Draft paper for the Africa Knows! Conference; Panel D18.

Authors

Ms. Keziah Ngugi, kngugi@seku.ac.ke (Tutorial Fellow, SEKU)
Dr. Maina Gichaba, maina.gichaba@gmail.com (Lecturer, University of Nairobi)
Dr. Stephen M Mureithi, stemureithi@uonbi.ac.ke (Lecturer, University of Nairobi)
Dr. Maurits Ertsen, m.w.ertsen@tudelft.nl (Associate Professor, Delft University of Technology,)

Impact of ownership of water resources and associated facilities to its access and management in the Asal Kitui County, Kenya

Abstract

In Kenya, where 80% of the land is arid and semi-arid, access to water is an everyday challenge for majority of the people. Methods used to improve access to water in Kenya results to different, and sometimes unexpected outcomes. The water resources assessed have come about through interventions by various agents, majority donor funded. These agents use various models resulting to different outcomes. We assessed technologies used to improve access to water in the Asals of Kitui County, Kenya. The technologies were classified into four; individual, private, community and government owned. Those assessed were tanks, boreholes and hand dug wells, sand dams and pipelines for individual, private, community and government owned respectively. Private and individual resources outperformed others in terms of management with donor aided community owned being the least sustainable. Government owned water facilities reached relatively more people and although unreliable were the most trusted source to those covered by the infrastructure. Individual owned water resources offered water in small quantities, the main benefit being owners were able to manage with ease through rationing to stretch availability for a long time. Donor funded community owned resources suffered vague ownership models making their management and maintenance impossible. Privately owned resources offered the best solution as water was sold and the resulting money become income for the owners as well as providing resources for maintenance. The resulting income offered incentives for further investment which further improved access. The tragedy with privately owned water resources was that the poor paid too much for water while the rich continued to accumulate massive wealth. To ensure adequate access to water especially in remote places, privately owned and operated systems should be encouraged and supported but with government sponsored regulations to ensure the poor are not exploited.

Key words: Water resources, water resources ownership, donor aid.

Keziah Ngugi has dedicated most of her work life to improving access to water in Kenya especially in the arid and semi-arid regions. She works at South Eastern Kenya University in the Department of Hydrology, Fisheries and Aquatic Sciences.

From left to right

Stephen M Mureithi, Maina Gichaba, Maurits Ertsen

Introduction – Global water challenges

All life activities center on water. This can clearly be noted by taking a keen interest at all the 17 sustainable development goals targets (UN, 2016) to realize none can be achieved without adequately dealing with water scarcity problems. Inadequate water hold several poor countries hostage especially in the Sub-Saharan where it cost huge margins of their GDP (Desbureaux, 2019). This has and will continue to trigger social changes such as migration and conflicts which further make such countries sink into deeper crisis. In poor nations, capacity to utilize existing water resources is hampered by low investments and inefficiency (Hoekstra et al, 2014). For example, surface and ground water resources in Sub-Saharan Africa are few, wide apart and an everyday struggle for majority. Other than physical scarcity, water access continue to suffer from a myriad of other issues among them pollution and over-extraction while in the irrigation fields, water productivity is quite low in relative terms. An example quoted by Kang'au, (2011) in Kenya mention a less than 20% efficiency rate and less than 50% in Burkina Faso (FAO, 2014). Water problems are not restricted to sub-Saharan Africa; While else the problem of water quantity may not be as widespread in Asia, pollution continue to affect many water bodies globally rendering a major blow to those affected. Some examples include Citarum River in Indonesia with over 500 factories dumping their waste into the water (Collins, 2008). Other water problems are more terrifying; Lake Karachay in Russia has been a nuclear waste dumping ground and is considered the most radioactive water body in the world (Lenssen, 1991; Jason, 1995). Further afield, River Riachuela in Argentina is considered the largest open pit toilet in the world and the list continues. Water scarcity problems seem to be getting worse as demand rises due to growth in demand and the world faces a huge challenge in deciding which way to go to ensure adequate access for all. It would be interesting if these water resources had ownership. Items that have ownership have protection but water is unique because it flows. By its nature water is mobile, travelling in the air, surface and underground on its own. It moves from one region to the other and along the way it is put to various uses by humans, other animals and the environment. Human beings have since the time of industrial development been rightly accused of its misuse, either in over-abstraction or causing damage to its quality. For all uses, the need for water in its purest form and adequate quantities cannot be over-emphasized. Some regions have been able to overcome these challenges through ensuring adequate supplies like in most European countries or having some form of efficient water market such as in Australia (Chatterton and Chatterton, 2001). Yet in some regions like Kenya ownership is poorly defined. This has prompted efforts towards individual or community systems of ownership. Water ownership is important in Kenya as people have a tendency to protect what they believe they own including water.

