

## **Community Participation in Integrated Water Resource Management: The Case of the Lake Victoria Basin.**

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### **Abstract**

This article is considering the community participation approaches that are being developed by communities to enable them to be included in the management of water resources and to reach a higher level of integration in watershed resources management in the Lake Victoria Basin of Kenya. Watershed management in the Lake Victoria Basin primarily involves protection of water resources, conservation of the resources, and development of water resources. The integrated approach involves sustainable management of these resources for livelihood activities such as farming, papyrus harvesting, irrigation, pottery and brick making and general development while conserving the resources.

In the Lake Victoria Basin of Kenya, watersheds include multiple reservoir watersheds such as Lake Victoria, wetlands, hill reservoirs, rivers and wells. There are also watersheds formed from river floods and frequent damage to river causeways especially in the plain lands. Lake Victoria supports the livelihood of about 12 million Kenyans and about 30 million people in East and Central Africa. The lake is the single most common resource that influences the lifestyles of the people of the region. In Kenya, the transfer of research and technological innovations of watershed management to farmers and other resource users in the watersheds has remained a core component of the agricultural extension process. In the last three years new pieces of legislation have been developed and enacted by the Kenyan parliament resulting in the Water Act 2002, and a new water sector strategy has been developed.

The operationalisation process for this new water strategy is underway in the year 2005 and the new national water resource management strategy has been finalised in line with the Millennium Development

Goals and the governments' Economic Recovery for Wealth and Employment Creation Strategy (2003-2007). Kenya has identified a strong link between poverty and diminishing water resources. The water sector currently underperforms due to inadequate institutional infrastructure and the destruction and degradation of water resources and their catchment areas.

The author has been involved in Community Social Movements, which have been established in some river basins as forums, consultative arenas, water user associations and community water lobby groups. Other community institutions have been formed as development groups around specific water sheds or reservoirs. These community groups are expected to add value to stakeholder participation in decision making in water resource management, resource use planning and cost recovery for management and conservation.

Key words: Integrated water resource management, operationalisation of water resource management, water user associations, forums, reservoir watersheds, stakeholder participation, and resource-use-planning.

## **Introduction**

From early times in Kenya, watersheds have played an important role in sustaining the communities living around them through provision of water as resource for watering animals, irrigation, domestic use in cooking, cleaning of clothes, for making soil mortars in house construction both for mud houses and brick firing or cement block housing units.

Lake Victoria is the second largest fresh water lake in the world. Whereas it occupies Kenya, Uganda and Tanzania, the wider catchment area includes Rwanda and Burundi. It covers an area of 68,000km<sup>2</sup> and has a span of 400km North-South, and 240 km East-West. The depth varies from about 10m on the shores to 70m. The lake serves as a water reservoir for the region and for the Nile Basin.

The Lake Victoria Basin occupies 47,709km<sup>2</sup> in the western part of Kenya. This accounts for about 8.4% of the total land area of Kenya, that is, 569,137km<sup>2</sup> (GoK, 1987).

Table 1: The Population of the Lake Victoria Basin (*IUCN/NEJLV, 2002*).

	Kenya	Tanzania	Uganda	Burundi	Rwanda
Population living in lake basin (mio)	12	6	5	3	6
Equivalent of national population	40%	20%	20%	50%	80%

The population growth rate in the Lake Victoria Basin is about 3% per year and this makes it one of the fastest growing populations in the world. This population is expected to double every 25 years, leading to growing demand for food, water, land and other natural resources (Republic of Kenya, 2003).

The lake is a single major common resource in western Kenya that also influences lifestyles, culture and economic sustenance of the people in this region.

It provides fish, which is a major food and export commodity. Other notable resources are wetland vegetation, minerals, livestock (sheep, goats, cattle, donkeys, pigs, rabbits, and chicken), rivers, soils, trees and people (Ong'or, 2001). The daily lifestyles of the people are therefore embedded in their interaction with the local resources.

