

Managing the Business: Potential and Pitfalls of Water Rights and Water Tariffs in Allocating and Managing Water in Water Stressed Basins; The Case of Rufiji Basin in Tanzania

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Abstract

Most countries in Sub-Saharan Africa have embarked on Integrated Water Resources Management. As part of these reforms in the water sector, many governments are considering and others have already implemented the legal tool of water rights allocation and have linked the same to water tariffs. This paper analyzes formal and factual payment-linked water right systems in the agrarian economies of Sub-Saharan Africa. The formal water management tools, as formulated in the water policies and laws are analyzed and compared with the early experiences of implementation and impacts on the ground, in particular in Tanzania. The paper further examines whether in reality the original objectives of the water rights and water tariffs are attained or not; the potentials of the water rights and water tariffs, and the present and possible pitfalls of the same. The paper also identifies the problems that are encountered in the administration and the enforcement of these tools. Finally the paper draws the generic conclusions, which also draw upon lessons learnt in Australia and the USA, highlight the conditions in Sub-Saharan Africa under which the managerial aims of payment-related water right systems can be reached, but also the conditions under which the tool creates new problems without solving existing problems, and thus should be abandoned.

Key words; *Sub Saharan Africa, Tanzania, Water Stressed Basins, Water rights, water tariffs, and agrarian economies*

Introduction

Most countries in the Sub Saharan Africa have been reviewing water policies, laws and legislations and management strategies in quest to implement Integrated Water Resource Management (IWRM) in the past two decades. The diminishing quantities of water, coupled with increased water uses due to increased population and improved technologies have further necessitated the review mechanisms. Tanzania, South Africa and Zimbabwe have been in the forefront of these changes. This paper focuses on such changes with a specific case of water rights in the Rufiji Basin in Tanzania. The paper argues that although water rights have been operational since the colonial era in Tanzania and that although both are tied together now, water charges were introduced later with a different purpose altogether. The paper starts by describing the background of the study area and the methodology employed by the study, and then focuses on the inherent management challenges of water rights with a specific attention on the potentials and pitfalls of the same. Finally, the paper identifies the management gap and proposes a way forward.

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Background of the Study Area

Water allocation and management in the sub Saharan Africa has been for long determined by the local customary arrangements that existed among the local communities in specific river basins. Although formal water management and legislation was later introduced by colonial rules through various Water Ordinances in the early 1900s, the practical day-to-day water management in the grassroots is still widely influenced by the latter.

In Tanzania specifically, seeking to favour the white settlers, the colonial minority introduced centralized water authority and water use registration. By 1948, the British colonial government had vested absolute water authority in the colonial rulers³. Several ordinances were transposed from England and/or India to intensify the same. After independence in 1961, the new government continued the principle, declaring that 'all water in Tanganyika is vested in the United Republic' under the Water Utilization (Control and Regulation) Act 1974, section 8. The Act echoed the Water Ordinance of 1959, by governors and then ministers were to delegate water control authority to various officers and water bodies.

The framework for integrated water resources management is laid out in the Water Utilisation (Control and Regulation) Act 42 of 1974, as amended by Act 10 of 1981. The Water Utilization Act (Control and Regulation) remains the supreme law on water management in Tanzania. Both criminal and civil laws guarantee the sanctity of water management organs under this Act. Other pieces of legislation touching upon water matters in Tanzania include the Waterworks Ordinance, Cap.128 and Urban Supply Water Act, 1981. There are also many institutions interested in water.⁴ However, in Tanzania, institutions that are involved in water management are loosely connected and lack basic coordination (DANIDA/World Bank, 1995). They are sectoral and fragmented with no coordination (Water Policy Draft 2002).

Descriptions of the study area

The Rufiji basin is the largest of the nine river basins in Tanzania, draining a total area of about 177,000 km² (URT, 1995). It is made of several river systems, the largest and most important of which is the Great Ruaha River (GRR) system. The Great Ruaha River is draining an area of about 68,000 km². The Great Ruaha River originates from a number of large and small streams at the northern slopes of the Poroto and Kipengere mountains in the Southern Highlands between Mbeya and Iringa. It flows to the Usangu plain where several other rivers flowing from the highlands join it; namely Mbarali, Kimani and Chimala whereas the small ones include Umrobo, Mkoji, Lunwa, Mlomboji, Ipatagwa, Mambi and Mswiswi rivers.

