

# **Property rights and Collective action around water management in Kenya's lower Nyando basin**

Mamta Vardhan<sup>1</sup>

## **Abstract**

Water management is a priority concern for communities in Nyando basin. Kenya's new water act provides a role for the community in water management, through formation of water user associations. Despite the significance of water for communities, and the policy focus on community involvement, community organization for water management is not forthcoming. To understand the constraints to community organization around water management, a collaborative research was conducted with the World Agroforestry Center in Lake Victoria watershed, Kenya during May-August 2005. The paper presents findings from the qualitative data gathered through focus group discussions across eleven villages in lower Nyando basin on the factors that constrain community management of water. There are multiple reasons for limited community involvement in the management of water. The process of land adjudication and privatization of riparian zones fails to present strong incentives for land owners and community members to participate in collective water management. The ambiguity in the ownership of water systems results into low level of community investment in their management. The absence of institutional structures to address the management of trans-boundary resources such as rivers also influences the ability of community to cooperate around water management. The ambiguous property right structures constrain the access of poor and marginal groups to critical water resources. An understanding of conditions

---

<sup>1</sup> The author is a Graduate student at Michigan State University, and the paper draws from her Masters research. The author is thankful to John Kerr, Kim Chung, Anne Ferguson at Michigan State University and Brent Swallow at World Agroforestry Center for their feedback on the original version of this work.

that engage communities to cooperate for water management would help analysts and water sector agencies to create the right institutional environment to allow for community based water management.

**Key words-** Kenya, Africa, community water management, property rights, collective action

## **1. Introduction**

Rural communities around the global south face critical challenges regarding availability of adequate water of acceptable quality (WHO/UNICEF, 2000a). The situation in rural Kenya exhibits a similar trend, with only 31% of the rural population having access to improved water supply as compared to 87% coverage in urban areas. Although more than 80% of Kenyan population lives in rural areas, only about 34% of the total average annual water sector investments are made in rural areas (WHO/UNICEF, 2000b).

In research conducted in western Kenya, most communities indicate water management as their primary concern (Shepherd et.al, 2000 cited in Swallow 2002). The negative impacts of low water availability in the region are typically borne disproportionately by the poor and marginal members of community. A study by Water Aid in Tanzania, documented the impact of borehole development and community management in terms of improvement in health of women, children, improved agriculture output, reduced expenditure on water and savings in women and children's water collection time, enabling them to spend more time in family activities and attending schools (Swallow, 2002 ). In western Kenya, improved water management is important for people's livelihood's and increases the availability of water for irrigating tree

nurseries and tea gardens (Swallow, Onyango and Meinzen-Dick, 2003). Despite the significance of water in their life, communities in western Kenya are not motivated to invest in water management (Swallow, 2002). It is worthwhile to understand the factors that determine community organization around water management.

This is important as Kenya's Water Act of 2002 provides a greater role for communities in water management. The Act aims at restructuring the water sector management, calling for decentralization of functions to lower level state organizations; and the involvement of non-government entities in the management of water and provision of water services. The act has redefined the role of government from being a direct service provider to carrying out regulatory and enabling functions to support private sector participation and community based provision of water. Most significantly, the Act provides a role for community groups, organized as water resource users associations, in the management of water resources. In rural areas where private water service providers are likely to be few, the role of these community self-help groups in the water provision is likely to remain significant (Mumma, 2005). Thus, the participation of local community groups will be critical to ensure the success of decentralization efforts and the sustainability of water supply systems.

With this background, the current research was undertaken in Kenya's lower Nyando basin to understand the determinants of collective action for water management. The research addressed the questions: (i). What are the factors that facilitate or constrain community action around water management in the lower Nyando basin? (ii). What is the impact of improved water management on allocations of water across various activities in the house? The research was an exploratory study, carried out using a mixed methods

approach that included qualitative methods of inquiry, such as semi-structured interviews, focus group discussions and quantitative methods such as household surveys. Although, the research involved seeking answers to these two questions, the present paper presents study findings relating to some important factors that constrain community action around water management, and does not dwell upon factors that facilitate collective management of water and the impacts of water availability on households.