### **Watershed Management in Overview**

Watersheds have been described as a drainage basin of natural unit draining run offs of water to a common point (Singh, 1990). The smaller watersheds or mini watersheds can therefore be the central planning units of managing watersheds. According to Jaspers (2003), integrated water resources management is the management of surface and sub surface water in qualitative, quantitative and environmental sense from a multidisciplinary and participatory perspective. It focuses on the needs and requirements of the society at large with regard to water use for now and in the future and therefore aims at sustainability in all senses.

The concept of integrated watershed conservation and management in Kenya emanates from the relationships between nature, people and culture. It is based on the recognition that communities have over the years of interaction with the environment, developed valuable

knowledge and experience that makes them the best managers of the watersheds where they live. It is also recognized that conservation involves various actors with different and even conflicting interest for use and management of the watersheds and their environment.

Currently, people have lost their close relationship with the elements of nature from which they derive their support for survival (Achoka, 1987). This has led to the start of community management initiatives for watersheds as the provision of the people's basic needs is marred with uncertainty. It is on this premise that people's social movements in form of forums through an eco-cultural approach to resources management and utilization becomes a critical concept as it recognizes the fact that communities or groups of people devise their livelihood directly or indirectly from common pools of ecological and cultural resources within a predetermined and specified geographical area.

In the past, development and management for conservation interventions have concerned themselves with solutions of technical problems and with little attention given to social processes related to equity in participation, decision making and access to resources (Jaspers, 2003).

### **Water Resources Availability in the Lake Victoria Basin**

Water resources broadly include surface water, groundwater and all water based resources including fishery resources. Lake Victoria is endowed with both surface and ground water. The Kenyan side of Lake Victoria catchments, is drained by seven main rivers; Sio, Nzoia, Yala, Nyando, Kuja, Sondu and Mara. There are six other smaller rivers and some seasonal rivers. The surface waters are not evenly distributed and levels of community needs for water vary depending on income lifestyles. The highlands have many streams and springs, which are the main sources of water for human and livestock use. Rainfall in Nyanza averages 700mm along the Lake shore and up to 2000mm in the highlands (Okungu, 2002). Water resources in the Lake Victoria Basin for domestic use are mainly obtained from rivers, boreholes, shallow wells, and dams in gullies, springs and roof catchments during the rainy season (Mugo, 2004).

### **Access and Control of Watershed Resources**

In the Kenyan Lake Victoria region, there are equal chances for men and women to access the common watershed resources such as trees and shrubs, water, and land. However, there's generally very little control over the use of these resources by the women. Men are the custodians of the land title deeds and they make decisions in the fishing sector and in the use of tree bushes. Women have different roles and responsibilities in the use and management of the water resources. They only draw the water for domestic use and may cultivate the land (Gitobu, 2001).

In the lake region fishing is traditionally considered the responsibility of the men and the boys, and the males also control the use of trees. Various socio-cultural beliefs and taboos provide explanation and help maintain this situation. Women on the other hand, are traditionally responsible for the provision of food in their households and for a number of agricultural activities. They also play a major part in use of watershed resources such as fuel wood, papyrus for making mats, water for domestic use and sale of farm and fish products in local and distant markets. Despite this role the women are seldom recognized as important stakeholders and beneficiaries of the local resources management. This situation presents serious concern for equity in participation for management and benefit from watersheds for the sustainability of fishery and agricultural industry.

### **Water Resource Management in Kenya**

Kenya is classified as a chronically water scarce country with a freshwater endowment of only 647m<sup>3</sup> per capita. This per capita is expected to decline if the resource base continues to diminish (GoK, 2003). A number of reasons have been advanced for the diminish of water in Kenya and these include the increase in population, increased use of woody plants and trees as fuel wood for cooking, water resources degradation, vulnerability to rainfall variability, droughts and endemic flood that occur frequently.

Before the year 2002 there was a single water body doing both resource management and water services provision. The institutional arrangement was based on administrative boundaries. In order to ensure availability of adequate water resources, the Water Act 2002,

as well as the Integrated Water Resource Management Strategy propose institutional reforms that separate water resources management functions from water services functions. It recognizes the role of water users in the management of water resources at the micro-catchments level. A national water management authority has been established in order to manage water resources in the country. In addition seven regional water catchment boards have been established. These include:

Lake Victoria Basin North Water Resource Management Authority,  
Lake Victoria Basin South Water Management Authority,  
Ewaso Ngiro North Basin,  
Ewaso Ngiro South Basin,  
Tana River Basin Water Resource Management Authority,  
Rift Valley Inland Basin,  
And Athi River Basin.