During the rainy season, the Great Ruaha River spills onto the Usangu plains, forming the Usangu wetlands (*Western-Utengule* and Eastern) and feeding a perennial swamp (*Ihefu*) within the Eastern wetland. It then flows through Ng'iriyama (an exit to the Eastern Wetland) on to the Ruaha National Park providing the main water source to the park and to the Mtera

³ For example, the Water Ordinance of 1948, Chapter 257, stipulates in section 4: 'The entire property in water within the Territory is hereby vested in the Governor, in trust for His Majesty as Administering Authority for Tanganyika [...]'. According to sections 3 and 5 of the Water Ordinance of 1948, Chapter 257, this Ordinance also recognizes earlier rights under the 1923 Water Ordinance, lawful mining operations, some claims under the Indian Limitation Act, and native law and custom. For the latter, however, only the 'duly authorized representative' of natives is recognized (section 13 (9)). Moreover, under some conditions, natives are only recognized 'in addition to the District Commissioner' (section 33 (9)). The Water Ordinance of 1959 recognizes rights 'in accordance with an express grant made prior to the enactment of the Water Ordinance, 1923, by the Governor or by the former German Government' (section 2 – existing right (c)).

⁴Institutions that influence or have interest on water in Tanzania includes; Commercial Law Registration and Industrial Licensing Department-Ministry of Trade and Industries, Tropical Pesticides Research Institute (TPRI), Ministry Energy and Minerals, Tanzania Bureau of Standards, Local Governments (District and Municipal Authorities), National Urban Water Authority, Investment Promotion Centre, President's Office, Factories Inspectorate, Ministry of Labour, Principal Water Officer or Regional Water Engineer, Pharmacy Board, National Land Use Planning Commission, Director of Public Prosecutions, National Food Control Commission, Dairy Board, among many.

dam, which is the main electrical generating source in Tanzania (accounting for 56% of the runoff to Mtera dam). As it flows down, it is joined by Little Ruaha River before being joined by the Kisigo River. It then passes through the Mtera reservoir, before flowing westward to the Kidatu reservoir, being joined on the way by the Lukosi and Yovi rivers. From the Kidatu reservoir then it flows into Kilombero Plains before joining the Rufiji River (just above Steigler's gorge), collecting *en route* the Kitete and Sanje rivers.

The Great Ruaha River serves many uses and users as it flows, including irrigation, hydropower generation, livestock, domestic uses, fisheries and aquatic flora and fauna.

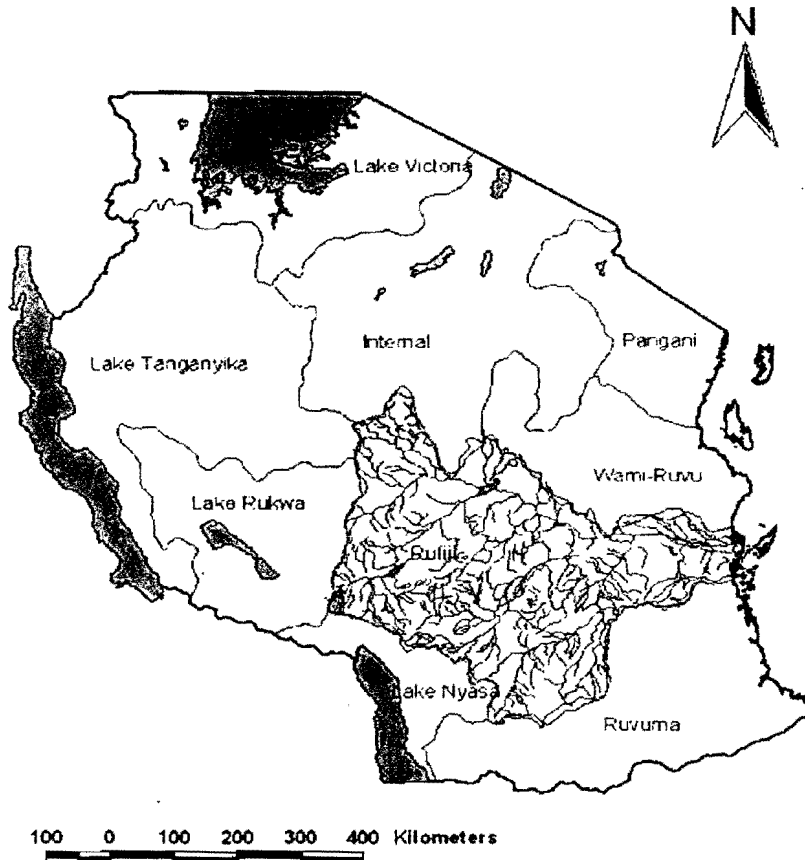


Figure 1: Map of Tanzania showing Rufiji Basin with its river networks and other basins

Irrigation is the major activity and largest water user, mainly during the dry season. Other water-related livelihoods include fishing, livestock keeping and brick making. Problem arises in the dry season where conflicts and disputes over access to water become common. As much water is diverted to the fields for irrigation and brick making, the reduced river flows fail to supply full requirements downstream. This has brought a lot of environmental concerns after the massive mortality and stresses to aquatic ecosystem. Downstream of the RNP there are two hydro power stations (Mtera and Kidatu) depending much on the basin for their water for power generation, contributing about 50% of the Tanzania national grid.

