then set in the context of national water policies.

Research in Tanzania highlighted a number of latent and manifest conflicts over water. The availability of water during the dry season is diminishing, as a result of erosive land use-patterns, poor management, population increase, and the rising number of commercial and small-holder irrigation systems. Conflicts range from potential legal disputes over incompatible requirements of different types of users, to acts of vandalism and violence. The disputes are rarely straightforward, but it is clear that management problems and disputes over water are often symptoms of uncertainties over ‘ownership’ of water. A number of aspects of water tenure are dealt with in this paper. A narrow definition of ‘tenure’ concerns legal water rights as granted by authorities such as the government. In both Tanzania and Kenya (as in many other countries) water is categorised as a national resource, to be allocated by the state on behalf of the people.

However, because water use generally requires investment in infrastructure and management systems, tenure concerns not just access rights to water, but also the capacity to install water related technologies, and relationships with other users of shared water sources. Arguably, stakeholders outside government should be included in the decision-making processes that affect water use. There is a need for the ‘hand-over’ of responsibility for management of community water supply systems to be paralleled by increased community participation in decisions at the local and basin-levels. Community representatives will require training in principles of water management as well as organisational and negotiating skills. Currently it is possible for the powerful to bypass or dominate the allocation processes, so that there are many inequalities in access to water. These include the lack of control over water sources often experienced by poorer communities, as well as downstream users who are worst-hit by diminishing water flows. Within communities, women and the poor often have less influence over planning water development and management. Participatory means of assessing the needs of the community as a whole can reduce this tendency, although imposing ‘equitable’ decisions on communities from outside may not be popular, ethical, or sustainable.

The report offers policy options that reflect the need for increased stakeholder participation in local and regional policy formulation, as well as clarification in the area of water tenure.

1: Water and Development in Kenya and Tanzania

1.1 Characteristics of Indigenous Water Management in Kenya and Tanzania

Access to water is a prerequisite to human life, and naturally Kenya and Tanzania have a long history of evolving water technologies and governance mechanisms. In pre-colonial times, management of water was an integral part of the overall customary laws and behavioural norms of each tribal society. Sometimes water sources, particularly springs, were so highly valued that they were considered sacred.³ Some of these customs are still in operation, while others have been discarded or modified.

The influence of water systems in overall community governance can be very great, and shared water resources are incentives for good inter-community relations. Water tenure was so important to the Chagga of Mt Kilimanjaro for example that, “the geographical positioning of... political aggregation shows a strong tendency for the chiefdoms to be formed “vertically”, that is, up and down the slopes of the mountain”,⁴ which reflects the layout of irrigation furrows.

Water regulations varied considerable between different cultures, and it is difficult to make blanket statements about forms of water tenure. However, 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. Sometimes the community unit was the clan rather than the village: this is the case amongst the Barabaig of Tanzania and the Borana of Kenya, for instance. 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. This may have been facilitated by clan links, as in the case of the ‘agricultural Pokot’ and the Marakwet of Kenya, who have a system of mutual assistance (land or water) for households in the same clan. Often a distinction was made between different water uses. Amongst the Sukuma of Tanzania, any water source, even those found on private land, were traditionally free for *domestic* use by anyone. However, as regards water for cattle, permission had to be sought and it was possible to charge people for use of a private watering-hole.⁵ Amongst the Barabaig, any local person could take water for domestic use from a well, but only clan-mates of the person who dug the well could water *cattle* there.⁶ Agreements over water use are particularly important amongst societies who are highly mobile, in order to plan migration-routes. Pastoral societies have developed wide-ranging kinship networks that allow negotiated access to water and grazing rights among the territories of their clan, tribe, and sometimes amongst other tribal groups. This is another example of political structures being shaped by the challenges and opportunities posed by the need to gain access to water.

Box 1: Sustainable customs undermined by government policies

In the arid Wajir District of Kenya's North-Eastern Province, the growth of settlements is encouraged by the Government, via a policy of demarcating even unsettled seasonal water points as administrative centres: locations or sub-locations. Once a site is demarcated in this way, a chief is appointed. The chief is encouraged to settle the area. The total number of settlements has increased from just four in 1940 to forty-six in 1996. The power of the chief lies in his ability to encourage people to settle and make his location significant.

Customary controls, which for generations have prevented people from grazing their cattle close to wells in the dry season, were previously backed up by the government chief. But the settlement policy has given the chiefs an incentive to disregard customary norms. To encourage settlement, they will for example fence water-pans previously used for watering animals during the dry season, for use exclusively by settled people and their animals.

Although settlements have brought benefits, such as improved healthcare and education, they have also had negative effects. Areas formerly reserved for wet-season grazing can also be utilised in the dry season, leading to overgrazing across large parts of the district. The key impact is the reduced availability of key fodder species, a situation that may be reversible, but is currently reducing nutrients available to herds. Consequently, although more animals are kept than in the past, their milk and meat yield is poorer, with associated human health impacts.

(Source: Department of Livestock Production/ Oxfam, 1996)

Customary systems of water management were by no means static. Regulations and technologies altered over time, and innovations were introduced as a result of cultural exchange and experimentation. Water technologies have been altered and refined, and have spread geographically. One of the study sites near Mt Meru in Tanzania is believed to have been introduced by hired irrigators from sites (at least 150 years old)⁷ on Mt Kilimanjaro. More recently, the fall of coffee prices has encouraged local people to imitate lowland farmers who grow vegetables such as cabbages and tomatoes. This is an example of economic policies (liberalisation of national marketing structures) influencing water use. In other places, irrigation was introduced by immigrants and was not readily adopted by the 'original' inhabitants. The Maasai of Rombo in Kajiado District, Kenya, for example, did not readily adopt irrigation as a means of livelihood when Chagga, Gikuyu and others brought the technology to their area. The Maasai instead benefited from their role as landlords for many years, and it is only recently that some of them have started to cultivate or have taken an active role in water management. The balance of power between immigrants with farming experience and the less experienced landlords has resulted in local political conflicts.⁸ Irrigation in the 'wetland-in-dryland' environments is to a large extent the result of population pressure in areas of high agricultural potential, as people migrate due to land fragmentation. However, it may also be the result of innovation amongst existing dryland communities.⁹

It is perhaps unwise to generalise too much about the nature of indigenous systems. Amongst some groups inhabiting high-potential areas, control of water was vested to a greater extent in the individual household. Amongst the Gikuyus of Kenya for example, water availability on inherited land is traditionally seen as 'God-given'. Thus a household with riparian access to water can often abstract large amounts for private use even at the risk of resource depletion or at the expense of the community in

general. Such households will be tolerated by society, unless “the actual survival of members of the community is seriously threatened”¹⁰.

To summarise, most indigenous systems of water management in Kenya and Tanzania 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 generalise 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. Of course, access to water is dependent on access to land, and the various systems of land tenure are also relevant. Land tenure systems range from communal systems with seasonal access agreements in rangeland areas, to individualised plots in farming areas such as Kisii in Kenya.

This is the background on which the modern interventions in water supply were superimposed. The survival of these customary systems, their relevance today, and their interaction with statutory law, will be discussed later in this paper. First, it is necessary to look at current consumption patterns, as changing economic systems, new technologies, and increased populations form the context of water management regimes.

1.2 Consumption patterns

Aggregate Useage

Population figures and useage data are shown below in Table 1. Water demand in Kenya is projected to rise to 3,096 million cubic metres (MCM) annually in 2010, compared to the total of 1,148 MCM in 1990¹¹. This represents a 268% increase over twenty years, a huge challenge to a country which is already suffering from ‘chronic water scarcity’¹². In the Tanzanian case, water demand in *rural* areas is expected to increase from 298.6 MCM in 2000 to 558.6 MCM in 2010, and to 736.3 MCM in 2020.

Table 1: Population and Water Availability Data, Tanzania and Kenya

	Tanzania	Kenya
Population growth rate	3% ¹³	3.4%
Total population	32.3 million ¹⁴	28.6 million ¹⁵
% of population living in rural areas	78% ¹⁶	76%
% of renewable national supplies used each year	1.5% ¹⁷	7% ¹⁸ .
% of total population with access to water	66% ¹⁹	62% ²⁰
% of rural population with access to water	38%	42%. ²¹

Agricultural water use as of total	97% ²²	Estimates vary between 62% - 97% ²³
Total average rainfall p.a.	937mm ²⁴	750mm

Water demand far outweighs current supply. These problems are not simply due to a low potential for water abstraction; additionally, the capacity to utilise existing water resources is limited. Part of the reason for this is the extreme seasonality of rainfall, especially in the driest areas. In East Africa, most of the total precipitation comes in short rain seasons (frequently of great intensity) which make containment of the water a substantial engineering challenge. Rainfall in Kenya and Tanzania is also very unevenly distributed geographically. Half of the total area of Tanzania receives less than 750mm, which is under the 760mm threshold usually reckoned to signify potential for secure rainfed agriculture (although this depends very much on evapo-transpiration rates, amongst other factors). Tanzania (like Kenya) also has areas of fairly high population concentration: almost two-thirds of the population live on just 10% of the land.²⁵ Thus even in the high-precipitation areas, competition for water is intense.

Groundwater is abundant in Tanzania and is especially significant in the central regions of Shinyanga, Dodoma, Singida, and Arusha. There are a total of 7,000 deep boreholes in the country.²⁶ However, the quality of groundwater varies, as high levels of minerals and salts affect some aquifers. In Arusha, some villages use water which is extremely high in fluoride, but the authorities have been unaware of this until recently.

Consumption by Different Water-Users

Water for domestic use is crucial for good health. In 1996 Tanzania was 7th lowest in a global league table of average domestic water use for drinking and sanitation per capita per day, with a figure of just 10.1 L.²⁷ This is far below the 50 L figure which is recommended as a standard minimum by many water experts.²⁸

All of the case study villages in Tanzania used piped or protected springs for their domestic water, which was generally free apart from ad-hoc repair charges. However, in some villages, people took water from irrigation furrows (which may be polluted with pesticide residues from coffee crops), because springs were too far from their homes. In both Kenya and Tanzania, the responsibility for domestic water-collection and in-house management is generally taken by women and children.

Irrigation is the most consumptive water use globally and within the E. Africa region. In terms of traditional schemes, water efficiencies can be very low. Up to 70% of the water can be lost before it reaches the fields, through seepage and evaporation. In Arusha, projects such as the Traditional Irrigation Improvement Project (TIIP) work to improve the operation and management of small-scale irrigation, through technical advice and community institution-building. TIIP requires that at least 30% of the committee members are women. Often, women were not previously involved in decision-making, and they are frequently discriminated-against as regards water allocation: in one case, women were even forced to irrigate at night, despite security risks.²⁹ Smallholder irrigation schemes can improve food security and

raise rural income levels. There is a total potential irrigation area of 1 million ha in Tanzania, of which about 60% is located in the Rufiji basin.³⁰

Table 2: Irrigation in Tanzania and Kenya (area in ha)³¹

	Small-Scale	Private Commercial	Govt-Managed	Total
Tanzania	120,000	unknown	unknown	150,000
Kenya	28,000	26,600	12,000	66,600

Hydroelectricity also figures in the Tanzanian water sector. It is crucial to the Tanzanian economy, generating 62% of the indigenous commercial energy production.³² The government's ultimate aim is to completely phase out thermal power plants and replace their input with hydro power. However, there are currently severe problems with siltation of dams. The Hale reservoir, for instance, has had its capacity reduced from 21 megawatts to 17MW due to loss of storage potential in the silted reservoir. This siltation due to erosion of topsoil is ultimately caused, or at least exacerbated, by deforestation, especially on hillsides. Another problem is reduced water flows caused mainly by abstraction from rivers for irrigation.