Poorly defined water access terms are dangerous. In Kenya it is continuously becoming a reserve for the rich especially in urban places. This inequality is observed across societies with the poor depending on dirty water while the wealthy get much cleaner water. Occasionally this has escalated into desperation with those in less served places in cities like Nairobi calling out for more equitable access (Hoogeveen, 2010). Sadly this may not be possible as much of the land in Kenya is under arid conditions and with no well controlled and coordinated water supply systems targeting all. This situation has brought about thousands of disjointed efforts towards water access and they are justified. This efforts attract resources from individuals, communities, government and donor aid from both within and outside the country. Compared to the history of water supply systems in the more developed world, such small water supply systems may seem inefficient as they form part of the history such nations have emerged from.

Most of the developed countries have walked away from water access problems and enjoy much improved services. In an article published in castle water.co.uk in 2019, Switzerland was listed as having the cleanest water followed by Canada, UK and New Zealand, Singapore, Germany, Scandinavia and Finland, in that order. Checking this countries' GDP and quality of life reveal an interesting positive correlation. Overall circumstances are different and the paths to follow definitely need to be customized to each regions circumstances. Either way it is good to understand the paths others have followed and borrow whatever may work to avoid re-inventing the wheel.

History of water ownership in the world

The documented history of water supply and ownership dates back to the 13th century in Europe when Dublin introduced the first public water supply system. Otherwise in most of Europe, traditional methods included disjointed efforts such as wells and water vendors (Prasad, 2013). These disjointed efforts were marred by various problems especially of water quality. Following increased urbanization in the 19th century, a need for centralized water supply systems was realized. Thus, such piece meal and localized systems were replaced by highly centralized and integrated systems from the 19th century which are more operational to date. In the more developed nations, private initiatives were instrumental in establishing modern water supply systems, which led to privately owned or operated systems in the 1800 when water demand rose due to urban growth. Currently, water ownership ranges from no private sector in the Netherlands to an blend of PSP (Belgium, Finland, France, Germany, Greece, Italy, Spain,) and PSP with no profit motive (Austria, Denmark and Sweden), to full privatization with strong regulation (England and Wales). The current setup in Europe has one focus in mind, quasi universal, equitable access of good quality services for the citizens. About 200 years later, Sub-Saharan countries are experimenting on these disjointed systems and receiving the same results of inequality, high costs and poor access especially for the poor.

Water Ownership in Kenya, a Historical perspective

At independence in 1963, Kenya water resources were deemed adequate and communities were content with whatever nature was able to provide in whatever locality they found themselves. With fast growth in population, the need to manage water properly arose and the Ministry of Water Development was incorporated to oversee the country's water resources. The emphasis was on self-help approach to management of water resources (Mailu, 1997), a concept that still forms the main driving force behind water ownership and management. By 1990's and in view of the country's polarized endowment of water resources, a number of policy blue prints were developed that included The National Policy on Water Resources Management, Sessional Paper No. 1 of 1999, and the Water Act 2002, Country Strategy on Water and Sanitation Services, Country Strategy on Integrated Water Resources Management and more recently is the Water Act 2016 (Ledant, 2013). In this lineage, the emphases was always "every water resource is vested in and held by the national government in trust for the people of Kenya". While this holds true on paper, on the ground the situation is very different. People residing in the wetter regions having access to more than those in the dry places while in urban places the wealthy have better access. Even more tragic, the wealthy in Kenya often pay less than the poor (Hoogeveen, 2010). With emphasis to self-development came the need for localized mini projects scattered throughout the country and aided by individual, government with the civil society whose main source of funds is donations from within and outside the country being the most prominent. This approach has rarely worked (Munyui, 2015). In majority of cases it has failed and this could be blamed on government's failure to forge links with these civil society organizations and provide leadership and overall governance.