Methodology of the study

This study was conducted under the DFID funded project, Raising Irrigation Productivity and Releasing Water for Intersectoral Needs (RIPARWIN) in the Mkoji sub-catchment of the Great Ruaha River Catchment in the Rufiji basin between July 2002 and October 2004. For the sake of clarity, the catchment was divided into three hydro-geo agricultural zones, namely

the upper catchment, middle areas and the lower plains. In each zone, two villages were selected, making a total of six villages. Three Participatory Rural Appraisals (PRAs) were conducted, one in each zone gather preliminary information on the subject matter. Semi-structured interviews were then done with identified respondents followed by a Focus Group Discussion in each zone where ten key informants and eight district officials from the two districts of the Mkoji Sub catchment were involved. The respondents were invited in the role-play River Basin Game¹ workshop. The findings were then analysed and feed back to the respondents through another River Basin Game workshop.

Managing the Business: Water Rights

Although popular and widely outspoken as a water management tool, managing water rights is quite a challenge in Sub Saharan Africa. Unlike elsewhere in the world, the region is characterised by many poor smallholder who are widely scattered and use very poorly developed (local structures to draw water). In such a set up, it is not easy to ascertain what quantity of water is exactly drawn, or to predict the quantities in future seasons. In the Mkoji Sub catchment where this study was done, of the 120 irrigation off-takes that were observed up to 71(58%) were local temporary structures popularly known as 'dindilo'.

The study also found out that the procedure for application of water rights is long, complicated, time consuming and bureaucratic and is too much wanting for poor water users to attain. The applicant is required to fill in an application form (5 copies) and submit them to the Water Officer (or to the Regional Water Engineer, in cases where there is not a Basin Water Board). A letter from the Village Government where the abstraction will take place must accompany the form. If it is a large project, the applicant is required to submit an Environmental Impact Assessment (EIA) report to the Water Board. The Water Officer registers the application and prepares an official notice setting out the particulars which is published in the Government Official Gazette, served upon affected persons, and displayed at the office of the district in which the right will be exercised. After receipt of any further reports required by the Water Officer⁵, the application is submitted to the Water Board for deliberation and decision. This unduly long procedure does not sufficiently encourage local water users to apply for water rights. For example, in the six villages studies, hardly a quarter (25% and 17%) of two villages knew the procedure. In the remaining four villages, nobody knew the procedure!

Potentials of Water Rights

In Tanzania, categories of use are classified in an order of priority as a guide only, and not as a directive. In granting a water right, the use of water for domestic supply is given the first priority⁶, and then the use for livestock, irrigation, and hydropower generation, industrial and mining purposes. Environmental water requirements are paramounted higher, only next to domestic needs. This is an important turning point in that the national water management frameworks recognises, at least theoretically, the human and livelihood needs for water and those of the environment for a better sustainable ecosystems. Furthermore, taxation and charging for water introduces a realization of value for water resources. The National Water Policy (2002) expresses the same expectations of taxation.

“Economic instruments include water pricing, charges, penalties and incentives to be used to stimulate marketing mechanism, and serve as an incentive to conserve water, and reduce

⁵ These reports may include some or all of the Hydrological report from the Regional Water engineer, Agricultural report, Natural resources report, Administrative Report from District Commissioner and District Executive Director

⁶ Any person having lawful access to a source may abstract water for domestic purposes without obtaining a water right

pollution of water sources” (URT 2002).“decision-making in the public sector, private sector and in civil society on the use of water should reflect the scarcity value of water, water pricing, cost sharing, and other incentives for promoting the rational use of water” (URT 2002). ‘Economically, trading of water rights, application of economic incentives and pricing for water use, shall be gradually built into the management system as a means or strategy for demand management and water conservation’ (URT 2002).

The practical implementation of this argument (‘enhancement of water fees and pollution charges as an incentive for water conservation and pollution control, and as a source of funds for water regulation activities, catchment conservation, and water resources monitoring’ (World Bank 1996 Annex A)) would be via the water officers.