1. 3 Water Supply Infrastructure

Of the existing domestic water supply schemes in Tanzania, many were built during the 1970's or 1980's. Hand-pumps have limited life-spans of generally 15 – 25 years. These schemes were also designed for a small population – the optimum demand may have been surpassed after just 5 or 10 years, and current levels of use increase the physical pressure upon the systems. It is estimated that around 30% of schemes are “malfunctioning”.³³ Many of these problems are not taken into account when levels of water demand and supply are estimated, so that current estimates may be optimistically high.

Tanzania and Kenya cannot rely solely on new schemes to solve their water supply problems. Studies show that the costs of new water projects tend to rise in terms of construction costs per unit of water supplied. This increase is due to the increasing remoteness of sources being tapped, and the need for more complex supply systems. Therefore, it may prove more cost effective in the long run to invest in training and policy measures which help to make water distribution more efficient and equitable. At the same time, it is important not to underestimate the need for new water systems, especially in arid or semi-arid (ASAL) areas. Dryland areas that have minimal opportunities for groundwater exploitation, require a combination of systems such as earthdams, sub-surface dams, and domestic rainwater catchment structures. These may not be especially expensive although the remoteness of some areas leads to high transport costs for materials. Arid areas also require in-depth strategic planning of water resource development because of the impacts of water availability on herd movements and settlements.

1.4 Environmental Management

There is great inequality in distribution of water resources across Tanzania. Most of the water sources originate from ‘islands’ of water abundance, such as Mt Meru and Mt Kilimanjaro. A lot of water is often used in these areas by traditional irrigation schemes. If water use can be managed efficiently, more water will be freed for use by people downstream.

Moreover, the continued availability of water depends on the conservation of forests and the use of soil and water conservation technologies in people’s farms. As woodland areas are cleared for cultivation (sometimes without the benefit of soil and water conservation measures such as terracing) less water permeates the ground, and more is diverted away from the groundwater store as run-off. Springs and other water sources provide diminishing dry-season yields. Boreholes which supply Arusha town are being affected, and the town suffers frequent water shortages. Some rivers in Arusha region have seen reductions of 90% reduction in dry-season water levels over the past thirty years³⁴. There are few man-made storage facilities to capture wet-season water supplies for use during the critical dry months.

Flooding in the wet season also becomes worse, leading to gullying and other problems. Run-off also transports large amounts of topsoil, posing problems of siltation of dams downstream. Conserving forestry is a very difficult challenge, as population pressure on the land in these high potential areas is high and is continuously rising. Hillside communities may need incentives in order to conserve resources that could, if harvested, bring considerable profits. Eventually, water charges could be used to finance conservation of watersheds, although neither local people nor the Ministry of Water may want to ‘subsidise’ the forestry sector.

There are also major problems associated with the Pangani river, which runs through Arusha region and supplies the Nyumba ya Mungu³⁵ hydroelectric dam, amongst others. Power production is regularly affected by abstractions of water for irrigation, leading to nation-wide power rationing.³⁶ Many of these abstractions are ‘illegally’ performed without a water right. Indeed, a few years ago the Tanzanian Electric Supply Company demanded that “all irrigation projects upstream of the [Mtera] dam be closed down in order to promote power production.”³⁷ However, the government made no move to do so, because so many rural people depend heavily upon irrigation schemes for subsistence foodstuffs and/or a cash income.

Anthropogenic pollution is also a grave problem. Faecal contamination of water sources may be common: one official source states that 95 percent of the surface water sources in Tanzania are bacterially contaminated³⁸. This points to a need to enforce legislation limiting pit latrines to areas away from surface water sources, and to raise awareness of health issues at community level. The use of pesticides, particularly on coffee and flower farms, is another serious threat, and current legislative and (especially) enforcement instruments are inadequate to deal with the problem.

Box 2: Some negative impacts of flood-control and irrigation

Mto-wa-mbu, a small town in Monduli district, in the Arusha region of Tanzania, benefited from a flood control and irrigation project, implemented from 1979. While bringing many benefits, the scheme has also impacted negatively on some members of the local community. The drainage and flood-protection measures have put a stop to flood-recession agriculture which was practised by “probably the poorest people in Mto wa Mbu”. In addition, because rice paddy has such a high water-demand, it tends to raise the water-table in the vicinity, flooding pit-latrines. Bacteria may thus spread into irrigation channels that are frequently used for domestic water supply, leading to significant health problems in the area. The high water-table also rots the root-zones of banana plants. It is important that development practitioners do not assume that expansion of profitable paddy farming is necessarily beneficial to communities as a whole. Control of negative environmental effects requires effective bye-laws, but the effectiveness of these depends partly on the political abilities of various institutions within the town. The ‘elite’ that benefit from the paddy (traders and as well as farmers) may use their connections to block such local legislation.

To summarise, access to potable water is generally poor in Tanzania and Kenya, especially in rural areas. The rising cost of new schemes means that investment in water-saving technology (to limit seepage in irrigation schemes, for example) and wise management (allocation, watershed protection, pollution controls, etc) are increasingly important. Unevenness in the enforcement of the Water Act is a particular problem that will be dealt with in the next section.

2. Legal and Economic Aspects of Access to Water

“Even among some Ministry of Water staff, the current policy is not 100% understood. How can we then expect people in the villages to understand it well?”³⁹

2.1 Characteristics of Water Tenure

Water has unique characteristics and is crucial to every form of life and practically every human activity. Its key characteristic, from the point of view of management, is that it is a ‘fugitive resource’. It is easily ‘lost’ due to evaporation or seepage into porous substances, and has to be ‘contained’. It flows as surface water, often crossing administrative (including international) boundaries, and it crosses such borders underground, in the form of large aquifers. Therefore any alteration of water sources, in terms of quality or quantity, will have affects outside the immediate location of the changes. In the case of a river, “what happens at its source will reverberate all through its course until it reaches the ocean. Problems at the mouth may be unsolvable if you cannot control what happens at the source.”⁴⁰ In the case of underground reservoirs, pollution at one point can make the source unusable by anyone for decades, or longer.

One difference between exploitation of rivers, lakes and aquifers and the exploitation of land resources (forests, pasture etc) is in the ease of access to quantities of water which ‘belong’ to another community. If a number of villages have access rights to

specific parts of a rain forest, for instance, any village which wanted to exploit the resources of another would have to physically enter its territory to harvest it. However, if a river or lake is shared by a number of riparian communities, one can easily abstract more than its allotted share from its own territory: it may even be able to do so undetected. Upstream users are particularly privileged in this regard.

Box 3: The importance of hydrological data

Oxfam assisted the villagers of Olchorovus in the Arusha District of Tanzania to construct a \$137,000 gravity-fed water scheme, for domestic and livestock use. However, the Arusha Regional Water Office didn't realise that the designated water source feeds an underground stream that supplies another village downstream. The Olchorovus scheme cut-off the supply to these villagers, who soon destroyed the scheme. Olchorovus now has no protected water source, relying on that of a neighbouring village.

(Source: Fieldwork in Oloitushula and Olchorovus villages, and Monduli Coffee Estate)

The mobility and the resulting complexity of hydrological systems has resulted in a radical restructuring of water regulation institutions in most countries world-wide. In the past, the mis-match between administrative boundaries (e.g. districts) and the physical boundaries of water basins have resulted in some inter-agency conflicts and sustainability problems. Due to the way in which water resources are distributed geographically, some districts will abstract more water than is available within the district, by taking from other parts of the basin. The River Basin approach is intended to deal with this problem.

As well as its fluid nature, water is a problematic resource because of its bulk and weight relative to its 'value'. Of course, it should be noted that water is often grossly under-valued. This is a fact whether one is talking about water for irrigation, (which may be free or 'subsidised' by the tariff system), or domestic supplies that are priced below the minimum for operation and maintenance and future development costs. When water becomes recognised as an 'economic good' and its value is re-assessed accordingly, the relative values of water for different uses become important. The concept of the water market becomes more applicable. An example of private investment in rural water supply in Tanzania— one of few, it seems, to exist currently — is given in section 2.3.

However, in most parts of Sub-Saharan Africa examples of water markets with water rights that are transferable across institutions are few and far-between. However, examples can be given of water being sold and transferred from Uganda to Kenya.⁴¹

Another key feature is the high capital costs of the infrastructure necessary to abstract, store, and transport water. This is part of the reason that governments have, in recent history, taken the lead in water development. When private investors become involved, there may be a risk of monopoly in water supply, as few individuals or institutions may be able to compete due to these large start-up costs. Large investments have to be recouped through sufficient fees. In the past, the costs have of course been paid for by the state, but are now being transferred to the consumer. Therefore water vendors may be labelled as exploitative, even when their profit margins are minimal.

It is also important to note that control of water opens doors to many potential land-uses. The location of water sources can influence pastoralists' choices of grazing areas, opening up new pasture areas and thus improving the animals' nutritional status. Because of the need for water sources in dry areas, water access rights are the key to control and utilisation of arid and semi-arid areas. The systems of access to such water

sources may therefore be the most complex of all natural resource tenure systems in such an area. Interventions should be carefully located geographically and in terms of socio-cultural 'ownership'. Seasonality, as well as longer-term cycles of drought years, must of course be considered.

2.2 Global Trends in Water Resources Development and Management

Against this background, global water development efforts during the last few decades, including the U.N. International Drinking Water and Sanitation Decade, 1981 - 1990, were to a large extent focussed on technical aspects. The emphasis was on increasing supply by implementing as many water schemes as possible. This approach tended to de-emphasize management issues⁴². When there is pressure to achieve high construction rates, issues of handing over operation and maintenance responsibilities to local people are de-emphasised. One contractor working in Tanzania stated: "the minute you start with participation your targets fall to pieces... our targets were pretty tough."⁴³

However, one lesson learned by most water agencies during the 1970's and early 1980's was that technology should be appropriate to its purpose. There was a movement away from 'high-technology' (with its difficult requirements in terms of spare parts and expertise) and towards simpler hardware. Agencies also recognised the need for increased training in health and sanitation in order for people to fully value water schemes, and in order for the maximum benefits to be gained by communities. This approach paved the way, to some extent, for more community participation in more fundamental aspects of the project.

During the last few decades, especially the latter half of the 1980's onwards, the need to conserve water for the welfare of ecosystems as well as communities has increasingly been emphasised. Pollution has also been recognised as a major threat to water supply, and the profile of pollution-control legislation, as well as sanitation, have increased as a consequence.