## **2. Research site**

The field work for the research was carried out during May to August 2005 in the lower Nyando basin, in western Kenya. Geographically, the lower Nyando basin is a part of the larger Nyando basin which is one of the major river basins of Lake Victoria in western Kenya. River Nyando passes through the lower Nyando basin and drains into Lake Victoria. Nyando basin has an area of 3500 square kilometers, with a population of 750,000 people. (RoK, 2002).

The lower Nyando basin comprises of Nyando district and parts of the neighboring Kericho district. Nyando district has an area of 1,168.4 square kilometers, and is divided into five administrative divisions namely, Upper Nyakach, Lower Nyakach, Muhoroni, Miwani and Nyando (RoK, 2002). As per the 1999 census, the district has a population of 299,930 with a population density of 270 persons per square kilometer (RoK, 2001). The district can be divided into three topographical zones namely, - Nandi hills, the Nyando plateau and Kano plains. The altitude in the district varies from 1,800 meters above sea level in the Nyabondo plateau to 1,100 meters above sea level in the Kano plains. The district receives bimodal rainfall with the long rains received between March and May and short rain between September to November. The mean average rainfall in the district

ranges between 600mm to 1,630mm (RoK., 2002). The study villages were located in three administrative divisions of Nyando district which form part of the Kano plain areas, namely Miwani, Lower Nyakach and Nyando.

The Kano plains consist of black cotton clay soils with poor drainage. The region is characterized by heavy seasonal flooding. The flood prone lakeshore area is mostly used for subsistence production of maize, beans and sorghum production, combined with commercial production of sugarcane and irrigated rice. Most of the land in the lower part of the basin is held as adjudicated land, with titles in the name of the people who cultivate these lands (Onyango, Swallow and Meinzen-Dick.,2005). The Luo community inhabits the lower Nyando basin.

Water pans and rivers Awach, Nyando and Asawo are the traditional sources of water in the Kano plains. Shallow wells with hand pumps are also common sources of water for household use in the region. Piped water supply from parastatal agencies and non-government agencies represent a small proportion of water sources in the area. Several agencies are involved in the rural water supply sector in the study area. The Department of Water is responsible for management and development of water resources. In addition, the government departments of Health and Agriculture and parastatal organizations such as (National Water Conservation and Pipeline Corporation) also develop water sources in the study area. Institutions such as self help groups, women's groups, church organizations, non-government organizations, external support agencies, schools, hospitals and private individuals also contribute to water resource development in the study area (Swallow, Onyango and Meinzen-Dick, 2003; ICRAF, 2002).

### **3. Data and methods**

The research was carried out in two phases. During the first phase of the research reconnaissance of several villages in the Nyando basin was undertaken to gain an understanding of the water scenario in the lower Nyando basin. At the same time, extensive semi-structured topical interviews (Rubin and Rubin, 2005) with key informants in government agencies and village representatives were conducted on issues relating to the situation of water availability, role of various agencies in water provision and management. A total of eighteen such interviews were conducted. As a result of these interviews, a broad overview of water scenario in lower Nyando emerged, which was used to initiate in-depth investigation into dynamics of collective water management in villages during the second phase of the research using focus group discussions.

While the villages in the study area were similar in socio-economic attributes, they differed in terms of water availability and the type of institution involved in water provision. Thus, there were villages with shallow wells or boreholes or water pans initiated by an external agency (donor/ NGO) and those where these were established by community members themselves. A study design was developed to classify study villages as per break and control variables (Knodel, 1990), so as to compare and capture this heterogeneity that existed among villages. This design was used to determine the number and composition of focus groups to be organized. Break variables define how study villages are differentiated from each other. In the present study three set of break variables were identified. These are: (i) the type of water resource (shallow well/ borehole/ water pan), (ii) type of water agency intervention (external agency initiated/

self-initiated community group/no intervention) and (iii) type of water users (men/women). Together these three break variables define different subsets for which separate focus group sessions were held. Twelve focus groups were thus identified as per a combination of these break variables. These groups were: donor initiated borehole men group, donor initiated borehole women group, donor initiated shallow well men group, donor initiated shallow well women group, community initiated shallow well men group, and community initiated shallow well women group, no intervention men group, no intervention women group, donor initiated water pan men group, donor initiated water pan women group, community initiated water pan men group, community initiated water pan women group. Since all combinations of break variables were not found in the study area, a few of these were eliminated. For instance, during fieldwork it was found that community initiated boreholes do not exist so this category was eliminated. Thus, focus groups were purposively selected to ensure a match between break characteristics and actual situations on the ground.

