

IMPLICATIONS OF ESTABLISHING INSTITUTIONAL ARRANGEMENTS

BY HANS C. KOMAKECH

When there is limited availability of water for productive uses, it is necessary to define clear rules on who is entitled to use water, for what purpose, at which location, quantity at what time, for how long and how the rules will be enforced or changed. These rules can ideally be defined by governments, non-governmental organisations, water users, religious leaders etc. The crafting of new institutions requires innovative approach that can allow integrating local practices with state-led approaches. Instead of establishing new ineffective forums, effective dialogue over water allocation and management may be achieved by building on existing local practices and organisations. It is more likely that locally acceptable and environmentally sustainable practices will develop.

2012
JRBM
Best Paper Award
Winner



Hans Charles Komakech is a lecturer of integrated watershed management at the department of Water, Environmental Science and Engineering (WESE), Nelson Mandela African Institute of Science and Technology, Tanzania. Komakech has conducted researches on water governance institutions in national and transboundary basins; and point of use water treatment and safe storage.

In Sub-Saharan Africa, most river basins are experiencing an increasing water scarcity driven by population growth, economic development and increase climate variability. Water demands are increasing due to rapid urbanisation, poverty and food insecurity, and growing energy demands. It is estimated that close to 50% of the projected 1.5-2 billion Sub-Saharan Africa's population will be living in cities by 2050. The growing cities will demand a steadily increasing share of the available water resources and these poses new challenges to river basin management. Furthermore, substantial investment in irrigated agriculture in Sub-Saharan Africa is required to reduce the increasing trend of rural poverty and generate employment. However, irrigation intensification will require intervention in water control (e.g. building storage reservoirs) as lack of access to reliable water supply is one of the major limitations to crop production. In addition, increasing global energy demand has direct link to water demands and does have implications on water allocation in Sub-Saharan Africa. The rising global food and energy prices have so far attracted large scale foreign investment in Sub-Saharan Africa's agricultural land. Besides the much debated issue of land grabbing, foreign direct investment in agriculture is likely to increase agricultural water use and this could lead to further enhancement of an already stressed water situation.

The increasing water demands as described



above is likely to increase water competition and conflicts between users upstream and downstream of a catchment. This puts significant pressure on existing water sharing arrangements as well as the challenges of developing robust water institutions that can ensure equity and sustainability of the resources.

There is a general belief that state-led formalisation of water allocation and management will restore order, ensure equity with respect to access to water and leads to sustainable water management. To achieve this many governments have attempted to register water uses and users, issue water rights or water permits to users, levy annual water tax or water fee on permit holders, and created formal organisations of water users sharing a common water source, often called water user associations (WUAs). Tanzania with a strong donor support has been at the forefront of formalisation of water allocation in its river basins (see Box 1).

This is a summary article of the full paper published in Vol. 10, Issue 3 2012 and available in open access at www.tandfonline.com

STATE-LED WATER RIGHTS AND ON THE KILIMANJARO, TANZANIA

Based on Komakech, H. C., Van Der Zaag, P. Mul, M. L., Mwakalukwa, T. A. and Kemerink, J. S. 2012. Formalization of water allocation systems and impacts on local practices in the Hingilili sub-catchment, Tanzania. *International Journal of River Basin Management*, 10(3), 213-227.

Box 1: historical development of state-led formalisation of water management in Tanzania

Pre-colonial (before 1880)

Farmers constructed irrigation canals (furrows) and later trade intensified irrigated agriculture and increased the need for allocation arrangements between the furrows. To cope with increased demands rotational water allocation between upstream and downstream farmers was initiated.

Colonial period 1880-1967

Formalisation of water resource management started in 1914 under German rule (1880-1919) when a first draft of a water rights ordinance was formulated. The first water rights ordinance was officially proclaimed in 1923 during British rule (1919-1967). By the 1930s, a tax was introduced which was intended to be used by government servants to control the irrigation furrows, prevent wastage by the native farmers upstream and as impartial evidence in cases of dispute. Amendments of the water ordinance occurred subsequently.

Post-independence of Tanzania: 1967- 1990

Through a government villagization program was implemented from 1973 to 1976, locally constructed irrigation furrows became village government property. In 1974 the government put in place a new Water Utilization (control and regulation) Act No. 42 that defined procedures for granting statutory water rights with priority given to domestic, livestock, irrigation, industries, hydropower, transport and recreation. The 1974 Act and its subsequent amendment in 1981 set the foundation for water management along hydrological boundaries such that mainland Tanzania was divided into nine river basins.

NGO and related development: 1990 – 2004

In 1991 the Pangani Basin Water Board (PBWB) was established. PBWB carried out an inventory of water users in the basin and established a protocol for issuing water rights and setting tariffs. It started registering water users and issuing provisional water rights. In 1991 a Water Policy was introduced which focused mainly on providing clean and safe water. In 2002 the government revised the water policy. The new policy objective was to develop a comprehensive framework for promoting the optimal sustainable and equitable development and use of water resources for the benefit of all Tanzanians.

Formalised institutional structure (after 2004)

The process started of setting up sub-catchment fora for water allocation in sub-catchments of the Pangani and other basins in Tanzania. In 2009, a Water Act was introduced and it allows for granting water use rights, with prioritisation of water for basic human needs and the environment, and subject to social and economic criteria.