These environmental aspects encouraged the idea of 'holistic' water-management units. By the early 1990's many countries world-wide had started to develop a system of water-basin management, rather than using provincial or sectoral boundaries. As will be discussed, Tanzania established its first functional Water Basin Office in 1991, although only two of nine basins identified currently have such an office.

There was also an increasing realisation that different communities – and different interest groups within communities - have different requirements. This led to emphasis on providing beneficiaries with greater control over the planning of the schemes. The last ten years or so have seen issues of participation in water supply gaining recognition not just at the project level but also in terms of water allocation at the local and basin-level. Community-based organisations such as water users' associations are seen as an important part of civil society which is part-and-parcel of a truly democratic system. The *1992 Dublin Principles*, which were developed at a conference of water specialists, stress that water development and management should be based on a participatory approach, involving users, planners, and policy-makers (including women) at all levels.⁴⁴ Chapter 18 of *Agenda 21* of the Rio agreement, to which both Kenya and Tanzania are signatories, asserts that "Water resources should be managed at the lowest appropriate level" comes from. In most countries, water authorities view the water users association as the lowest appropriate level for the management of

water schemes, but have failed to adequately include water users in questions of water allocation at the meso- and macro-levels.

These policy trends outlined above have generally been assimilated in the first instance by donors and NGOs in the water sector, who have then disseminated their views to (or imposed them on) state agencies in the developing world. The reality of policy *implementation* in Sub-Saharan Africa has often been different.

2.3 State Intervention in the Water Sector in Tanzania

Systematic state intervention in the water sector in mainland Tanzania began around 1930, when the government started to use public money to build water schemes⁴⁵. The beneficiaries were towns and townships as well as a few private estates and missions, and the beneficiaries would pay for all post-construction costs. The Department of Water Development was founded in 1945. It constructed schemes for local authorities, private estates and Native Authorities. Beneficiaries paid for operation and maintenance costs and some or all of the capital (construction) costs. There was thus an unequal level of coverage across the country, because of communities' varying capacity to pay for water development.

Many Water Rights which were allocated during the pre-Independence period allowed for very high rates of abstraction, sometimes on a 24-hr basis. The allocations were made during a time when the population was much lower than at present, and when industry and urban centres were less developed. Some of these are still valid today.

Tanzania has undergone huge changes in political outlook since Independence. From 1964, the government moved towards socialist social policies, which pledged to prioritise basic needs and to encourage equitable development, especially in rural areas. During the mid-late 1970s, the government relocated millions of people into nucleated settlements, to facilitate service provision and the practise of communal labour. These "*ujamaa*" villages were given priority in water development, but there was otherwise no clear prioritising mechanism. Generally, the most geographically marginal people were most likely to be neglected.

From 1965 the central government provided funding for all capital and maintenance costs of water distribution development. Local Authorities continued to pay for operational costs. In 1969 however, even these operational costs were covered by the central government. Thus, by 1970, only those who had private water connections were paying for water .

There has been much direct involvement of foreign NGOs. By 1986 the ratio of external to internal funding of the rural water sector was 80:20 - Tanzania has received more foreign aid per capita than any other sub-Saharan country - and donors had a corresponding amount of power in programme planning and project design. Through 'direct financing' of projects implemented by NGOs or private contractors, rather than government departments, donors could control funds. In general, donor-funded projects which didn't involve Ministry staff were completed more quickly than those that did, partly due to superior access to equipment. However, there were a number of problems with this approach, including the tendency to use Tanzania as an experimental testing-ground for new strategies, possibly at the expense of best

practice.⁴⁶ Some donor countries supply technical staff, and do not emphasise capacity-building elements. Sometimes expatriate experts use state-of-the-art methods in surveying and planning, and as these are beyond the present capacity of Tanzanian staff, the process tends to collapse once the technical assistance ends.⁴⁷ Indeed, some donors may have commercial interests that influence their choice of personnel and technology, which may not be ideal for the partner country.

The first national water policy was formally adopted in 1991. It reintroduced charges for water services, so that the water sector could attempt to recoup all costs except major capital investments. Government funding was also to be specifically limited to “basic needs facilities”. In rural areas, non-monetary payments were intended to reduce the costs to local people. Currently, the state is continuing to hand-over responsibility for existing water supply schemes to communities. This is an example of the demand-responsive approach to rural water supply.⁴⁸ Agencies intervene in the sector only when approached by a community, and communities participate in choosing the scheme design. Most importantly, communities must take full responsibility for operations and maintenance costs (in terms of time and money), and must also pay a proportion of the capital costs. The Tanzanian Ministry of Water supports these principles, but they are acted upon to varying degrees. Many rural schemes are heavily subsidised (indeed, it may be necessary to subsidise capital costs for the poorest groups for many years to come). More importantly perhaps, the paternal, ‘top-down’ philosophy remains amongst some government officials, which limits the participation of communities.⁴⁹

Despite some limitations, since the late 1980s, the Ministry of Water has “shifted from providing services to being an enabler, regulator, controller, and monitor.”⁵⁰ There are a number of reasons for such changes. Firstly, Tanzania’s economy has suffered badly over the last two decades, and the government can no longer afford to provide free services. The second reason is that donors have become less willing in recent years to channel funding through the government. Independent status has been granted to many organisations, such as women’s groups, that were previously absorbed into the government, and there is now some space for the private sector in service provision. It is becoming more common for wealthy Tanzanians, individually or in small groups, to hire contractors to construct private wells, and some NGOs are converting themselves into private companies to take advantage of this trend.

At present in the Arumeru district of Tanzania, the beneficiary community will usually pay for 15% of the initial costs of a rural water project.⁵¹ However, the cost sharing mechanism has not been made obligatory in rural areas as yet.⁵²

Box 4: Private Investment in Rural Water Supply

There are few examples of ‘privatisation’ of *rural* water sources in E. Africa. However, one example from Mpwapwa district in Tanzania may point to future trends. A diesel-pumped well had been poorly managed by the village water committee. A wealthy local individual had shown previous commitment to the water committee and had sufficient capital to repair the pump. By agreement with the village assembly and village council, he became the “shareholder” of the scheme, managing operation and maintenance and finance. The water committee takes all other decisions in consultation with water users and the “shareholder”. A contract was drawn up specifying financial commitments, to avoid irregularities. Water charges per litre are higher than the average in the area, but the record of service delivery is better than average. This illustrates the potential benefits of ‘privatisation’, although the potential risks to equity should not be forgotten. In addition, the entrepreneur faced hostility from local water vendors who sold water transported by donkey. To avoid conflicts and vandalism, such interest-groups could, if feasible, be brought into the scheme as

2. 4 The River Basin System

Another big shift in policy is the establishment of River Basin Offices as a key decision-making unit for water policy and water rights allocation. As yet, two River Basin Offices are operational, Pangani (responsible for water sources in part of Arusha region) and Rufiji (formed in 1993, and by far the largest basin in Tanzania). Each of has a Water Board and a Water Officer, “who implement water allocation, water rights administration and control of pollution.”⁵³ The use of the basin system is intended to result in more rational water control based on a unit of hydrological-integrity, so that each office is working on a ‘contained’ water-balance within its jurisdiction. By using one office to co-ordinate water development and management in the basin, the Tanzanian authorities hope to avoid the problems of fragmented planning that have afflicted many other countries. However, while Kenya has established institutions to co-ordinate information (such as the number of consumptive uses and potential sources of pollution) it has experienced considerable problems. At present, the direction of the flow of information is from the districts and Ministries to the River Basin Development Authorities – but rarely in the opposite direction. An improvement in the flow of information could especially benefit district-level linkages. These are particularly important because District Water Boards make important decisions regarding the allocation of inter-district water resources. If each district lacks information on downstream users in other districts, the decisions taken over permitted water abstraction levels may be very inequitable.

Because of the shift towards participatory planning and implementation of water projects, many international donors and NGOs which previously worked mainly with non-state organisations, now also support the work of government departments. A dialogue is developing between state agencies and civil society. However, the fact remains that governance in Tanzania frequently remains “top-down and directive.”⁵⁴ Therefore the most important task facing all stakeholders is to help to turn the ‘participatory’ rhetoric of policy statements into reality.

2. 5 Allocation of Water Rights in Tanzania

Even when demand is reduced through conservation, recycling, and voluntary moderation in use, trade-offs between potential uses still have to be made. The draft water policy recognises that “future water allocation should be done in an optimal and equitable manner to promote food self-reliance and food security.” The implication is that the interests of small-scale irrigators shouldn’t be ignored by the more powerful Tanzanian Electric Supply Company. These trade-offs should be made

between regulatory bodies and representatives of different water users, in an atmosphere of shared information.

In Tanzania and Kenya, as already stated, all water in the country is vested in the government. In theory, “Tanzania citizens have equal right to access and use of the water resources”.⁵⁵ However, access depends on many factors.

In Tanzania, any abstraction from surface waters, other than minor water collection using buckets rather than pumps or fixed structures, requires a Water Right, as does groundwater extraction of 22,700 L per day or more (thus a well fitted with a hand-pump will not require one). Water Rights are allocated by the River Water Basin Offices, or in areas lacking an Office, the Regional Water Engineer, the District Executive Director and the District Agricultural and Livestock Development Officer. It costs a significant amount of money to apply for a Water Right.⁵⁶

Previously to the 1991 Water Act, only people who held leases for their property were eligible to apply for water rights for irrigation purposes or private use, but since 1991 those with customary or ‘deemed’ rights to land can apply. This fits with legal precedents that give deemed rights a legal basis.⁵⁷

In the Pangani River Basin, research conducted in 1994 indicates that of 2265 abstractions, only 171 had Water Rights.⁵⁸ Unpermitted abstractions have not been inspected by Ministry of Water staff, in order to set maximum permitted levels of water use. The situation in Kenya is similar.⁵⁹ Furthermore, insufficient funding for the Ministries in charge of water in the two countries means that staff cannot travel to inspect all *permitted* abstractions, both before and after required infrastructure is installed to keep help to water flows within the set bounds. Water users may pay bribes, or pay for the transport of staff so that they arrive at a time of high water volume, so that the appropriate amount for abstraction is over-estimated.⁶⁰ Some legal requirements which are conditions of obtaining water permits are regularly ignored by the authorities, such as the requirement that a storage facility be on-site at every abstraction. Many people cannot afford to construct adequate storage facilities, which would allow better management of water during drought periods, as users could fill the tanks at night when demand is low.⁶¹ There is an urgent need to address this issue.

The current Tanzanian water policy recommends that those abstracting without legal rights are given two years to apply, after which time abstractions will be treated as a criminal offence. If this approach is taken, an extensive public information campaign will have to be mounted, and support services will have to be provided to communities.