While the groups were differentiated along various break variables, it was also ensured that they share some common characteristics. Such characteristics that are shared by all members of each group are referred to as uniform control characteristics (Knodel, 1990). Ethnicity, residence and geographical region were the three uniform control characteristics chosen to design focus groups. Thus, all focus groups were organized with Luo individuals who were rural residents, from the lower Nyando basin. Age of participants was a characteristic explicitly taken into consideration when forming groups, ensuring that adult participants were recruited for each one. Such characteristics that are taken into account in order to impose a common group composition can be referred to as

composition control characteristics (Knodel, 1990). The study design based on the combination of break and control characteristic is illustrated in table 1.

Intra-group homogeneity in order to facilitate discussion was ensured by holding separate sessions with members and non-members of the group. As the focus groups progressed, the findings from initial groups led to a modification in the study design to include an additional group of donor initiated shallow wells as these faced particular problems, regarding land ownership. Finally, fourteen focus groups spread over eleven villages were selected that represented the contrast in break variables as well as the field conditions were selected.

The participants of the focus group were purposively recruited after conducting key informant interviews with village chiefs and members of water management committees across selected villages. Each focus group consisted of six to twelve participants. All group discussions were conducted in Luo, and audio-taped.

Each focus group discussion followed a similar question guide which consisted of a number of open-ended questions arranged under specific topics. The topics of discussion in each group included factors that influence community action around water, viz.- characteristics of resource, role of external agency, institutional issues, collective action, responsibility of water collection and maintenance, impact of improved water management.



**Table 1. Use of characteristics in selecting groups**

<b>Type of characteristic</b>			
<b>Characteristic</b>	<b>Break</b>	<b>Uniform Control</b>	<b>Uniform Composition</b>
<i>Type of Agency involvement</i> Community vs. Donor initiated vs. No intervention village	XX		
<i>Type of Resource</i> Borehole vs. shallow well vs. water pans	XX		
<i>Type of Users</i> Women vs. Men	XX		
<i>Ethnicity</i> Luo		XX	
<i>Region</i> Lower Nyando basin		XX	
<i>Residents</i> Rural		XX	
<i>Age</i> Adults 20-60 years			XX

All focus group discussions were audio recorded and transcribed verbatim. Similar verbatim transcripts were prepared for all the key informant interviews. This resulted in a rich set of data which were analyzed using Carney's ladder of analytical abstraction (Miles and Huberman, 1997). The ladder follows three steps for analyzing qualitative data.

The first step involved summarizing and packing the data, wherein the transcripts of the initial data set were read with an eye to look for codes. A provisional list of codes thus emerged from this early coding. These first rounds of codes were descriptive in nature (Miles and Huberman, 1997) and entailed little interpretation and related directly to the topics covered in the group discussions.

The aim of the second step of analysis called as repackaging and aggregating the data is to search for relationships in the data and find out the areas of emphases and gaps. At

this stage, the transcripts from all data sets were searched for relationships and patterns among codes. Upon completion of coding a final family of inferential codes emerged, which contained “larger” (more conceptually inclusive) and “smaller” (more differentiated instances) codes (Miles and Huberman, 1994). The larger codes relating to the research were: factors that facilitate community based water management, constraints to initiate water management, constraints to sustain water management and the process of community based water management. After the entire data had been coded, case summaries were prepared for each theme that emerged from the list of codes.

The final step of data analysis involves developing and testing hypotheses to construct an exploratory framework. The aim of this level of analysis is to cross-check findings through matrix-analysis of major themes in data and finally integration of data into an exploratory framework. At this stage, the summary statements developed in the previous step were sorted and organized into matrices as per key concepts that emerge from the data. Conceptually clustered matrices (Miles and Huberman, 1997) to identify factors that constrain and facilitate community level water management were developed.