‘The basin water offices will be mandated to collect revenue such as fees and charges and to be used to meet the cost of regulatory functions and financing of water resources assessment services. The basin water offices and basin water boards will be required to account for the use of these funds, which will also be audited annually by Government auditors as is occurring with other public funds’ (World Bank 1996 Annex A).

Volume-based rate setting may seem objective and fair. However, in the absence of any objective basis to assess the volumes allocated and, thus, to set volume-based rates, Water Officers can only rely on their subjective judgement. Even nominal differences by ranking structures according to their sizes appeared difficult. In the Mkoji sub-catchment, for example, the volumes and related fees for the larger structure Inyala A were initially set at lower rates than for a nearby smaller structure of Inyala B. The water users complained. In this case, the water officer accepted the complaints and changed the fees the other way around. In other cases there is enormous confusion among small- and medium-scale users in the Upper Ruaha about the amounts to be paid (Sokile, 2003; Gausson 2003).

Water Officers at the various levels have been mandated to collect and transfer public money. However, accountability procedures in carrying out this task are weak. The Water Office responsible write receipts for taxes received, but an administrative system that inserts fee payments into the computer excel sheet of registered water users is still absent. Further, when submitting the collected funds from the sub-catchment office to the basin office in Iringa, the accountant notes the amounts in the books. A public auditor is supposed to check the various amounts, but the auditor’s willingness to check the money contributions to basin offices is limited. The public auditor’s key interest is the publicly allocated funding from Government. Without a sound transparent system to administer and justify money flows, the basin and catchment level officers render themselves vulnerable to accusations of corruption.

Pitfalls of Water Rights

Conceptually, the whole notion of water rights is alien and prejudiced in origin, purpose and practice. Procedurally, the water rights system is wanting. The application process is unnecessarily long, bureaucratic and time consuming; a typical kind of discouragement for weak applicants. As it is now, the procedure is not pro-poor nor does it seek to empower the grassroots water resource users to acquire a water right.

The existing water rights are complex to operate. Some water rights were issued under the repealed Water Ordinance, 1959 which had different provision for payment altogether. Although the Water Ordinance 1959 was repealed by the Water Utilization (Control and Regulation) Act No. 42 of 1974. Some water right holders are dead and new users have taken over. Other water rights have been abandoned, either by migration, or death of the bearers, or by changing river regime, depth and flow; yet some water uses have changed, far from the original purpose of the application. Some water rights have been illegally transferred to new holders or sublet; some water right holders have changed their practical abstraction, mostly

increased the quantities of water they use. Furthermore, Water rights are season-blind. They are issued irrespective of the season despite major differences in availability and value of water in the wet and dry seasons. This may have exacerbated concerns over water use between May and December when there is scarcity

Water rights: A tool for collecting water taxes?

One of the recent paradigms in managing water rights is their strong linkage to water charges. This new water rights and taxation system was promulgated in 1994 and refined in 1997 and 2002, every time without public consultation. The system requires everyone in Tanzania using even a little bit of water for production to register to obtain a 'water right certificate' from the Ministry of Water and Livestock Development. Registration costs TSh 35,000 (about US \$ 35.00) and the annual economic water fee of at least TSh 40,000 (US \$ 40.00) per year.

Introduction of water fees and the subsequent tier of the same to water rights is seemingly an unrealised objective. Introduction of water fees was conceivably based on some four key assumptions: a). *'Payment for water would deter overuse and hence avoid waste of water'* (World Bank 1996). This was expected to mitigate this real or perceived growing water scarcity. b). *'Payment for water, coupled with water rights would reduce water related conflicts'*. c). *'Payment for water would generate income to sustain water management initiatives'*. Gauging the objectives, our findings revealed the converse: Paying for water has distorted the local customary arrangements for water allocation and management and has sufficiently influenced a change of behaviour among water users, ironically for worse for the water sector! Three window periods can be identified as a consequence of water fees, as shown in table 1 below:

Table 1: Effects of Water Charging to Water Management Initiative in Inyala village

Period	Practice	Effect
Pre- water fees (before 1997)	Mainly customary	Status quo
Water fees introduction (1997–2000)	<i>Farmers contributed for Water right application fees and water user fees, in total amounting to TSH 240,000.00 (90,000.00 and 150,000.00 for Inyala A and B respectively), distributed to individual farmer, each paid an average of 4000.00- another sum was to sustain the local office.</i>	Area under irrigation expanded by 40%, farmers felt more value of water, more water conflicts erupted, land values rent values increased in the irrigated areas from TSH. 20,000.00 per acre before water fees to 40,000.00 per acre
Water fees operational (2000-4)	Farmers formulated water roasters for rationing water; Farmers agreed to restrict area under crop cultivation to 0.25 acre and agreed on various by-laws to enforce the roasters	Conflicts reduced within the schemes, but intensified between the schemes. The upstream abstractors would take all water from the river to justify their fees.