Many of the rights granted before Independence are still legal, and provide for very large abstractions: clearly these need to be re-assessed. However, “it is very difficult for [the state] to alter water rights, no matter how unfair they may be, as we need to pay compensation for lost access to water”.⁶²

Box 5: Controversial water rights

Monduli Coffee Estate, located in Oloitushula village in Arusha District, holds a water right for a local source, allocated in 1958. Local people do not hold an individual right to any water supply. The farmer is obliged to supply the villagers of Oloitushula with a set amount stipulated in his water right document, and actually supplies them with more than this amount. However, the local population and livestock numbers (livestock are the main consumers of water) have risen greatly since 1958. The tank and trough built by Monduli Coffee Estate for Oloitushula is also used by livestock-keepers from surrounding villages, and arguments can arise between herders in the dry season because demand outstrips supply, and because community management regimes aren't strong. Villagers from neighbouring Olchorovus village resent the control of water by the Estate. An additional scheme to supply Oloitushula from the source controlled by the farm, was vandalised by villagers from Olchorovus, five of whom were imprisoned. Villagers threatened in the presence of the Regional Commissioner that they were, if need be, "ready to go to war" over the issue. Other farms in the area with similar 'monopoly' water rights are handing over water systems to local communities, but there are concerns that they are 'offloading' infrastructure that has very high maintenance requirements.

(Source: Fieldwork in Oloitushula and Olchorovus villages, and Monduli Coffee Estate)

The water availability situation is so critical that since 1994, Pangani Basin Water Board has had a policy of granting no new applications, except under special circumstances⁶³.

Once a provisional or permanent Water Right has been granted, water user fees must be paid annually. The current water user fees are tsh 300 (about \$0.41) per 1000 cubic m for domestic/livestock use, and just tsh 30 for the same amount for small-scale irrigation, going up to tsh 60 for large-scale irrigation and tsh 1000 for 'commercial' or industrial purposes. Since water for irrigation is very often from the same source as domestic water (and is thus the same quality) there is clearly a policy of subsidising water use in the small-scale irrigation sector.

Water rights have no time-limit, and are thus effective in perpetuity. Because of the mismatch between the changing water demand context to the unchanging water rights, the current draft of the Tanzania National Water Resources Management Policy recognises the need to implement a fixed water right duration. A 5-year duration (as used in Kenya) may discourage investment, as people will feel that their water use regime is insecure. South Africa's new policy, which is regarded by many as a 'model' of best practice, sets a 40-year maximum duration for Water Rights. Certainly, the process of reforming the current situation must be handled carefully. Commercial farms in Tanzania provide employment for many local people as well as vital foreign exchange earnings.

2. 6 Land Tenure and Access to Water

Legally, in Tanzania, "Access to [domestic] water is a constitutional right".⁶⁴ However, access to water for domestic use without a water right is limited to "any

person having *lawful access* to any water on, adjacent to, or under *that land*".⁶⁵ It is useful, therefore, to briefly examine the land tenure context.

There are a number of different types of land tenure in Tanzania. Legally, all land is "public land" vested in the state (under the governance of the President) which holds it in the public interest.⁶⁶ Legally, land cannot be owned by individuals or institutions but can rather be leased for specific lengths of time. Land is divided into categories including village lands, urban lands, public lands, and protected public lands.

Village lands are demarcated and include communal areas as well as areas for individual use. Generally, water sources in village lands will be used only by the members of that village. (However, in villages that are essentially pastoral in character, the transhumant lifestyle means that water access may be more open to those outside of the village). In villages that have a number of water sources, each may be used predominantly or exclusively by the households in the immediate area. This has given rise to sub-village water committees being extremely common.

The legal regime described above does not entirely fit with the *reality* of land tenure in Tanzania. Customary tenure and 'sale' of land without the transfer of leases is common in many areas. However, in the rural areas, the psychology of 'collectivity' lives on from the days of villagisation, and private monopoly of water by an individual household, on the basis of land ownership, is to some extent unthinkable. However, considerable private investment of money or labour to develop water-collection infrastructure may legitimise 'privatisation' of some of the water, at least.

Individualisation of land

Individualisation of land is becoming more common in Tanzania. The main impact of this trend may be in terms of easements, allowing access by people, or the transport of water, across private land.

As regards acquisition of land by the state, the President is empowered to acquire any area of land, regardless of tenure arrangements in operation, "for public purposes or redevelopment". Examples of land acquisition can be found in the Arusha area: common grazing land was allocated to companies which established large flower-farms around Mt. Meru.⁶⁷ Negative impacts on water and land access of local people may be significant. In recent cases, where land laws have been ignored (see box).

Box 6: The Barabaig land case

In the Hanang District of Tanzania during the 1970's, tens of thousands of acres of pasture to which the Barabaig pastoralist community had customary rights were allocated for wheat production. The Barabaig contested this decision in the courts. After an involved process it was eventually ruled that "a deemed right of occupancy[customary title] is as good as a granted right of occupancy [leasehold title]", although the government, remarkably, tried to circumvent this ruling by rushing the Regulation of Land Tenure (Established Villages) Act, 22, through Parliament. This Act extinguished all customary rights to land which were incorporated between 1970 and 1978 in all villages nation-wide. The Act was, however, ruled to be in conflict with the Constitution. The Barabaig individuals representing the community were eventually compensated with an almost insignificant amount of money, and the land remained under the control of the wheat company.

(See Lane, Charles, 1996)

Land ‘parcelling’ may involve expropriation of water sources which are used by local communities, although they may not have rights according to statutory law. There is a case, in situations where custom has dictated access to water, for customary law to challenge the statutory water law system. At present however, this is largely impossible, and decisions over such contested sources are made by the Water Allocation Board in Kenya or, in the case of Tanzania, the various Water Offices listed above.

In Kenya, around 50% of all legal cases are directly about land ownership issues, and 20–25% of the rest have their roots in land or natural resource-related issues.⁶⁸ To help avoid potential conflicts over natural resource use developing into actual conflicts, and to facilitate conflict resolution, it is important that organisations which undertake research on land-use issues are supported by donors and government. Their work may involve providing an information-base for courts and legal bodies.

The Kenyan government has recommended the use of traditional conflict resolution mechanisms,⁶⁹ which may be effective. However, examples exist of the elders being controlled by a wily chief or other powerful individual, although where the traditional systems are credible they can be more effective than the statutory legal system.

Box 7: Rombo Irrigation Scheme, Kenya

In Kenya there is a “systematic migration of people with farming backgrounds”¹ in high-population, high-potential areas to sparsely populated areas. Such movements can be beneficial to the receiving area in terms of diversification of economic activities and transfer of skills. However, conflicts can arise. In Kajiado District, immigration of non-Maasai groups introduced irrigation to the area. Over 80% of the agriculturalists are leaseholders, with Maasai Group Ranch members owning the land. This insecure tenure has dissuaded them from investing heavily in technical improvements to the system which would offer long-term benefits. Indiscriminate use of agro-chemicals and salinization of the soil are other problems. Conflicts over water allocation are common, and although these are often resolved at the micro-level (by canal committees), disputes between upstream and downstream users have required the formation of an ‘umbrella committee’. Rights to water generally depended on an individual owning or leasing land adjacent to irrigation canals, or being granted a share of the water as a result of providing labour to maintain the scheme. An informal water market existed, which allowed water shares to be sold (water was ‘free’ when allocated according to the regular schedule). This could in theory allow water to go to the areas where it is deemed most valuable, thus improving the overall ‘use value’ of the available water. However, the market is outlawed by by-laws in all the furrows, because the corrupt nature of much of the reallocation impacted negatively on the poorest farmers.

(See Krugmann, Hartmut, and Torori, 1997)

3. Institutions Involved in Water Management

3.1 The Local Government System in Tanzania

The administrative system in Tanzania is based around the structure of sub-villages, villages, wards, divisions, districts and regions.

At the village level, the Village Assembly, which consists of all persons aged 18 and over, elects members of the Village Council. While the lowest administrative unit is the 'ten cell leader', who represents the interests of ten households in village affairs, the ten cell leader is often "co-opted" by the village council.⁷⁰ Thus they have often been perceived as 'watchmen' for the village council, rather than as a conduit for expressing the interests of individual households.

Each village has a number of committees, some of which are 'mandatory', but all of them may be more or less active. At present in Arusha, about 50% of villages have an active water committee.⁷¹ In some cases water user associations may exist outside the committee system, and these may or may not have strong links with the Village Council. The official Ministry of Water policy is that a village is ineligible for state funding for water projects unless it has a water user association or water committee. Another requirement is the existence of a water fund, with money available *before* projects are implemented.⁷²

The next step in the administrative 'ladder' is the Ward Development Committee which generally includes a Ministry of Water employee. However, it is possible that poor monitoring and intermittent links with the District Water Office combine to reduce the morale of the Ministry of Water representation at this level. The few existing examples of 'catchment committees' in Arumeru region are generally organised through the Ward Development Committee, rather than through water user associations.⁷³

There is also a divisional level with a divisional secretary who represents approximately eight wards. This level does not seem to be particularly involved in water issues in Arumeru district, though its influence will vary widely.

At the District level, there is a District Development Committee which receives reports, proposals, and requests from the Ward Development Committee, or directly from the Village. The District Development Committee, like the District Water Engineer, report to the District Executive Director.

There is general optimism in Tanzania that the village structure provides “a unique and viable institutional basis for locally-based management of natural resources”.⁷⁴ This optimism is somewhat muted, however. Many respondents commented during ACTS research that the responsibilities or development goals of the village leaders are frequently poorly defined. In addition, councils may attempt to take control of development projects – in order to control resources and gain status, for example - against the wishes of the section of the community that have initiated them.

Men dominate in many of the village committees. The Water Act states that at least half of all Committee members must be female, but this isn't always followed. Some Ministry of Water staff are of the opinion that if 65% - 100% of the Committee members were female, they would run along more equitable lines, with water for domestic use being prioritised above other uses such as irrigation.⁷⁵ However, “often [women's] involvement is limited to mandatory representation, for example on user committees, with the inherent danger of increasing demands on women's time without actually giving them a voice.”⁷⁶

To avoid this trap, women need to be in key positions. Because they tend to contribute more labour-time to water-related activities than men, they are more likely to press for improvements to water systems. However, it is important that water committees are not seen as ‘women's business’, in case men withdraw their support, which can be crucial especially in terms of financial contributions.

As regards the involvement of the village councils in water committees, opinion is divided over the amount of control that the local authorities should have. The Village executive may be “too closely linked to local politics” to be impartial.⁷⁷ Some experts point out that a water source may not be used by the whole village, and thus a water users association, rather the village council, has legitimacy in controlling it.

3.2 Current Influence of Customary Water Management Institutions

“There's a very high problem between traditional leaders and the village councils. There's no demarcation of boundaries, so that some people support one type of leaders while other people undermine them. There's a lot of confusion in these villages.”