#### **4. Constraints to collective action around water management**

In the context of limited success of state and private water agencies to provide water to rural communities, decentralization of water sector and community based approaches to water management have gained acceptance (Schouten & Moriarty, 2003) Water sector reforms in many countries in the global south call for greater involvement of local communities to undertake management of water resources. For instance, in Malawi, the government has introduced Community Based Management and Village Operation and Maintenance systems under which the local communities organize themselves into

village health and water committees (WHO/UNICEF, 2000b). This thrust of policies on community participation in water management does not imply that communities are willing or are capable to undertake these responsibilities (Schouten & Moriarty, 2003). Non-involvement of communities in water supply management and inappropriate institutional structures has been identified as one of the constraints to development of water sector in Africa (WHO/UNICEFF, 2000b). At this point it becomes important to understand what factors prevent communities from investing in water management.

As per a discussion on community poverty traps by Swallow (2002), there are certain conditions that trap a community in low levels of action around investment in water management. Some of these conditions for western Kenya are: high fixed cost associated with water management vis-à-vis poverty level in the community, non-availability of credit to finance community investments, social capital present in the community to undertake collective water management, issues of property and tenure security, interference of neighboring communities.

Property rights are crucial to collective management of resources by user groups. Weak tenure security dilutes incentives for collective management of watershed resources since users are not assured of benefits from the resource (Swallow, Garrity and van Noordwijk, 2002; Swallow, Onyango and Meinzen-Dick, 2003). Watershed or catchment management is a resource investment that requires both secure property rights and strong collective action. Over-exploitation and under-investment in river bank areas has been identified as a property right problem in Lake Victoria watershed, which weakens incentives for management of these areas (Swallow, Garrity, and van Noordwijk, 2002). In preliminary research in Nyando, it has emerged that property rights

to land and the process of land adjudication in riparian zones not only distorts incentives to manage water resources located on private lands but also impairs the ability of marginal members of the community to access water (Onyango, Swallow and Meinzen-Dick, 2005). Scale of resource is another factor that influences collective management of resources. Spatially extensive resources are better managed by regional groups as compared to isolated communities, as the inputs required for their management are substantial. However, lack of institutions for collective management of these resources dampens community initiative to manage them. (Knox and Meinzen-Dick, 2001).

Provisions of Kenya's new Water Act of 2002 also limit community initiative to manage water in several ways. The reforms of the Water Act of 2002 introduced in Kenya have created space for the participation of rural communities in water management. At the same time, the act vests ownership of all water resources in the country in the State. Accordingly, community based water providers need to acquire licenses to continue providing water to their members. Acquisition of permit runs with land ownership and the current administrative systems to acquire permits are constraining. In this way, the provisions of the act effectively disenfranchise poor rural communities from acquiring water permits as they do not own land (Mumma, 2005). Given the limited reach of state run water provision system in rural Kenya, the communities in these areas already undertake water management on their own accord. However, these provisions of the act diminish the incentives for communities to undertake collective water management.

The paper draws on empirical research in eleven villages in the lower Nyando basin. The research documented several factors that facilitate and constrain collective

management of water. Study findings suggest many factors that influence collective management of water. Some of the reasons that facilitate community management of water are: assistance from external agency to initiate water projects, role of leadership; while factors such as ambiguous property rights, ownership and scale of water resources poverty levels, gender relations and clan dynamics inhibit communities to undertake water management.

Property rights, ownership and scale of water resources came up as important issues that constrain collective management of water in the study area. The current paper summarizes findings with respect to these issues.

## **5. Findings**

### ***5.1 Property rights and access issues***

Property rights determine access to resources. Any ambiguity in property rights restricts the access of communities to resources, and dilutes incentives for management. In the lower Nyando region, property rights to land along the river are held under a system that prevents other users from accessing the river. The process of land settlement in the region did not account for riparian areas, and declared them as adjudicated land (Onyango, Swallow and Meinzen-Dick, 2005). This implies that riparian zones are in effect private property under statutory law, and anyone whose land does not lie along the river has no rights to access the river. Adjudicated land is also governed under customary rules. As per customary law, no one is denied water, and accordingly people are not denied access. However, this access is not secure and is subject to frequent negotiations with land owners along the river. Thus, while customary law allows access to the river, private property rights to land through which river passes discourage such access. This

multiplicity of authority structures governing access to river not only curtails access of community members to resources, but also inhibits community initiative to undertake management of such resources (Onyango, Swallow and Meinzen-Dick, 2005).