It is therefore evident that the Water act 2002 has led to the separation of institutional service, the decentralisation of roles and responsibilities while laying emphasis on the participation of communities in resource management. An integrated approach in water resource management using the catchments approach has been developed as evidenced in the formation of the basin authorities. The economic recognition of the value of water is noted. The act also spells out the need for the formation of water user associations within water resource or reservoir areas that shall be responsible for mobilising communities in water resource management. They are voluntary associations or forums for cooperating with government systems in enforcing legislation and delivery of services. Since they are forums, they may not be registered. They are a mechanism of providing space for people to discuss and exchange ideas on how to manage their local water resources. The water user associations organize themselves to manage their local resources with which they interact by agreeing on appropriate regulations. Water user associations have common interests such as living near an irrigation scheme, living near water wells or rivers etc.

### **Wetland Resources Ownership and Rights**

Wetlands are one of the common water resources in the area. Use patterns of wetlands have changed over the years. The wetlands in Lake Victoria in Kenya, especially in Busia and Nyando districts, have been used to get sand, clay, papyrus, and water for grazing and for the provision of grass for thatching houses, which made them important watersheds with a cultural attachment. They are also used to supply fuel wood, herbs, hunting (home for water wildlife) and as wetland fisheries. Traditional uses included sustainable under low population densities and had self-regulatory systems (Hongo, 2001).

Wetlands have remained communal resource areas for the communities in the immediate surrounding. No single person traditionally claimed the ownership of a wetland. The immediate community used it to get services such as communal grazing of livestock during dry season. They also provided grass for thatching houses. Different people had to agree on how to use the wetland resources while women used them for services such as fetching water, small scale fishing using traditional fishing equipment. They also used it as a source of papyrus (*Cyperus papyrus*), which they dried and used to make mats. This use pattern of wetlands has increasingly gained importance as the demand for mats rises.

### **Community Participation**

The community participation in watershed management in the Lake Victoria Basin has been stimulated by the realization by the community that they are the *primary stakeholders* in the watersheds where they live. A number of stakeholders can be identified in a watershed. These can be classified as the primary stakeholders who live, own land and use the watershed resources. These are the community and governmental bodies. There are also the *secondary stakeholders* who are the people who trade with watershed resource owners and obtain commodities such as fish, food products and rice from the watershed. Then there are *tertiary stakeholders* who include those who live in distant places and receive resources produced from the watersheds such as water consumers in towns, importers of timber products, foods, etc. The recognition of all these categories of stakeholders is useful in the process of watershed management.

The participation of stakeholders in decision making processes and therefore governance of water resources is a critical strategy in ensuring the sustainability of watersheds in the provision of resources. It can also help in the operationalisation process of the new water sector strategy by governments.

#### *What Does Community Participation Involve?*

Community participation involves holding discussions and open forums between community members themselves and with government authorities or non governmental organizations involved in advocacy so as to contribute ideas for inclusion in policy development and change in operation strategy. They help achieve the implementation of management, making decisions on how to use the available water resources, transfer of relevant management technologies and dissemination of information. The process of community consultation helps in the planning process and may take different approaches, for example, Participatory Rural Appraisal, Participatory Livelihood Assessment or a wider approach through village or area development. The consultation should develop mechanisms of monitoring agreed undertakings and their enforcement.

#### *Forms of Social Movements*

The social movements in Lake Victoria Basin are currently being formed. These include mini catchment forums formed within sections of river basins. A good example is the Nyakach Elders' Forum involved in the management and regulation of the use of Sondu- Miriu water and to lobby for reasonable use, management and compensation of communities affected by the Sondu- Miriu hydro electric power project. The Okana-Mbega Swamp Development Group is an example of a water user body that was formed as the water sector reform was underway to help manage the waters within Okana-Mbega Swamp in Nyando District. Other social movements are the lake wide network of beach management units for restoration of beaches and fish breeding grounds as well as fisheries issues among fisher people and the Fisher People's Forum. The objective of their formation is the protection of certain resources such as fisheries and land that are basic components of local watersheds.