Mr. Amani Saning'o Lukumay, Kammama Integrated Development Trust Fund, Arusha Region, Tanzania

With the widespread surge in interest in community-based natural resource management over the last decade or so has come a debate over the viability of local ‘customary’, ‘traditional’, or ‘indigenous’ institutions.⁷⁸ With over one hundred and twenty ethnic groups in Tanzania, the nature and power of indigenous local institutions varies considerable from place to place. Before the colonial period, there were many different indigenous land tenure regimes in place, varying between different ethnic groups. These customary arrangements covered every extreme from common pool regimes to feudal bonds between landlords and landless peasants.⁷⁹

Existing social structures have proven their ability to organise and motivate people in order to fulfil the aims of those institutions, and evidence shows that building upon existing customs, laws, and authority structures is more successful than attempting to impose new, ‘alien’ structures. For instance, in parts of Tanzania, *kualika* labour (agricultural work-sharing involving a local group that farms each member’s farm, in rotation), may form the basis for other institutions, such as water groups. The group consisted of extended family and close neighbours.⁸⁰ Furthermore, indigenous institutions can provide useful local mechanisms for the resolution of land- and water-access conflicts, although they may require legal support to ensure enforceability.⁸¹ In Tanzania, some village-level indigenous systems have been so successful at dealing with local conflicts that the state courts have been moved to another area due to lack of demand.⁸²

However, most observers are in agreement that across East Africa, ‘indigenous’ management institutions are being undermined. Perceived reasons include the influences of government structures (such as the village councils in Tanzania and the chief system in Kenya), commercialisation of production systems, increasing population pressure, and ‘individualisation’ of land tenure. Furthermore, the migration of young men - who are usually at the forefront of population movements - means that the elders have fewer people to enforce the decisions that they make.

In addition, Tanzania’s *ujamaa* programme in the late 1970’s “led to the undermining of traditional village leadership”⁸³.

However, the capacity of indigenous social structures to resist these influences and to evolve into new forms is a contested area of research.

It is possible, for example, that a ‘water committee’ with a ‘modern’ structure - an executive, a bank account, a constitution, etc. - could in fact be a continuation of a traditional institution’s values and methods. It is particularly relevant in this context that traditional systems are often “subject to constant revision and adaptation”⁸⁴ and are noted for their “dynamism”.⁸⁵ Alternatively, It can be difficult for ‘outsiders’ to identify the ‘survival’ of traditional systems.

Despite this difficulty, some policy documents are apt to make sweeping statements about the degradation of such institutions; the Tanzania National Conservation Strategy for Sustainable Development Proposal, for example, asserts that “traditional land management systems are... no longer viable.”⁸⁶ By assuming the degradation of indigenous systems of natural resource management without empirical evidence, development practitioners can ignore existing systems and further damage them.⁸⁷

It is also possible, however, to make the mistake of assuming that all indigenous systems will bring sustainable resource use. There are a number of problems affecting traditional resource management and conflict resolution mechanisms within the Tanzanian context. The location and extent of village lands are not always in accord with cultural boundaries, so that: “In the context of the modern village committees (which are frequently ethnically heterogeneous) appropriate [indigenous] models for management of common property are not widespread.”⁸⁸ In other words, if a village consists of more than one cultural group the various different indigenous institutions (e.g. customary courts) may have ceased to be effective, as none had power over more than a segment of the village population. This is the case in a documented example of land and water tenure conflicts in the Ruaha River Basin.⁸⁹

Neither is it the case that successful community management regimes *have to* be based on indigenous regimes. Analysts who have looked into common property theory assert that while existing indigenous institutions can provide useful ‘social

capital’ – ‘common understandings’ between people, which enhance co-operative activities – successful management institutions can also be ‘crafted’. When ‘crafting’ institutions attention must be paid to the perceptions and interpretations of rules at the local level. Lack of such attention has led to a mismatch between local demands in natural resource management and ‘top-down’ policies which embody the ‘command and control’ philosophy. A good example of an inappropriately ‘hardline’ approach is the failed de-stocking policy of Arumeru District Council in Tanzania, that attempted to set the maximum legal herd size at an inappropriately small number. This policy alienated pastoralist and agro-pastoralist groups to the extent that violent conflicts resulted.

3.4 Water Development Institutions: Responsibilities and Co-ordination

In both Kenya and Tanzania, the new regulatory and facilitatory role of the Ministries involved in water issues are supported by policy, but have yet to be fully defined. The framework for partnership with local communities has several ‘grey areas’.

To take the example of Kenya, The Ministry of Environment and Natural Resources has been preparing to hand-over responsibility for operating and maintaining water supply systems for about 5 years. In this time, only one or two schemes in the entire country have been fully handed over. This is partly due to unclear policies on the process.⁹⁰

The World Bank has recommended to the Ministry that rehabilitation of schemes should be undertaken by communities, to foster a sense of ‘ownership’.⁹¹ However, current Ministry documents state that the Ministry will rehabilitate water supplies “in partnership with willing and able user communities and facilitate them to be water undertakers.”⁹² The key difficulty in this latter approach is ensuring that the community is fully aware of the options available in terms of development of alternative water schemes, and is also aware of the potentials and limitations of the schemes being rehabilitated. It is in the interest of the Ministry to rehabilitate existing schemes, as a means of retaining a key role in the water sector for the next few years at least. However, this concern should not dictate policy, overriding considerations of sustainability and community participation.

Staff in the Ministry are aware of this “inadequate political will and commitment to create an enabling environment” for handing-over to communities.⁹³ Stumbling-blocks to successful handing-over are not speedily addressed. Such stumbling-blocks include:

- Lack of clear, detailed policy on rehabilitation and handing-over.
- Registration of water committees is cumbersome and lengthy.
- Inadequate capacity-building programmes to facilitate community management.
- Inadequate investment in sensitisation of all parties involved – including parts of the Ministry– leading to “lack of common understanding amongst sector actors”.
- Lack of clear policy on ownership of infrastructure after handing-over.
- The legal requirements for gaining the right to abstract water, particularly in cases of community organisations, needs to be streamlined.

All of these points are also valid in the case of Tanzania, where steps have been taken to research different institutional options for water management.⁹⁴ Information on

different options should be disseminated widely to villages across Tanzania. However, for water users associations to function, it is vital also “to avail them with the executive powers in their areas of operation as is the case with the village council.”⁹⁵

This is because the village councils hold “all executive power in respect of all the affairs and business of a village.”⁹⁶

Moreover, once a local water management organisation has been established, its operation may need to be monitored through mandatory evaluations and self-assessment. This is currently neglected by policies in both countries. NGOs may be in a better position to do this than poorly-funded government departments. Examples of this can be found in Arusha Region.⁹⁷

Box 8: Clarifying community roles

A gravity water scheme in Kisii District, Kenya was implemented using contributions of money and labour from the whole community – even from people living on higher ground that cannot be served by the gravity scheme. They were not fully informed of the way in which the scheme would work, and were angry to learn, at a later date, that they could not benefit from the scheme. The agency working with the communities to resolve the conflict concluded that a key problem was poor definition of different stakeholder roles. There was a need to differentiate between ‘community’ (the wider settlement in which the scheme is located), ‘user’ (which can include anyone using the water) and ‘member’ (which refers to those with specific rights and responsibilities arising from ownership). It is important to ensure that all are sensitised about their rights – can they expect water from the scheme, can they take part in decision-making? – and their responsibilities – do they have to pay contributions, or attend meetings? If information had been more freely available to all the stakeholders before implementation, intra-community tensions could have been avoided. There was a similar need for clearer definition of the functions of office-bearers and committee members. (Oenga, Isaack, and Ikumi, Pauline, 1999)

In Tanzania and Kenya, some agencies, especially church organisations, are not in contact with the local authorities. The lack of co-ordination amongst NGOs, and between NGOs and the state, has led to problems. In some places such as Isiolo in Kenya, NGOs have facilitated irrigation schemes without undertaking proper feasibility studies. These schemes often fail after a relatively short time due to foreseeable reasons: natural variability in water supply, or semi-migratory lifestyles of the beneficiaries, for instance.⁹⁸ Furthermore, when donors choose to assist specific communities without seeking the advice of the government, more needy or more suitable communities may be bypassed.

However, lack of money can limit the frequency of co-ordination meetings. It would seem to be in the agencies’ best interests to put some of their own money towards organising regular meetings, because their existing networks of contacts are bound to have some information gaps. A specific part of each agency’s annual budget should be allocated to improving and using networks of information exchange.

Tariff-Setting Powers

In both Kenya and Tanzania, rural tariffs for water consumption are generally lower than those in urban areas, despite the higher costs involved in implementation, operation and maintenance.⁹⁹ Most in the fieldwork area were essentially free. Hence many are currently unsustainable because there is no money available for repairs.

Tariffs should reflect the cost of the water supply system, and allow for repairs as well as development of new facilities when increased population demands. Tanzania is trying to implement a policy of ‘cost sharing’ in rural areas, whereby the community pays for a portion of the total costs (see section 2.3). In urban areas, the authorities try to ensure full cost recovery.¹⁰⁰

There is a need, however, to ensure that safe water is available to the poor. There is a trade-off between raising awareness and encouraging everyone to pay the ‘full cost’

of water, and giving the option of taking a small amount of water (e.g. 20L per person per day) at subsidised ‘lifeline rates’. There is some debate in both Kenya and Tanzania about whether rates should be set by water users associations at the local level, or by the government. The poorest within communities may not be adequately represented at community-level, so that price-setting at the scheme level may lead to water being priced out of their reach. However, there is also the risk that a District-wide tariff may not be sensitive enough to local variations in financial power.

It would seem sensible to allow communities considerable autonomy in tariff-setting, but it may be appropriate for the government to set maximum rates for ‘lifeline’ amounts. Tariff-boundaries must be flexible in order to create an enabling environment for private investment (see section 2.3).

Water User Associations

“The main focus in government policy should be on training local communities, rather than on funding the construction of water supply systems”

Mr Mayallah, Water Engineer, Tanzanian Christian Refugee Service

Water user associations can facilitate participatory decision-making between representatives of all users of a shared water source. The number of people represented, and the area covered, can be quite large: hundreds of people over a 20km stretch of river, for instance. The Traditional Irrigation Improvement Project area has a River Committee that represents users of river water over a distance of many miles. Every irrigation canal (serving ten households) has a representative, and commercial farms are also represented. Agreement at meetings is apparently reached through consensus, rather than by voting. There is also a Board of Inspectors to monitor extraction rates, especially during the dry season. However, the main force behind the organisation is the Ward Development Committee, and water user associations have yet to take ‘ownership’ of it, suggesting it is only partially successful.¹⁰¹

Such institutions fulfil a number of functions:

- They allow downstream users to have some say in the amount of water being abstracted by their upstream neighbours. This is especially important during the dry season, and local arrangements over abstractions may be more efficient than a regime stipulated by the government. In Tanzania, the Ministry of Water calculates a drought-season water balance using L/second rather than a set ‘ecological minimum’. In Kenya, the law states that at least 30% of the water at the point in a water source used by a water right holder must not be abstracted.
- They allow different kinds of users to meet and discuss issues. Representatives of different interest groups may never otherwise meet, and regular face-to-face discussion could lead to a better understanding of each water user’s situation. However, there are few concrete incentives for the powerful to make concessions.
- They provide an effective information-gathering, reporting, and information-dissemination mechanism. The Ministry of Water and other institutions can easily get an idea of the current ‘water balance’ in the area covered by an umbrella

institution, and can use them to disseminate policy information, practical advice, and meteorological data.