To quote an example by Wambua (2004) of efforts to fence off the Entarara Springs in Kajiado whose water emanates from Mt Kilimanjaro. After The Netherlands Development Organization (SNV) invested millions of shillings to protect the springs the Provincial Administration was reluctant to guard the resource. As would be expected and often is the case with several donor funded projects, building materials were routinely stolen frustrating the project.

In Kitui County, the main focus of this paper, surface water sources are scarce. The rainfall is little and unreliable. Traditionally, the seasonal sand filled riverbeds are the main sources of water. The seemingly dry sand contain water beneath the surface. The residents simply dig holes into these riverbeds to reach the water. These water has to be carried in containers either on peoples back or by donkeys. With time these seasonal riverbeds could not supply enough water due to increase demand and isolated cases of prosperity. The need to explore more sources has been elusive for decades and these efforts continue. Among these are earth dams, boreholes, shallow wells and water tanks. Poverty levels in Kitui County have been prohibitive which opened a floodgate to different forms of aid. The different models of delivering aids resulted to different outcomes.

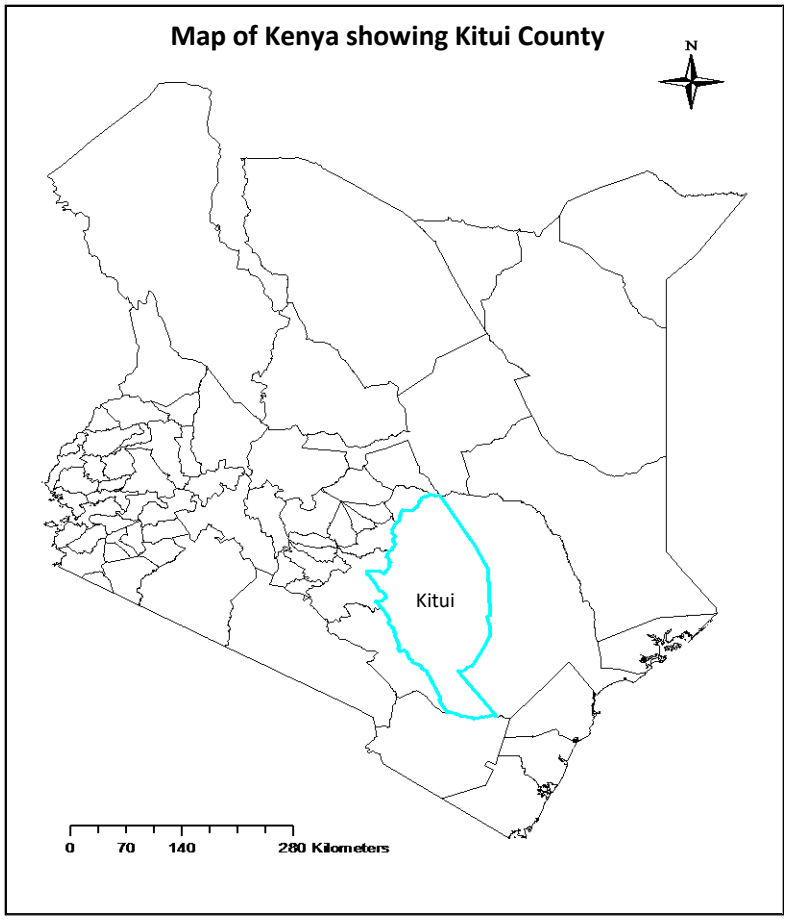
It would be right to think in a region of much water scarcity, a lot of effort and resources will go into investment, proper management and protection. While this is largely true, there lies an ignored sector of ownership of the various small water projects scattered throughout the country especially in the more arid parts of the country. Majority of the population depend on these scattered water resources in the country and the question begging for an answer is why so many have been neglected. This problem is acknowledged by Mogaka, , (2006) and GOK, (2007) among others.