## **Experiences of Community Participation in Watershed Conservation Initiatives in Lake Victoria Region**

The changing lifestyles and income resources of the people of Lake Victoria, has resulted into a situation where individuals take personal initiatives to conserve their environment. As the individual or group resource users, people have realized the importance of sustainable resource use for a contained livelihood.

The pertinent issues and conflicts in development and conservation of watersheds in Lake Victoria Basin;

- The incorporation or mainstreaming and gender analysis as a basis for planning and implementation. This should be done in a participatory way so as to raise the awareness of the communities and development workers. This also involves gender awareness training for conservation purposes.
- Unsustainable use of natural resources such as land, water, and trees due to lack of awareness leading to massive degradation of the ecosystem.
- Individual conflicts on the importance of watershed as resource and need for better management.
- Absence of effective community formulated by-laws to govern watershed management due to collapse of traditional administrative structures.
- HIV/AIDS menace leads to degradation of the watershed environment through over fishing, overgrazing, overstocking, and excessive tree cutting that lead to fuel wood poverty.
- Recurrent disasters such as flooding in lower areas, which destroy crops within lower watersheds and force people to rely on famine relief food and lack of shelter.
- Inadequate availability of livestock feeds, especially during the dry season, leads to over use of wetlands ecosystems for grazing.
- Lack of awareness by the community on the alternative potentials of the lake resources for income activities such as sport fishing, irrigation and transport that can help relieve stress on watershed resources.

- The Nile Treaty that has prohibited the use of Lake Victoria water for irrigation by Kenyan communities.
- Severe soil erosion leading to siltation of Lake Victoria. This is also related to poor farming practices and the excessive use of chemicals in agricultural production in upper watersheds and lower areas.
- Inadequate community education on conservation and development. Such includes people's rights to their resources and role of conservation and eco-tourism in local income generation.
- Lack of innovative research approaches on community problems that involve collaboration between universities/research institutes, communities and Civil Society Organisations.

#### Opportunities

- The resources of the Lake Victoria with many species of fish presents an opportunity for development as the eating culture of surrounding community relishes fish eating.
- Large population of the region presents a potential market for processed resources of fish origin, wetland and other watershed or water reservoir products etc.
- Increased education opportunities open the way for gender mainstreaming in community development and for increased participation by women in watershed management.
- The promotion of appropriate watershed management technologies through the use of ICTS in soil erosion control; better land husbandry and land use technologies, as well as fertile soils, that are agriculturally productive.
- The windy and sunny conditions in the lake region present a potential for the exploitation of renewable energy resources such as wind and solar energy for lighting and cooking so as to reduce stress on watershed trees for use as fuel wood.

### Challenges

- The challenges are to protect, conserve and improve the land resources for efficient and sustained production in the basin.
- To protect and enhance water resources for domestic and industrial use within towns, moderate the floods and reduce salinisation of rivers and water reservoirs and to increase irrigation, conserve crops, mitigate droughts and protect fish breeding grounds.
- To utilize natural local resources for improving agriculture and rural cottage industries so as to improve socio-economic conditions of the local residents.

### **Conclusion**

It is important that integrated watershed management should aim at minimizing the deterioration of ecosystems and improve productivity through the participation of local residents. It should aim at reducing the silt production rate and subsequent siltation of Lake Victoria that affects fish breeding sites. The management program and process should develop technologies for increasing crop, fruit tree, forage, fuel wood and timber yields within the watersheds. The management planning should include on area development for restoration of ecological balance and optimum utilization of land, water, vegetation, livestock and human resources. Community participation in all these processes would ensure that there is continuity in the governance structure of these watersheds for sustainable productivity. In the flood prone Nyando and Kisumu Districts, integrated watershed management should focus on efforts to mitigate flood hazards, improve productivity of the catchment area and the watershed.

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