However, if all stakeholders were included, catchment-level water user associations could provide a strong and flexible framework for increasing participation and the capacity-building which is an essential part of the process. Some of these river committees exist in Arumeru district but are not as common nation-wide. Also, the the framework linking the lower levels (irrigation furrows, village water committees) and higher levels “is yet to formally emerge”¹⁰². It will be a difficult task to eliminate the ‘power distance’ between the River Water Basin Office and the water users themselves.

Box 9: Information as a constraint to participatory management

There are many ways in which power relations operate within or between institutions. Controlling information is a common mechanism for controlling water users. In one irrigation scheme managed by members of three tribal groups, one group was dominant in terms of numbers and influence on the water committee. By controlling information on regulations, payment schedules, and water allocation arrangements, this dominant tribal group could have other water users penalised or even barred from using water. The weaker groups would miss deadlines for payment, or would not be invited to meetings, and would thus be marginalised. The development agency which was assisting the scheme thus had to devise a system for disseminating information to all the users, which of course demanded investment of more time and money.

(Scheme located near Moshi in Tanzania, which was assisted by Traditional Irrigation Improvement Project. Source: interview with Mr Van der Berg, former project co-ordinator.)

3.5: Water Conflicts

Studies of ‘conflict’ in natural resource management have become increasingly common in the recent past. However, definitions of conflict differ greatly, indicating differences in theoretical foundations that underpin research.

At its broadest, environmental conflict can be defined as “tensions, disagreements, altercations, debates, competitions, conflicts or fights over some element of the natural environment.”¹⁰³ This is very wide definition. Competition over a resource may include, for example, a situation where different irrigators share a single water intake and attempt to maximize their share – through lobbying, purchasing, etc - within an organized framework. This is clearly a very different situation from one in which parties are physically fighting over a resource: such as sometimes occurs between pastoralist groups vying for control of water sources and grazing lands. It may be useful to ask whether the two examples are different in ‘kind’ or just in ‘degree’. Does competition tend to become conflict, unless correctly managed?

An unsophisticated Malthusian theory of conflict sees increasingly intense competition for resources as leading directly to conflicts. This narrative describes a finite resource-base being utilized by a population that is growing exponentially, with per-capita demands for natural resources increasing due to changing consumption

patterns. Frequently, shortages in the per capita availability of natural resources are seen as leading to the impoverishment of those most dependent upon them, and their poverty then prevents investment in technological means to intensify use of the resources.¹⁰⁴ Increasing desperation leads to more frequent and serious violations of regulations and norms of behaviour, particularly by those who are most dependent on the resources and typically least able to negotiate or bargain through ‘normal’ channels.

In terms of water conflicts in Tanzania, all the ingredients elements of this narrative are evident: Tanzania is *water-stressed*¹⁰⁵ and has an “endangered” water supply, in terms of degradation of sources and increasing population¹⁰⁶ (with a national average population growth rate of around 3% p.a.) River and stream flow rates are in many cases declining due to a number of factors, including deforestation in highland areas, overgrazing, and degradation of wetlands. In addition, inadequate controls on both industrial and domestic pollution are responsible for localized reductions in water quality with associated health risks to humans, domestic animals and wildlife, and general ecosystem function. There is a strong link between availability of water and economic status of the community, such is the fundamental importance of this particular resource, so that those with poorest access to water are unable to generate income to invest in infrastructure to improve that access.

However, such narratives are overly simplistic, as decreasing ‘absolute’ water availability and per capita availability are just parts of a tangled web of political, legal, historical and cultural issues that result in *competition* escalating into *conflict*.

One useful framework for understanding conflict defines a ‘dispute’ as “a disagreement about interests”.¹⁰⁷ A dispute is over a specific quantifiable need, generally tangible resources, something that is thus negotiable. The important difference between a conflict and a dispute, according to this definition, is that a dispute can usually be settled through arbitration or through a court process.

Using this definition, ‘conflict’ is something different, because conflicts arise from disagreements over “values”. Values include perceptions of rights, and are linked closely with issues of identity and freedom; according to some, they “are things about which we cannot negotiate”.¹⁰⁸ The important difference between a conflict and a dispute, according to supporters of this view, is that such conflicts can only be *resolved* by a change to perceived underlying ‘injustices’ or inequalities.

In Sub-Saharan Africa, agriculture and pastoralism are so important in the lives of the people that natural resources are intimately bound with cultural values.¹⁰⁹ This especially true of water, which is vital for most human activities. Thus a dispute over access to water will often also include facets of conflict over ideology or values, especially when two or more cultural groups are involved.

Hence, in the context of natural resource management in Tanzania, it is unlikely that a clear division between a ‘dispute’ and a ‘conflict’ can ever be drawn in real life: “Most conflicts are dynamic processes; many conflicts are nested in bigger conflicts which are harder to see”.¹¹⁰ Many conflict analysts see individual instances of dispute as symptoms of wider power-struggles. According to this view, conflict erupts as a result of ‘structural inequalities’ in access to resources and in perceptions of social power, freedom, and other intangibles.

Some of the most common processes which can lead to structural imbalances and/or land and water tenure disputes include:

- individualisation of land which was previously held communally
- population movements
- increasing population
- historical rivalries
- the weakening of social structures
- and uninformed intervention by outside agencies.

Proponents of the ‘structural imbalance’ concept tend to view conflict as “a potential force for positive change”¹¹¹, or alternatively, as a symptom of changes which may, in the aggregate, be positive. Many development projects explicitly attempt to benefit those who are marginalized by poor access to social, legal, and natural resource capital. These projects specifically seek to change the balance of power. Such processes are very likely to bring about conflicts. It is for this reason that many commentators have stressed the need for a ‘conflict assessment’ to be built-into the process of planning and implementing development and conservation projects.¹¹² For example, it may be easiest to persuade communities to change established abstraction rates to reduce inequities, if a project is being implemented and the incentive of improved water quality is offered.

Different cultures are known to have different perceptions of conflict, so that in some cases a constant undercurrent of disputes and sometimes a certain level of violence is in fact the social norm. One rural development manager commented that in many areas around Arusha, “people are too violent to allow people to monopolise water, and this keeps corruption down”.¹¹³ In some ‘traditional’ water management regimes such as those for ponds or streams which are susceptible to great seasonal variation, the number of minor, possibly violent disputes between individuals experienced during the dry season can be high.¹¹⁴ Such levels of stress to the system seem to be socially-acceptable. As has been noted, large number of different cultural traditions in area can prevent customary management regulations from operating. Different cultural groups may refuse to follow each other’s traditions, making natural resource management and conflict negotiation difficult, as is seen in parts of the Ruaha River Basin in Tanzania¹¹⁵.

In such cases, there is perhaps a need for an ‘independent’ authority with some measure of local legitimacy to mediate. However, it is not a simple task to find or create a body with independent status, a working knowledge of water issues, as well as an understanding of local conditions. Some have called for “a new generation of water managers” who embody traditional values of local ‘legitimacy’, and have strong community links, to re-invigorate indigenous cultural values related to waterpoints. However, they do not make it clear how these visionary individuals will succeed in making themselves credible to local people if they are government staff, or acceptable to government if they are ‘community-based’.¹¹⁶

Other options include special ‘water courts’ which could potentially embody customary law as well as statutory law, and which could be more successful than the mainstream judiciary because of specialist knowledge. However, the challenge is always to find funding for such mechanisms, and financial issues have stalled such institutions in Swaziland, for example.

Finally, the authorities can explore various ways of strengthening the capacity of local people to reconcile problems. It is important if this option is taken that models are not superimposed, and that trainers see themselves as catalysts to help locals

establish or renew their own mechanisms. As an alternative or as part of this training, local communities can be helped to gather all the knowledge necessary to fully grasp the legal, ecological, and political context of conflicts, and to pursue their aims through the courts, if necessary. At present, many rural communities are operating on a very limited information-base.

Case studies conducted by ACTS in Tanzania¹¹⁷ suggest that the following factors often interact to cause disputes, and cause disputes to escalate into conflicts:

- Out-of-date water permits, allocated in a time when the demographic context was very different, and result in inequitable control over local water resources.
- Lack of storage facilities to mitigate seasonal variations, resulting in greater water demand. There is limited local capacity to construct such facilities, due to financial, organisational, and educational restraints.
- Lack of participation of local people in the water allocation process, including hydrological studies. Involvement of respected local people would reduce the amount of misinformation clouding conflicts.
- Mistakes by the Ministry of Water may compound the problem. Capacity in technical (eg hydrological) and socio-cultural issues should be supported, to counteract limitations of funds and available time.
- Many local people do not consider the water right process to be valid, believing that water is the property of communities, not the state.
- Lack of an effective mechanism for disseminating information on water rights applications and decisions. Publishing a notice for a water rights application in a local newspaper may not be sufficient, especially in the more remote rural areas. Literacy rates in some communities are very low. Amongst the Barabaig in the Hanang area of Tanzania, for instance, only 6% speak kiswahili.¹¹⁸ Lack of foreknowledge about proposed projects leads to suspicion and resentment.
- Lack of an effective conflict-resolution mechanism. While it may be possible for the District Administration to resolve some disputes, it may be better to develop an administrative procedure that is more methodical and can be seen to bring an impartial judgement. In Zimbabwe, Administrative courts judge water disputes, but they are rarely well-informed.¹¹⁹ The challenge may be to form an autonomous and accountable decision-making body, while at the same time keeping costs manageable (time and money). WUAs which include all parties in the dispute may be able to take this role, if they are amply supported by training.
- Water disputes are often found in situations where there is some existing tension between the parties on socio-economic or socio-cultural grounds. However, it is important to realise that such feelings will not be felt equally by all sections of the communities, and indeed may be stirred-up by a minority for political reasons. Facilitated face-to-face discussion of key issues is one way to avoid the reality being overtaken by rumours.

5. Policy Options

“The water policy should be treated in the same way as the White Paper on the Constitution. In fact, discussions on the water policy are even more important than the political changes”

Mr. Nasari, Regional Hydrologist, Arusha

This paper has looked at water policies, and it is clear that technical aspects of water development have to be founded on the appropriate legal, fiscal, and institutional basis in order to succeed.

However, technical considerations are also important in the water sector, particularly in terms of identifying affordable and manageable ‘intermediate technologies’. “[community] participation cannot substitute for technology that does not work, geology that is difficult, and climate that is unco-operative”.¹²⁰ Some of the problems identified in the case study areas stemmed from technical difficulties, which is perhaps to be expected when the Tanzanian Ministry of Water is generally very poorly-funded, except for specific donor-supported projects. Improving the training opportunities available to staff, as well as access to suitable equipment, and increasing the time available for field-visits, may reduce problems. It is important therefore that the Ministry of Water is able to recoup more costs through user charges, and to devote some of the funding to these areas.

Technical improvements are particularly necessary in most traditional irrigation schemes to reduce seepage losses. The Traditional Irrigation Improvement Project (TIIP), provides a good model. The fact that TIIP is demand-driven (reacting to requests for assistance by organised groups) and has been approached by a very large number of communities, indicates future potential for partial cost-recovery or substantial labour-inputs from communities. Because communities recognise the benefits that may accrue to them through more regular flows and agricultural advice, they may be willing to invest in improvements that will conserve water for downstream use.