Objective of this research

This research was informed by observations made in arid regions of Kenya of dilapidation resulting from neglect alongside well maintained water structures. It implies the reasons for their poor state may not always lie with the quality of structures but on the maintenance practices. We sought to find out what informs what to maintain and what to neglect.

Methodology

Sampling was done within Kitui County which is largely arid and a recipient of several water resources from individual, community, government and donor aid. A questionnaire and physical assessment of water resources was used to investigate the underlying issues leading to the two scenarios of well and poorly maintained. Those interviewed were community members within vicinity of 50 sand dams, 35 shallow wells, 12 tanks, 5 boreholes and 3 earth dams. The questionnaire addressed issues related to project initiation, planning, implementation, training, community involvement, community observations and views. The sustainability issues in question were; for water tanks - Misaligned gutters, poorly fitting downpipes, broken water sieves, trapped and or dead animal, leaking taps and pipes. For earth dams – lack of fence, livestock contamination, shallow wells in the vicinity, overgrown vegetation, poorly managed access and siltation. For shallow wells – vandalized pumps and pipes, littered pits, broken walls, unmanaged access and open empty pits. For boreholes – broken pumps, abandoned boreholes. The questionnaire was structured to capture the above listed issues in the following ownership categories; private, community owned, donor funded and government sponsored.



Results and discussion

The table below gives the list of and status of the water resources in the study area.

Water resource	Ownership type						
	Community/donated		Private		Government sponsored		Total
	Functional	Non-functional	Functional	Non-Functional	Functional	Non Functional	
Sand dams	18	32	1	1			52
Shallow wells		32	2				34
Tanks		7	5				12
Boreholes	1	1	1		2	1	6
Earth dams		2			1		3
Pipelines					1		1
Totals	93		10		5		108

Most (86%) of the water resources were “gifts” from mainly international donor community while 9% were private and 5% were government sponsored. Most of the assessed water resources were sand dams of which 50 out of the 52 assessed were donor funded. The second most abundant water resource were shallow wells mainly because they accompanied sand dams and have suffered more or less the same fate with sand dams. The third most common were tanks. Among those donated,

none was functional. On the contrary, private owned tanks were all functional. Boreholes, though rare offered a more reliable water source as they were able to supply water during the drought seasons although one of them was reported to have become dry. An interesting source of water was the pipeline which was government sponsored and provided a reliable source of water. The pipeline which delivered water from the Masinga hydro-electric dam was reported to fail occasionally but always get repaired and largely reliable. The water was metered and the resulting charges were proportional to consumption. The table below show a list of issues with the various water resources;

Water resource	**Identified problems**
Sand dams	Broken walls, river migration, dry, eroded wing walls
Shallow wells	Vandalized pumps, open pits, abandoned
Tanks	Missing taps, poor aligned gutters and down pipes, broken
Boreholes	Broken pump, dry
Earth dams	Silted up, dry

In Kitui County a lot of attention towards improving access has gone into sand dams. Sand dams are an expensive resource costing an average of average of Ksh. 500,000 explaining why just a few are very few are private. Donors will prefer projects that will render themselves to community provision such as sand dams and shallow wells as opposed to tanks. In fact the communal assessed tanks were in social institutions such as churches and schools.

With the exception of boreholes and the pipeline, it is clear the government has taken a backseat in development of other water resources. Of great importance is the growing number of private owned and managed resources which were the best maintained. While providing a reliable source of water, this private resources must come at a very high cost per unit and are therefore limiting. They also create massive inequalities as the poor cannot afford their own but interestingly, during times of severe shortage when the naturally occurring water resources go dry, the poor have to buy from the rich at exorbitant cost of between Ksh. 500 to 5000 per m^3. This price increase with increase in drought intensity. This tariff rates are more than 10-100 times more than the situation in the well-endowed regions (GOK, 2009). This observation of the poor buying from the rich at uncontrolled rates should raise a red flag for the government to act soon before those who cannot afford are thrown into deeper poverty. The issue of the rich getting water at less tariffs than the poor who have limited access is spreading in underserved communities of poor countries (UN, 2007). Even worse, interventions to address the problem through subsidies do not effectively reach the poor due to poor infrastructure (Gulyani, et al, 2005) The problem is a global phenomenon and will continue to afflict the poor in developing countries unless government invest more into development of water resources.