In absence of riparian zoning and proper roads to access the river, community members are unable to access river on a regular basis. This insecure access to river water emerged as a recurring problem that prevents community members from investing in managing rivers (Swallow, Onyango, Meinzen-Dick and Holl, 2005). The men in a village without any alternative to river water explain the problems related to accessing the river,

*“Man 1: We don’t have proper access road to the river, so you will find that some people go through other people’s farm hence the owners make a lot of noise.  
Man 8: And in places there is a problem that paths pass through plots and paths for entry are not there. The farms are fenced so people just follow somebody’s plot. The person complains that who is that stepping on his field?”*

This lack of access to the river is a source of conflict between land owners next to the river and individuals who want to access the river. In addition, it also restricts people’s ability to use water from rivers to fulfill their basic needs, as narrated by men from the village without a project,

*“Also, those who bring their cows here to get drinking water, you will find that these cows step on other people’s farm hence destroying what they have planted because there is no path for them to follow, this create a conflict and the animals are not allowed to be watered at the hole”.*

This restriction on access to the river is especially relevant for villages where rivers are the only source of water for the community, and has social equity implications. In particular, river is a significant resource for poor and female-headed households, who in absence of ability to pay for water on regular basis resort to using the river because water availability is certain and free. Further, inability to access rivers has implications for

women who are responsible for water provision in the household (Swallow, Onyango, Meinen-Dick and Holl, 2005). Given the unusually high levels of poor and vulnerable households in the lower Nyando (ICRAF, 2001), changes in property rights on lands bordering rivers and inability of communities to fulfill basic water needs is in opposition to the current trend advocating for management of water as a human right (Derman & Hellum, 2002). The inability to fulfill basic needs is also a violation of the provisions of the Water Act of 2002, which recognizes the need for primary water for all individuals (Mumma, 2005).

### ***5.2 Ownership of the water system***

Community based management of water systems remains a challenge if the ownership of the system is disputed. Ownership of water system and the land on which the water system is located are significant issues influencing community management of water projects (Schouten and Moriarty, 2003). In Nyando basin, the settlement of land and grant of property rights influences the ownership and location of water systems as also the ability of the community to contribute to maintenance of water systems.

In the lower Nyando basin, ownership of water facilities established by an external agency (whether government department, donors or NGOs) is addressed through a process called as land easement. A land easement is necessary to ensure that the water project would be maintained by the water user group and also to secure access of all users to the water point. Typically, this process involves donation of land by an individual for the construction of a water project. A land easement form is signed to affect the transfer of land to the project, prior to the initiation of the water project.

Securing land easement is not an easy process, and can inhibit initiation of water projects at the community level. For instance, easement to secure passage of water pipes through private property is officially cumbersome, and although carried out customarily through verbal agreements is not secure (Onyango, Swallow and Meinzen-Dick, 2005). This difficulty to convince land owners to allow trenches to be dug on their farms emerged as a reason in study area that constrains the ability of community members to initiate piped water supplies. The assistant chief for one of the study villages explains this problem,

*“And also the line cannot be extended because people do not allow the pipes to pass through their land, so many houses cannot have [piped water] connection”.*

Even if land easement has been carried out in most externally aided projects, the study findings indicate that such easement is not binding. In two of the three externally aided shallow well projects included in the study, the major reasons for failure of the management process are related to the land owner staking claim to the well as his personal property. In local parlance this process is termed as “personalization”. Personalization occurs when the land owner starts to interfere in the management of the water user association and pockets the funds collected from water users. The assistant chief explains how personalization takes place,