However, this is often done without careful analysis of the existing institutional environment. The way water right system has been implemented in Tanzania's river basin does not necessarily lead to equity and sustainable water management. The finding in Pangani basin, Tanzania is contrary to the general believe that defining water use entitlements and crafting institutional arrangements to monitor its enforcement will achieve economic efficiency and social equity and will maintain or restore order in water stressed catchments. We explored and analysed the impact of the the state-led water allocation and management arrangements in the Hingilili, one of the sub-catchment of Pangani river basin, Tanzania (see Box 2).

Farmers seem interested in acquiring a state-sanctioned water use right only to strengthen their existing claims to irrigation water.

Box 2: Short summary of formalisation of water allocation in Hingilili sub-catchment, Tanzania

Hingilili sub-catchment (about 150km²) is located in the South Pare Mountains. The sub-catchment covers part of eight wards in Same district. However, water is only used by the inhabitants of three of the eight wards. In the highland these wards are Vuje and Bombo and in the lowlands it is Maore ward.

The area experiences two rainy seasons per year, a long season starting in March and ending in May ("Masika") and the other a shorter season starting around October and ending in December ("Vuli"). Land tenure in the sub-catchment is customary and holdings vary from 0.5 – 5.5ha with an average of 0.8ha. The main activities are subsistence agriculture based on rainfed and supplemental irrigation, livestock keeping.

Twelve locally constructed irrigation canals (six in the highland and another six in the lowland) are used by farmers to divert water from the Hingilili river. The furrows have a water committee responsible for water allocation, maintenance and conflict management. Hingilili sub-catchment experiences water stress during the dry seasons. Increasing water demand arising from natural population growth and changes in cropping patterns (e.g. increase in ginger cultivation in the highlands) make the area a potential hotspot for upstream – downstream water conflicts.

In 2002, to solve water conflict the local district government with support from non-governmental organisation and Pangani Basin Water Office created an umbrella organisation called MUWAHI (Muungano wa Wakulima Hingilili) to manage water allocation between the furrows in the lowland. An organisation called Water users of Hingilili Highland Organisation (WHHO) was created in the highland. An apex organisation called Hingilili Irrigation Basin Association (HIBA) was created to link the lowland (MUWAHI) and the highland (WHHO). The creation of HIBA in principle operationalised the National Water Policy of 2002 but it was also an attempt to nest water institutional arrangements. HIBA was created to oversee the implementation of the agreements between the highland and the lowland. However, HIBA has not functioned and has effectively ceased to exist.

Formalisation in Hingilili sub-catchment did not change the day-to-day local water allocation rules significantly. Farmers seem interested in acquiring a state-sanctioned water use right only to strengthen their existing claims to irrigation water. Although all furrow groups in Hingilili do pay the annual water user fee, none have been granted formal water rights. Water allocation is still based on local procedures established in the pre-colonial era. Water access within a furrow is based on farmers' participation in maintenance and attendance at meetings. All furrows use allocation rules that are well understood by everyone and there is a



**Prince Sultan Bin Abdulaziz
International Prize for Water**

Recognizing Innovation

**Invitation for
Nominations**

**th
Award (2016)**

*Nominations
Open online until
31 December 2015*

www.psipw.org e-mail: info@psipw.org



Ginger traders in the highland



shared expectation of all users to cooperate. However, recent infrastructure rehabilitation supported by NGOs has negatively affected the existing local arrangements between the highland and lowland farmers. Following the rehabilitation of furrows in 2009 and the introduction of a new high value crop - ginger - in the highland, more water is now being used upstream. In addition, the highland farmers now claim that they need to be paid to close their furrow intakes at 4PM, while lowland farmers maintain that it is the responsibility of the former to leave sufficient water for downstream use. We note that external intervention if not carefully planned and implemented can lead to conflict and competition over water in a catchment.

Water institutions operating at the scale of Hingillili sub-catchment appear to be ideally positioned to manage and allocate water resources. To grant these types of organisations the right to issue water use permits and to levy

water user fees could potentially reduce transaction costs. However, in the case of Hingillili, the institutional arrangements were not sufficiently embedded and their linkages with existing arrangements were weak. Formalisation as implemented seems at odd with the local practices and does not lead to equity and sustainability of the water resources. One of the limitations of water institutional designed approached used by the state as instrument of change is that it does not create legitimacy at the local level. If they were well integrated with the existing institutional arrangements, they would be more acceptable for small scale irrigators who have been allocating water in the past without too much outside interference.

We conclude from the study that state-led formalisation need to be re-invented, instead of defining water rights for farmers it could be good to work with the farmers to support and

build on their existing practices - facilitated water management so to say. Working with the existing practices appears to be the right approach as local water users have developed over time water sharing rules deeply rooted in local customs. These rules and traditions are understood and respected by the majority of the users. To be able to support and create an effective sub-catchment organization, the Pangani Basin Water Board should build upon existing structures such as the neighbourhood committees rather than introduce new arrangements. However, this is by no means a guarantee for success - institutional arrangements are messy and often get reinterpreted and re-negotiated at the local level. Important question is whether it is possible to build on existing local institutional processes and models. Can the underlying organizational and decision making principles be scaled up to higher level institutions?