In terms of cost-recovery in water institutions, it is clearly necessary to charge for water. However, it is important to separate water uses and prioritise them into what may be called ‘social goods’ (essential uses, e.g. domestic use) and ‘economic goods’ (e.g. irrigation, other commercial uses). While it is important to give local communities some autonomy in managing water, it is also important to regulate use to encourage conservation for other communities’ benefit, and to avoid the local elite from benefiting at the expense of the poor, by effectively subsidising irrigation water, for instance. There should be a legal requirement for a free or low-cost ‘lifeline supply’ of water for domestic use, which should be properly enforced.

There is currently no standard mechanism for calculating water charges. A water charge pricing strategy should divide revenue into recipient end-users – communities/District authorities/Ministry of Water. Within each institution, the share devoted to different uses would be made clear, such as water resource protection, monitoring, and repair of systems. Once such a strategy has been introduced it should be made transparently accountable to users to make the charge seem less like a tax and more like an investment in water resources. It could also be linked to some kind of agreement or ‘letter of understanding’ between the authorities and communities, further demarcating responsibilities between the institutions.

In cases where water systems are ‘handed over’ from NGOs or the Ministry of Water to local community institutions, the responsibilities of ownership should be made clear. A form of contract is necessary to ensure that the system infrastructure is clearly under

the ownership of a specified institution. While it is wrong to regulate the activities of the water user associations too inflexibly, some guidelines could be included on the details of the community institution's responsibilities. As has been firmly established in numerous studies, the best way to ensure that communities undertake operation and maintenance is to include them in every stage of the project process, from the planning stage onwards.

Additionally, the demand-oriented approach, which focuses interventions in areas which request assistance, runs the risk of failing to meet the needs of communities which have low capacity for fund-raising and communicating with outside agencies. To mitigate this problem, "A major effort should be undertaken to raise awareness of the various sources of funds and mechanisms in remote and isolated areas".¹²¹

As regards disputes over water, misinformation is often a factor in resentment amongst users of shared water schemes. Thus an awareness campaign must also include details of the water permit policy and the reasons for exacting water charges. It is important that local authorities and NGOs disseminate clear statements regarding water and general development policies. This requires regular briefings for extension staff and use of mass media, where appropriate. The Tanzanian Ministry of Water has distributed leaflets in simple Kiswahili that outline the main responsibilities of the government, and the communities, under the new policy. Kenya is planning to undertake a similar process, but it would be wise to bring a level of consultation into the process, rather than in being merely dissemination of a formulated message.

For watershed protection, the Tanzanian water policy recommends the introduction of a "resource and catchment conservation charge," to be levied on water-using communities as part of an overall charge. However, a potential problem is caused by the fact that the key water catchment areas are often the most resource-rich areas: the wooded slopes of Mt. Meru are an example of this. To relocate money from the drier areas downstream (which are poorer in terms of natural resources) to conserve the highland areas may be considered to be inequitable. Of course, differences in population density and landholding size complicate this picture. Conservation measures should also be undertaken in dryland areas, of course. Policies should be based around co-operation and consensus and should reward successful community conservation efforts. Previous attempts, such as the compulsory destocking policy in Arumeru district (households were limited to owning a maximum of ten cows and had to obtain a permit to keep goats or sheep)¹²² were unrealistic and punitive in character.

The use of 'joint management' systems, whereby resource-conserving communities benefit from sustained sales of forest products over the long-term, has yet to be proven. The fact that the proceeds are likely to be invested in community-projects means that individuals may see more benefit in 'poaching' for immediate personal gain.

Tanzania is pursuing a policy of encouraging land registration. However, it is wisely taking steps to defend the interests of those who own land under customary systems, since 1991 those with customary or 'deemed' rights to land can apply for a Water Right, and can be assisted by projects such as the Traditional Irrigation Improvement Project. Customary water management regimes may in some areas offer a useful foundation for modern interventions to build upon, and it is important that these are properly understood and placed in the modern context so that interventions do not undermine them.

In Kenya, it is likely that land individualisation policies that are used to parcel-out land in areas of 'communal' land use are denying communities access to water. In many

cases, private owners of land continue to grant informal access rights to water for domestic and livestock purposes for local people (e.g Maasai group-ranches that have been subdivided).¹²³ However, it is important that such informal agreements are secured by force of law where possible. Given the often inequitable effects of land-individualisation in the case of Trust Lands in Kenya, it is necessary to overhaul the land tenure laws to avoid corrupt allocations and to give local communities more control over sale of land.¹²⁴

In the Tanzanian water sector at present there are “no guidelines for prevention of conflicts through consensus-building”¹²⁵. Although the draft water policy suggests that the River Basin Water Offices should be “the preliminary centre for conflict resolution” it is realistic to view its role as a mediator of macro-level conflicts. As regards micro-level conflicts, clear guidelines on conflict prevention and resolution should be developed at the regional/national level. Such guidelines should include transparency at all stages of the Water Rights allocation procedure, and should identify a mediating institution with independent status. This fits with the Ministry of Water’s aim of separating its regulatory and operational functions.¹²⁶ However, each dispute occurs within a different context and local political factors, and may require a tailor-made strategy for conflict resolution. Traditional dispute mechanisms should be identified and strengthened as appropriate. Training in conflict management is necessary for key water sector personnel.

One of the most important tasks for the Ministries responsible for water in Kenya and Tanzania is to include more stakeholder participation in the mechanisms for making water allocation decisions. At present, for instance, five of the ten members of the Tanzanian Pangani Water Board are from Government, “while the rest are from parastatals and other stakeholders”¹²⁷, and it is unclear whether any of these ‘other stakeholders’ are legitimate representatives of small-scale irrigation, livestock-keepers, or rural users of domestic water supply. One way to work towards an ideal of participation is to have a structure of ‘nested’ institutions that allows a flow of communication and sufficient representation of the interests of the many interest-groups. There is a potential gap in communication and in ties of responsibility between the users and the high-level organisations such as the Basin Water Board, unless bridging institutions can work to ensure that all stakeholders are represented. It is important too that policy-makers examine the constraints to participation by local communities and their representatives and create a genuinely enabling environment for negotiation between all stakeholders. Common constraints include the amount of information which is available to stakeholders: all water users should be educated about their rights, their responsibilities and those of other water users and regulatory bodies, as well as being kept informed of relevant fora for discussion and participatory policy-making, and changes in the law. Popular participation in policy-making depends to a great degree on the abilities of the stakeholders to understand the ‘rules of the game’: to be able to stand up for their rights, negotiate, present their views clearly, and utilise all the potential mechanisms for intervention in the policy-making process. Many Tanzanians are not yet comfortable with the idea of ‘challenging’ the views of the authorities, because of the controls previously imposed on society by the one-party state, as, “For thirty years TANU/CCM sought to undermine any basis of social organisation outside itself.”¹²⁸ For this reason, participatory mechanisms must aim to *actively* support the ability of citizens to present their views, particularly those representing the interests of the many small-scale farmers who make up the vast

majority of water users. Discussions should be ‘opened up’ to stakeholders early in the decision-making process.

Catchment-level WUAs could bridge the gap between the individual water users and the Basin Water Boards. For such institutions to be effective, they require legal status and a well-defined role in the management of basin-wide water resources, with access to formal channels of discussion and decision-making. The presence of NGO staff in a training and ‘watchdog’ role could be very useful. To be effective, the process would have to involve a ‘give and take’ approach, whereby NGOs support the process financially, but exercise power *within mutually-agreed limits*. NGOs which were appropriate to dealing with ‘grassroots’-level meetings would have experience in planning and implementing water projects (including training components) and would have a good track-record of dealing with conflict situations. Those dealing with higher-level meetings would require the ability to put some pressure on the participants to make the process truly participatory, and thus would typically be well-funded, possibly international organisations, such as WaterAid or Oxfam.

Another issue of great importance is the membership of water user associations: whether they should be open to those with customary, rather than legal Water Rights. A mechanism for dialogue with ‘illegal’ water users should be developed. Involving them may also be an effective way of ensuring that they apply for a Water Right during the proposed two-year ‘grace’ period.

5.1 Summary of Key Policy Issues

1. The changes in the land tenure system and ownership patterns ‘on the ground’ should be monitored to assess the effects on water issues in both Kenya and Tanzania. While it is necessary to keep the Water Rights system separate from land ownership, Ministry of Water staff will have to consider the existing realities of customary rights to avoid disputes. The complex and evolving nature of the many variations of customary land tenure systems should not be over-simplified when being incorporated into official policy.
2. Clear guidelines on conflict prevention and resolution should be developed at the regional/national level. Such guidelines should include transparency at all stages of the Water Rights allocation procedure, and should identify a mediating institution with independent status. However, each dispute occurs within a different context and local political factors, and may require a tailor-made strategy for conflict resolution.
3. The Water Rights allocation system should be reviewed at the same time as the existing Rights themselves are renewed and/or annulled. A participatory review process, involving a cross-section of water users (both those with Rights and without) and Ministry of Water staff from all levels, should be instituted. Streamlining the process while making drought-contingency measures and compensation packages transparent should be the aim.
4. Water sources should be ranked according to the threat of degradation, in terms of quantity and quality. It should prioritise monitoring and enforcement activities

accordingly. This may be a good way of mobilising funding, through identifying particular problems and strategies.

5. Water-management institutions should divide revenue into recipient end-users –and uses. Systems should be transparently accountable and should be made clear to users.
 6. Any “resource and catchment conservation charge” should be carefully-judged to reflect the financial capacity of the paying community, and should be transparently directed towards effective conservation measures. If money is given from downstream communities to catchment-dwelling communities as incentives, this could be very unpopular and should be justified by monitoring and dissemination of results.
7. Against a background of conflicting interests and widespread inefficiencies in the use of water, the importance of ‘umbrella’ community institutions, which represent a number of communities is clear. At the moment the framework linking the lower and higher levels of the water allocation system “is yet to formally emerge”¹²⁹, so the opportunity exists to make the framework conducive to participatory, representative water management. The framework should be driven by realities on the ground, rather than an unrealistic ‘ideal’ being imposed.
8. The activities of agencies working in the area of water supply should be co-ordinated at regular meetings hosted by the district or regional authorities. While this is happening to a limited degree, the frequency of such meetings needs to be increased. To a great degree, the cost of these meetings should be borne by the agencies themselves.
9. It is important in many areas that technical capacity to plan, maintain and repair water systems should be improved at the local level. One means of doing this is to offer training to local private artisans, small companies, or community-based organisations. Whenever possible, similar technologies should be used and networks of spare parts suppliers and technicians created.
10. In cases where water systems are ‘handed over’ from NGOs or the Ministry of Water to local community institutions, a form of contract is necessary to ensure that the system infrastructure is clearly under the ownership of a specified institution. Some guidelines could be included on the details of the community institution’s responsibilities.
11. As non-state stakeholders increase their abilities to manage water and to operate at a policy level, particularly umbrella organisations representing smallholders, they should be increasingly included in the government water allocation institutions. The Ministry of Water should consider setting ‘participation targets’ of some kind to facilitate this process. Minutes of meetings could be made available to interested parties.