Community reasons for failing to take ownership of the donor aided water resources

Community members shared their opinions on the reasons why some water projects found ownership while the others failed. These issues related to financial accountability of the implementing agency, level of interactions between the local communities and forced misplaced priorities. Donors undermine social, political and administrative pathways of the recipients by creating their own which remain hanging the moment they step out.

- **Poor financial accountability**

Donor funded projects suffer from poor monitoring and inadequate financial accountability. Often the implementing agency is under close scrutiny by the communities and any misappropriation of resources can never escape their view. Donors work remotely depending entirely on a local implementing agency such as a local NGO. The technicians on the ground could engage in improper practices best witnessed by the locals. At one of the sites the contractor was selling building materials which the local community correctly interpreted was being stolen. They therefore expected the resulting work was shoddy and did not want to be associated with it. Once such information is received by the locals it spreads very fast and judge the whole project as not intended for their benefit. Furthermore failure of such structures usually follow shortly after as the design procedures were could not have been followed. The community ultimately refuse to take possession of such projects and these leads to more damage. The consequence is that they no longer take the local NGO and the donor seriously. The intentions of such projects get misunderstood with some locals acting as conduits of such resources. Such concerns may seem petty but certainly have left a trail of ownerless, scattered small water projects throughout Kitui County and other arid regions in Kenya. Mukuni (2014) extensively discusses similar concerns in Zambia while Kelly, (2009) and Casey, (2014) probably looking at these concerns from the donor world wonder why these water points fall into disuse. In all the projects there are monitoring and evaluation of projects by independent consultant. Obviously the NGOs and the local conduits can manage things from the upstream and completely manipulate the M & E process. In most cases there are no further evaluations and such projects may fail 2-3 years down the line without the donors' knowledge. The locals are never aware on where to report malpractices. They also fear the consequences of reporting preferring to keep quite. In this era of social networking, some improvements can be achieved through encouraging people to speak out.

- **Erosion of recipients' sense of Pride and achievement**

Human nature directs people to have pride in what they have sweat for. This is irrespective of their economic and social status. In a lot of cases, there is the tendency to think the poor will willingly be receptive to donations. Time and again this has been proven to be a misconception. Both rich and poor take pride in own achievements. This explain the situations with the water tanks where even those built for individual households could not serve the purpose.

- **Forced misplaced priorities**

Even though the problem of water is overriding and cross cutting, donor and recipients have different opinions about its urgency and how to address the issue. The recipient have a different list of priorities that is impossible to be shared with outsiders without involving them fully. In Kitui County the people take education for their children very seriously and often likened failed water projects to education opportunities missed. Obviously, had such monies been given to them, they would have spent it on education for their children and not water projects.

- **Who protect what they don't own?**

Who can stop metal rods from being vandalized from a sand dam? Who stops a neighbor from coming for water from your donor aided tank? Who can protect a borehole from hostile pastoralists who know you never built it? In some bizarre cases, family members have turned against each other over issues of water ownership. In a number of cases, masonry tanks have been converted into houses, dams have been abandoned and boreholes have lost valuable parts. Donors of water

resources leave an area satisfied they have done well for humanity. What they leave behind fails to find ownership for the simple reason it's not their effort and all could claim it.

Conclusions and Recommendations

It is human nature to take pride in own achievement and this holds true for access to basic needs such as water. While else donor funded water resources help alleviate certain problems, people put more responsibility in own investments. Lack of government universal managed water systems result to several individual efforts towards water access. Such disjointed efforts can be very expensive if every household has to invest in own system. The developed world offer good insights into the need for government to take up responsibility for water provision. However, their circumstances could be different. For example Europe is well endowed with water resources compared to Kitui. Either way a compromise point with private government involvement is necessary.

Managing projects effectively during planning and implementation can be a useful tool towards acceptability of a water project. Malpractices during project implementation destroys people trust leading to uncommunicated rejection of water resources. The research has revealed it does not matter where along the project value chain the misgivings happened, once the local people are convinced of any wrong doings by the implementing agency, they will not like to be associated with it. This implies a lot of care is demanded when implementing water projects to aid the underserved.

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