*“Kenya-Netherlands in Kasaye Kolo is also not working. In Kasaye Kolo and Kowuor the wells have been personalized. Somebody donated the land, but land transfer did not take place. And the land owner realized that it is a good chance to make money and so refuses to share water from well. And after some time the NGO also goes away, and then there is no one in the village to remind the land owner that you donated the land. In such a case even the community does not chip in money to repair if it breaks down as they feel that it is somebody’s private well. They are willing to buy water at a shilling or two but not contribute money to repair. If the person is claiming to be the caretaker of the well, he eats the money and does not maintain the well. And this problem of personalization is very common. People think that this well is somebody’s property and if they contribute to maintaining the pump, what is the assurance that the person will not change and ensure access to water.”*



As evident from the statement above, personalization dilutes incentives for the management of the water facility by the community group, by discouraging users to contribute money towards repair and upkeep of the water point. In the event of a breakdown of the water facility, there are neither monies with the landowner to repair nor initiative among the community members to cooperate and mobilize maintenance costs. In two study villages, where shallow are defunct, there were no apparent efforts to break the deadlock between the community and land owner.

This dispute around well ownership is not easily resolved at the village level. In the absence of any documents to prove ownership, the members of water users associations find it difficult to contest the claims of the land owner. The assistant chiefs, who can mediate the conflict, too feel that in absence of any documentation of ownership it is difficult to address the problem.

Land separation comes up as an alternative to the land easement process. Land separation involves a change in the title of the land from private to public, and its registration under a different cadastral number. However, this process is cumbersome and requires more resources, so the communities may find it difficult to undertake it (Mumma, 2005). The staff at the Ministry of Water discusses the pros and cons of the process,

*“The community has to get it done through Ministry of Land, and the community is to call those people to come and measure that piece of land and give it a different parcel number. We tell the community to undergo this process. And sometimes the community is in a hurry and so they don’t do it and the water point is already constructed on that and they continue to use it. But if the problem comes up then they realize. But land separation is not a condition for a project to initiate. But if it is made a condition, it can take a lot of time. If the community is poor and they cannot raise money to pay for the fees of land separation. This makes people feel that it is unnecessary. When somebody consents for land they just assume that this person will not change. But say later that person dies and the heir to that land comes up, than the community may have no choice”.*

Another alternative to avoid the problem of personalization of water systems emerges from the study findings. This involves the establishment of water systems on land acquired from individuals through outright purchase rather than the prevalent system involving land donation. The land acquired through purchase can then be registered as public trust land. A public trust land is an open access area with everyone enjoying equal access to water sources located on it (Onyango, Swallow and Meinzen-Dick, 2005). The assistant chief in one of the study villages explains this alternative,

*“But if land could be purchased for the project the problems associated with personalization could be avoided. The size of land is very small, and in the whole sub-location only about 1 acre land is left for community purposes. And so people cannot donate the land”*

The fact that external agencies do not already choose such trust lands for establishing a project can be explained by the near absence of such land in Nyando, where most public trust land has already been alienated (Swallow, Onyango and Meinzen-Dick, 2003; Onyango, Swallow and Meinzen-Dick, 2005).

### ***5.3 Scale of resource***

Characteristics of the resource such as its size and scale affect the coordination capacity of users to manage it. The large scale and trans-boundary nature of resources such as rivers limits the extent to which they can be effectively managed by small community groups (Knox and Meinzen-Dick, 2001). In Nyando, water resources exist at various scales, those that can be effectively managed at the community level, such as boreholes and shallow wells, to the ones where joint-action among users from two neighboring communities is required, as in the case of water pans; to large scale resources such as rivers, which require coordination of activities of users across macro-

scales. The men from the village with a river express their inability to organize management of river,

*“Man 6: You see this is a public thing that everybody uses so we had never thought about it.*

*Man 2: Even when we try to manage from down here you will find that it's being polluted at the source.*

*Man 7: May I ask you madam; you are referring to this our river water that is flowing down? We have not thought of managing it because people take it as a public thing and anybody can use it the way they want.*

*Man 6: It is just somebody else's property that nobody can go and protect it and say that we don't want such a thing here.*