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Notes

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- ¹ World Health Organisation, 1998
- ² Research included interviews with focus groups in villages around the town of Arusha, interviews and correspondence with Ministry of Water staff and other water specialists, and a three-day ACTS workshop on water policy in Kenya and Tanzania.
- ³ See, for instance, references to the Sukuma of Tanzania in Ramazzotti, Marco, 1996,
- ⁴ Ramazzotti, pg. 359
- ⁵ Ibid.
- ⁶ Lane, Charles, 1996
- ⁷ Mwakalinga and Faraji in Hirji, Patorni, and Rubin, 1996
- ⁸ See for example Krugmann, Hartmut, and C. Torori, 1997
- ⁹ See Scoones, 1992, and Kunzi, Droz, Maina, and Weismann, 1998
- ¹⁰ Kunzi, Droz, Maina, Wiesmann, 1998
- ¹¹ Hirji, Patorni, and Rubin (eds) 1994
- ¹² Liniger, Hanspeter, 1995
- ¹³ Mwaka et al., 1999
- ¹⁴ see FAO, 1999
- ¹⁵ According to latest National Census results published in daily nation, 15th February, 2000
- ¹⁶ Mwaka et al., 1999
- ¹⁷ Compared to Africa as a whole which uses about 4% of its total flow of available water; see UNEP, undated
- ¹⁸ Some estimates differ, but see Khroda, and Chenje and Johnson, 1996, pg. 2
- ¹⁹ CARE Tanzania Country Profile
- ²⁰ Ministry of Water Resources, 1999
- ²¹ Thuo, 2000
- ²² Africa-wide figures are 88% for 1992, quoted in *Finance and Development Magazine*, June 1994. Tanzania figures are from Hirji and Patorni, 1994
- ²³ For 62% figure see ICID, 2000, for higher figure see Mwathe, H.K., *Smallholder Irrigation and Drainage Development in Kenya*, in Hirji et al., 1996
- ²⁴ FAO, 1995
- ²⁵ FAO, 1995
- ²⁶ Msuya, Meraji, 1999
- ²⁷ This represents 'safe' water use per day, not unprotected sources. See Gleick, Peter, 1996
- ²⁸ Wateraid Website
- ²⁹ Mr Urassa, Village Chairman, Lekitatu village
- ³⁰ "Tanzania – Country Overview" in De Sherbinin, A., and Dompka, Victoria, 1996
- ³¹ FAO, 1995 (b)
- ³² Ministry of Water, 1999
- ³³ Mwaka et al., 1999
- ³⁴ Interview with Mr Akonaay, Arusha Regional Water Engineer
- ³⁵ 8MW installed capacity, 4 MW firm capacity
- ³⁶ JET news, November 1998, and Luhumbika, Sarmett, and Kamugisha, 1994
- ³⁷ "Tanzania – Country Overview" in De Sherbinin, A., and Dompka, Victoria, 1996
- ³⁸ National Environment Management Council (NEMC), 1992
- ³⁹ Interview with Mr Akonaay, Regional Water Engineer, Arusha Region, Tanzania
- ⁴⁰ Ohlsson, 1995, pg. 22
- ⁴¹ To supply Teso District in Kenya, using treated river water from Uganda; see Odeke, 2000
- ⁴² Ohlsson, 1995
- ⁴³ Therkildsen, 1988, pg. 99
- ⁴⁴ Solanes/Villareal, (undated)
- ⁴⁵ Mujwahuzi and Maganga, 1997, *Domestic Water Use and Environmental Health in Tanzania*, unpublished
- ⁴⁶ Mujwahuzi and Maganga, 1997
- ⁴⁷ Institute of Resource Assessment, Tanzania/IIED, 1993, pg. 7
- ⁴⁸ See, for instance, the UNDP Water and Sanitation Programme website
- ⁴⁹ See WAMMA documents, WaterAid website
- ⁵⁰ F.Z. Njau, Principal Executive Engineer, *Tanzania's Water Sector Review Process*, in Hirji and Patorni, 1994
- ⁵¹ Interview with Mrs Mbaruku, Arumeru District Planning Officer
- ⁵² Magesa, 1999

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- ⁵³ Mutayoba, *Pangani and Rufiji River Basin Management in Tanzania*, presented at Africa Water Resources Management Policy Conference, Nairobi, May 1999
- ⁵⁴ WaterAid Website
- ⁵⁵ Tanzania Ministry of Water, Water Resources Department, 1999
- ⁵⁶ About \$60 for domestic supply, and \$165 for irrigation.
- ⁵⁷ See Shivji, 1998
- ⁵⁸ Luhumbika, Sarmett, and Kamugisha, *Pangani River Basin Management*, in Hirji and Patorni, 1994
- ⁵⁹ See Sottas, et al., 1998
- ⁶⁰ Sottas et al., 1998
- ⁶¹ International Water Management Institute, University of Nairobi, and Ministry of Agriculture, Irrigation and Drainage Branch, 1999
- ⁶² Mr. Akonaay, Regional Water Engineer Arusha, speaking during the ACTS workshop on water policy.
- ⁶³ Interview with Mr Lokisa and Mr Macha of TIIP and Mr Mihambo of SIIP, 6.5.99, and with Mr Akonaay, Regional Water Engineer, 16.7.99
- ⁶⁴ Tanzania Ministry of Water, Water Resources Department, 1999
- ⁶⁵ Ibid.
- ⁶⁶ see Section 3 (1) of URT, Cap 113
- ⁶⁷ Interview with Dr Fanuel Sechamba, Institute of Resource Assessment, and George Jambiya, Geography Dept, University of Dar es Salaam, 19.3.99
- ⁶⁸ Ole Kamuaro. in Veit, 1998, pg. 302
- ⁶⁹ Ole Kamuaro, in Veit, 1998
- ⁷⁰ Mascarenhas, O., and Veit, P., 1994
- ⁷¹ Estimate provided by Arusha Regional Water Engineer and Arumeru District Water Engineer.
- ⁷² Mwaka, 1999
- ⁷³ Interview with Mr. Mihambo, Small-holder Irrigation Improvement Project.
- ⁷⁴ Olsen, J., Rodgers, A., and Salehe, J., (undated)
- ⁷⁵ Opinions expressed during an ACTS workshop on water policy, 15th – 17th September 1999
- ⁷⁶ UNDP/World Bank Water and Sanitation Programme website, *Voice & Choice for Women*
- ⁷⁷ Roger Yates, Oxfam Tanzania, speaking during the ACTS workshop on water policy
- ⁷⁸ There is much scope for argument over the applicability of these terms, and even over exact definitions on ‘institution’ (viz-a-viz ‘organisation’). See Bosen, Mganga and Odgaard, 1999.
- ⁷⁹ Institute of Resource Assessment, Tanzania/IIED, 1993, pg. 18
- ⁸⁰ Mascarenhas and Veit, 1994, pg. 12
- ⁸¹ Mageed, Y.A. 1991
- ⁸² Interview with Dr Fanuel Sechamba, Institute of Resource Assessment, and George Jambiya, Geography Dept, University of Dar es Salaam, 19.3.99
- ⁸³ Mascarenhas and Veit, 1994, pg. 17
- ⁸⁴ Botelle and Rohde, 1995, *Those Who Live on the Land*, Ministry of Lands, Namibia, quoted in Sullivan, S., 1999
- ⁸⁵ Clark, S.D., 1990
- ⁸⁶ NEMC, 1994
- ⁸⁷ Sullivan, S., 1999
- ⁸⁸ Bergin, 1996
- ⁸⁹ Boesen, Maganga, and Odgaard, 1999
- ⁹⁰ Presentations of various Department of Water Development officials, during National Workshop on Water Legislation and Policy as Relates to Poverty Alleviation, KCCT, Nairobi, February 2000
- ⁹¹ Doyen, Jean, 2000
- ⁹² Kahia, 2000
- ⁹³ Kahia, 2000
- ⁹⁴ Swai, R.O., 1998
- ⁹⁵ Ibid.
- ⁹⁶ Republic of Tanzania, 1982, Section 142 (1)
- ⁹⁷ Interview with Mr Mayallah, TCRS Water Engineer, 30.4.99
- ⁹⁸ Interview with Isiolo District Irrigation Engineer, Simon Frances Koome.
- ⁹⁹ Hukka, J., 1996, *Rural Water Supply in Kenya*, in Hirji et al 1996
- ¹⁰⁰ Mwaka, 1999
- ¹⁰¹ Interview with Mr Mihambo, Small-holder Irrigation Improvement Project.

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- ¹⁰² Mutayoba, 1999
- ¹⁰³ See Dr. Christopher Moore, in Napier (ed), 1998
- ¹⁰⁴ See Leach, Mearns, and Scoones, 1999, for a critique of such views with reference to case studies of community-based natural resource management.
- ¹⁰⁵ 'Water Stress' is defined as national internal renewable water availability of between 1,666 cubic m. and 1,000 cubic m. per capita. Many sources assert that Tanzania falls into this category, while some others disagree.
- ¹⁰⁶ See Liniger, 1995, pg. 49
- ¹⁰⁷ Mwangiru. M., Munene, M., and Karuru, N., 1998
- ¹⁰⁸ Ibid.
- ¹⁰⁹ See, as just one possible example, Wamalwa, 1991
- ¹¹⁰ Hendrickson, D., 1997
- ¹¹¹ Ibid.
- ¹¹² Warner and Jones, 1998
- ¹¹³ Interview with Mr Van der Berg, co-ordinator, District Rural Development Programme
- ¹¹⁴ Examples of seasonal stress in Maasai water management were given in interviews with Maasai community leaders and can also be found in von Mitzlaff, Ulrike, 1994
- ¹¹⁵ See Bosen, Mganga and Odgaard, *Rules, Norms, Organisations and Actual Practices- Land and Water Management in the Ruaha River Basin, Tanzania* in Granfelt, 1999
- ¹¹⁶ See Odhiambo, T., 1999
- ¹¹⁷ Soon to be available as a separate paper. See ACTS website, <http://www.acts.or.ke>
- ¹¹⁸ Pastoralist Indigenous Water Project of North Tanzania, 1996
- ¹¹⁹ Murungweni, Zeb, GTZ Zimbabwe, commenting during Africa Water Resources Management Policy Conference, Nairobi, May 1999
- ¹²⁰ Castillo, Gelia T., in IDRC, 1987, *Women's Issues in Water and Sanitation*
- ¹²¹ UNDP/World Bank Water and Sanitation Programme website, *East and Southern Africa Region: Demand Responsive Approaches to Community Water Supply*
- ¹²² Republic of Tanzania, Arumeru District Council, 1987
- ¹²³ Personal Observation, Kajiado District, June 1998
- ¹²⁴ See Aketch, J.M., 2000
- ¹²⁵ Tanzania Ministry of Water, Water Resources Department, 1999, *Tanzania National Water Resources Management Policy*
- ¹²⁶ Ibid.
- ¹²⁷ Mutayoba, 1999
- ¹²⁸ Costello, 1996
- ¹²⁹ Mutayoba, 1999