The other side of the drawback of water fees has been that the revenues accrued from water are far low below targeted amount, because water user charges are very low compared to investment and introducing higher charges would be challenged by exacerbating rural poverty and may trigger a lot of political concerns. Actual collections are below average. Only some 39% pay the levies, majority of who are domestic water users and large-scale private companies. Large scale state irrigation schemes and individuals are the leading culprits in not paying for water. The government agency responsible for collection of fees apparently spends more time and resource to collect less fees- thus costing both the government and the agency!

Inherently, the payment mechanism has some weaknesses. Billing mechanism is confusing water users since they do not know whether the prices are estimated for the wet season or for the dry season. As such those who use water only in dry or wet season questions the legitimacy of paying for wet or dry season respectively. Since volumetric water pricing is based on the water rights, there is always a temptation to raise more income through issuing more water rights. As a consequence, some rivers would be more abstracted than other, depending on the awareness and willingness of the water users to apply for water rights. For example, the Mlowo River in Moji Sub catchment has 19 water rights amounting to more than 4.1 cumecs against the peak average river flow of hardly 2.1 cumecs.

The present water rights systems, as widely advocated for, are now being used as a registration, taxation and water management tool. While initially the water rights were meant for water uses registration and allocation, their use as a taxation tool is quite recent.

With the newly introduced purpose of taxation, the entire purpose of the water rights has been distorted, with even the former functions being counter-produced.

Water rights: A Management Failure?

Operationally, water rights system fails to fully meet their objectives in the Rufiji basin. Water rights system fails as a registration tool. Establishing and maintaining water users register is a challenge due to fluctuating numbers hundreds of small-scale users. Even with lists, establishing location of users and/ or estimates of volume of water used is more difficult, especially without the bureaucracies, maps, and measuring devices required. As such, there are only partially available data for water users names and site estimates without correct volumes abstracted. Any attempt to qualify and maintain this information is undoubtedly expensive.

- (a) **Water rights system also fails as a taxation tool in that unlike the popular opinion (World Bank, 1991), taxation cannot recover costs of water management nor deter water use. This is unlikely because blanket charging rarely act as deterrent to resource use, if any, aggravates the use (Sokile & van Koppen, 2003; GWP, 2000). In the Mkoji sub catchment, experience has shown that farmers expanded their field and water related conflicts increased with the introduction of water charges. Furthermore, with a weak registration tool renders the system even weaker as a *taxation tool*, resulting in both inequity and inefficiency. Lack of coherent accountability system for monies collected, if not checked, may result into a 'corruption by design' phenomenon.**

Conclusion and Recommendation

Managing water through water rights is still a challenge for Tanzania. The water fee, seen as 'water taxation', antagonizes people in the Upper Ruaha Sub-Catchment, because they suddenly have to pay the government without seeing any improved water or support service. Issues of legitimacy for payment, equity in allocation, cost-recovery mechanisms and the general collection, maintenance and upkeep of water rights systems information is still wanting. Unlike the expectations of the government through the World Bank support, the introduction of water charges and fees has not sufficiently improved water management imperatives but rather, has complicated the matter.

The paper recommends that registration of water users should be done include only large-scale users who are easily reachable and accessible. The records should be kept in ledgers and electronically with sufficiently detailed information possible, which indicate, among other things, grids and volumes abstracted and should be reviewed at least on annual basis. Similarly, payment for water should be strictly tied to the volumetric abstraction and should

involve only large scale users who would be encouraged to settle water bills through bankers drafts and cheques to minimise costs of follow up.

Finally, the whole idea of water rights should be revisited to allow a more flexible system, a sort of water use licence that would allow periodic review and adjustments.

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¹ River Basin Game (RBG) is a role play tool that is used to elicit stakeholders feelings and opinions with respect to his/her strategic location in the river basin and how that location affect his/her seasonal access to water. In November 2002, forty-five local water users from upper, mid and lower zones of the Mkoji catchment were invited in the workshop and as they played different roles in the RBG, they discussed several implications of the external state-based intervention in water management. In July 2003, forty-two senior water management stakeholders and decision makers attended the second workshop and discussed several expectations and implications of both local and state-based institutional considerations on water management.