*Man 7: If you want to protect it where do you get the authority?”*

As the users of rivers are spread across spatial scales, there exist significant upstream-downstream linkages in their management. These linkages in river use not only constrain the availability of water for downstream users, but also limit the ability of spatially small communities to invest in their management (Ferguson, 2005). Several sugar factories located in the upstream of the river Nyando dump chemical residues into it that alter water quality and create externalities for downstream users. Pollution of the river by upstream users constrains the access of women and other marginal groups in the community who rely on river water for household needs (drinking, cooking, and washing). Deforestation in upper catchments causes the sedimentation and drying up of the springs in lower catchments, compromising the availability of water for downstream users. The staff of the Ministry of Agriculture discusses the implications of these upstream-downstream linkages for availability of water in downstream areas,

*“One, because we are in lower side, there is little protection in terms of water catchments especially where the springs originate. We had two springs down in west Nyakach near Harambe, but they are not functional anymore because of the interference with the upper catchments where deforestation has taken place and there is no in-filtration.”*

Although, the new Water Act provides for the establishment of catchment councils for management of water resources, these councils are not functional as of now. With no

formal institutional regulations governing the use and management of rivers, rivers are a classic case of an open access resource system and community members feel disempowered to establish and enforce rules for river management on their own accord. A woman participant from a focus group discussion highlights the plight of the river in her village,

*“Asawo is a river, everybody has a right to do anything and nobody will ever question that. For example, you can be fetching and somebody comes from any direction to wash her legs and then she goes, nobody bothers”*

The existence of cross-scale linkages in use of rivers does not provide incentives for users to undertake its management. This calls for cross-scale management of resources encompassing local and regional users. The experience of focal area committees under the Ministry of Agriculture and Rural Development in Nyando also shows that collective management for watershed management works best from village level up (Swallow, Garrity and van Noordwijk, 2002).

## **6. Conclusion**

The review of factors that constrain the ability of rural communities in the lower Nyando basin to undertake collective management of water resources raises several critical issues regarding the links between collective action and property rights around land and water. The resolution of these issues is critical to provide momentum to community based water management approaches, as envisaged under the new water policy.

Land and water resources in the Nyando basin exist under a variety of property arrangements. This multiplicity of authority systems governing the management of land dilutes incentives for community participation and management of water. This calls for a

role for government to integrate the formal and customary rights in drafting policies around management of water resources (Mumma, 2005).

Related to the issue of property rights is also the issue of ownership of community water projects in the study area. The ownership of externally aided water points is disputed and community projects have been captured by individuals (IRC, 1997). This is a major reason for the dissolution of community management. The dispute around ownership of water projects points to a role for government to promote procedures that vest ownership of water systems with a well-defined user group and ensuring that land is owned by this group. This would resolve the current ambiguity as regards ownership and present right incentives for management of community based projects.

Water being a basic human right and water provision for basic needs being recognized by the Water Act, ambiguous property rights riparian areas and water systems constitute privatization and result into the restrictions on the ability of vulnerable groups to access water (Derman & Hellum, 2002; Ferguson 2005). The issue of restricted access to rivers and disputed ownership need to be analyzed in terms of this wider trend towards privatization of land. The effect of privatization of riparian zones and water systems in villages has severe implications for the access of poor and marginal communities to water resources. This is important as new dimensions of vulnerability define communities in the study area. Nyando basin has the highest incidence of HIV/AIDS in Kenya (ICRAF, 2002). In Lower Nyakach, one of the administrative divisions of Nyando district and also an area covered under the present study, data in three Luo communities shows that there are only 57% of households having any resident adult males; 25% of the households are headed by widows and 6.4% of households are headed by orphaned children (ICRAF,

2001). Water and land policies need to integrate the concerns of these marginal groups as regards access to water resources into their formulation and implementation (Ferguson, 2005).

The scale and trans-boundary nature of resources such as rivers and water pans presents a challenge for effective management by small communities. In particular rivers in Nyando are important source of water. The study findings suggest that because of existence of significant upstream-downstream linkages in the use of rivers local user groups cannot effectively address the issue of management of resource problems that are not local in origin (Ferguson, 2005). This calls for a catchment or basin level approach to management. Although the Water Act of 2002 calls for the establishment of catchment councils, as of now, in the lower Nyando basin there exist no institutional arrangements that facilitate the interaction of users from across various scales in the watershed. Given that the Nyando basin is the prime contributor of sedimentation to Lake Victoria, and that catchment management has the potential to address degradation and poverty (Swallow, Onyango and Meinzen-Dick, 2003) the findings suggest the need to create platforms of users across scales in the catchment, to address management of rivers and streams.

## References

- Derman, B., A. Hellum, (2002). “Neither Tragedy Nor Enclosure: Are There Inherent Human Rights in Water Management in Zimbabwe’s Communal Lands?”, *The European Journal of Development Research*.
- Ferguson, A.(2005). Water Reform, Gender and HIV/AIDS: Perspectives from Malawi. In *Globalization, Water and Health: Resource Management in Times of Scarcity*. Eds. L. Whiteford and S. Whiteford. Santa Fe, NM: School of American Research.
- ICRAF. (2001). *Improved land management in the Lake Victoria basin: Annual Technical Report, July 2000 to June 2001, Working Paper 2001-4*.
- ICRAF. (2002). *Improved land management in the Lake Victoria basin: Annual Technical Report, July 2001 to June 2002, Working Paper 2002-2*.
- Knodel, J., W. Sittitrai, T. Brown. (1990). “Focus Group Discussions for Social Science Research: A Practical Guide with an Emphasis on the Topic of Aging”. Discussion Paper No. 90-3, Population Studies Center, University of Michigan.
- Knox, A. McCooloch, R. Meinzen-Dick (2001). Collective Action, Property Rights, And Devolution of Natural Resource Management: Exchange of Knowledge And Implications For Policy, CaPRi Working Paper No.11.
- Miles M. and A.M. Huberman. 1994. Data Management and Analysis Methods. In: *Handbook of Qualitative Research*. Thousand Oaks, Sage Publications.
- Mumma A, (2005). “Kenya’s New water law : an analysis of the implications for rural poor”. Paper presented at the International workshop on ‘African Water laws: Plural legislative Frameworks for Rural Water Management in Africa’, Gauteng, South Africa.
- Onyango L, B. Swallow, R. Meinzen-Dick, (2005). “Hydronomics and Terranomics in the Nyando basin of Western Kenya”. Paper presented at the International workshop on ‘African Water laws: Plural legislative Frameworks for Rural Water Management in Africa’, Gauteng, South Africa.
- Republic of Kenya. (2002). *Nyando District Development Plan, 2002-2008*.
- Republic of Kenya. (2001). *Nyando District PRSP, Consultation Report for the period 2001-2004*.
- Rubin, H.J., I.S. Rubin, ( 2005). *Qualitative Interviewing: The Art of Hearing Data*. (Second edition). Sage Publications, UK.

Schouten, T., P. Moriarty, (2003). *Community Water, Community Management, From System to Service in Rural Areas*, International Water and Sanitation centre, the Netherlands.

Swallow, B., D. Garrity, M. Van Noordwijk, (2002). “The effects of scales, flows and filters on property rights and collective action in water management”. *Water Policy* 3(6)

Swallow, B., L. Onyango, R. Meinzen-Dick, (2003). “Catchment Property rights and the case of Kenya’s Nyando Basin” Paper accepted for publication in the proceedings of the Africa Regional Workshop on Preparing the Next Generation of Watershed Management Programs, Co-hosted by Food and Agriculture Organization and World Agroforestry Center, 2003.

Swallow, B., L. Onyango, R. Meinzen-Dick, N. Holl, (2005). “Dynamics of Poverty, livelihoods and property rights in the Lower Nyando basin of Kenya”. Paper presented at the International workshop on ‘African Water laws: Plural legislative Frameworks for Rural Water Management in Africa’, Gauteng, South Africa.

Swallow, B. (2002). “Community poverty traps and water management in the Lake Victoria Basin”. Extended abstract.

WHO/UNICEF, (2000a). *Global Water Supply and Sanitation Assessment 2000 Report*

WHO/UNICEF, (2000b). *Water Supply and Sanitation Sector Report Year 2000, Africa Regional Assessment*