

Challenges and Lessons Learnt on Community Based Wetland Management

Raburu P.O., Kwena F. and Nyandiga, C.O.


Summary

Wetland conservation is a young science and its management largely depends on adaptive management approaches. Challenges and lessons learnt in a community based management of Nyando Wetland therefore form one of the most important outcomes of the Nyando Wetland Resource Utility Optimization Project. This chapter gives a comprehensive breakdown of the challenges faced as market failures, lack of institutional framework, policy failures, lack of baseline information and awareness among stakeholders, and unclear land tenure and ownership within wetland ecosystems. Other challenges include inadequate funding of wetland conservation initiatives, inadequate community participation, variability of climatic conditions, lack of political goodwill and lack of wetland management plans to guide towards wise use of wetlands. Several lessons were learnt in this initiative which could guide future interventions in the basin. These include taking care to ensure participatory approaches and mainstreaming of gender in order to reduce resource use conflicts, and careful selection of alternative livelihood activities. Others include designing project activities with complete knowledge of the attitude of the community towards the resource in question and the level of literacy of the stakeholders. Leadership skills of the community and their leaders and coping with Climate Change must also be manipulated to ensure attainment of conservation goals. It is also important to share information, identify all stakeholders and form partnerships for collective success.

8.0 Introduction

Wetland loss and degradation has been a persistent problem in many parts around the world because of population growth, which imposes great pressure on water resources and undeveloped land areas for settlements, higher agricultural and industrial production and infrastructure expansion (IUCN, 1999). More fundamentally, wetlands are lost or degraded because their products, functions and attributes are not adequately appreciated or valued by human institutions and policies. The unsustainable utilization of wetland resources can be considered to result from a combination of information failures, market and policy failures or intervention failures and other socioeconomic considerations.

Wetland conservation and management is a new/emerging science as opposed to other disciplines such as forestry or wildlife management which have been around for a long time. Management approaches used are therefore adaptive and experimental in nature as there are minimal well established methodologies which can be used as a reference point. Management should therefore be



able to identify interventions which are both productive and environmentally sustainable. Lessons learnt from the Nyando Wetland Resource Utility Optimization Project are therefore crucial in guiding the management of other wetland ecosystems within the region in a sustainable way.

Nyando is the second largest deltaic river mouth wetlands on the shores of Lake Victoria along with Yala, Kuja, Dunga, Osodo and Bunyala. These wetlands are critical to the livelihoods of riparian communities and ecological wellbeing of Lake Victoria. This is because they act as bio-filters of pollutants coming from upstream of the major rivers which drain areas with high agro-industrial activities into the lake through these ecosystems.

8.1 Challenges to Community Based Wetland Management

8.1.1 Market failures

The level of awareness among communities living within and around Nyando Wetland on the ecological and economic importance of the wetland is limited. People have not appreciated the value of wetland resources except for the limited consumptive use of some of the wetland resources. Little, if any, of the ecological values are considered important by the local inhabitants while in fact their livelihoods depend entirely on sustenance of these values. This lack of awareness among community members often generates negative tendencies that put the well-being of the wetland at risk; for instance dumping of wastes, draining and land clearing for grazing and agriculture, burning and overexploitation of wetland resources. As a form of market failure, there is no mechanism to attribute appropriate values to the 'public goods' provided by wetlands, ranging from water supply to flood protection, water recharge and purification functions and non-use values such as biodiversity conservation' (IUCN, 1999). There is, therefore, a need to market wetland resources and place a price of their utilization to discourage overexploitation and abuse, including the polluter pays principle and payment for ecosystem services.

8.1.2 Lack of appropriate Institutional Framework

Currently, the government of Kenya does not have a ratified and legally binding institutional framework for management of wetland ecosystems. Different aspects of wetland conservation and management are currently handled by different government agencies and departments such as Kenya Wildlife Service, Ministry of Fisheries, Water Resources Management Authority; Ministry of Agriculture, National Environment Management Authority (NEMA), city and town councils, local authorities and communities without a clear legal framework. The Environment Management and Coordination Act (EMCA, 1999) provides for the conservation and management of wetlands while NEMA only coordinates as the principal custodian of the environment. With their various mandates and priorities, the different government agencies and departments often clash in their attempts to use, protect and restore degraded wetland areas. Devolution of power to the counties presents fresh challenges to wetland management in Kenya. There is therefore an urgent need to harmonize the different roles played by different departments and agencies and place them under one national body charged with the protection of wetlands and related resources. These fragile ecosystems will also benefit greatly if the newly established counties comes up with appropriate co-management approaches as soon as possible.

8.1.3 Policy failures

Lack of and poor enforcement of policies on wetland management is one of the major challenges facing community based conservation of wetland ecosystems. Whereas there are appropriate regulations, poor institutional structures have made it very difficult to enforce the relevant policies. Another form of policy failure is insufficient information presented in a format that is easy to understand and readily accessible to all wetlands stakeholders including the policy makers, managers, planners and resource users. When available, the information is scattered among several institutions and is not easy to access, understand or interpret by most of the stakeholders. Worse still, different government ministries/ departments in charge of managing wetland related resources have conflicting provisions on the same, causing confusion among the stakeholders thus aggravating the degradation.

8.1.4 Lack of awareness / Baseline Information

Baseline information is very important if we are to come up with a comprehensive sustainable management protocol to save wetland ecosystems. Currently, there is inadequate baseline information on existing wetland resources, including the bio-physical characteristics as well as the socioeconomic and cultural values of the resources together with the threats that affect them. No comprehensive inventories have been conducted for many wetlands, in the Lake Victoria Basin and other wetlands in Kenya. Similarly there is inadequate technical and skilled human resources to undertake specialized conservation and management programmes i.e. research, monitoring, integrated coastal zone planning, EIA/EA and extension work to monitor and manage the existing wetlands and their resources.

There is also a disconnect between the law meant to govern relations among people and the science that is intended to protect ecological processes and functioning of the wetlands. Another major gap also exists between the wetland resource managers and indigenous knowledge from the riparian communities. In most cases, laws that are meant to govern how people live together are co-opted to protect the environment with their inherent lack of the scientific aspects that can foster the well-being of a wetland's ecological processes and functions.

Long term conservation of wetland resources will benefit greatly from promoting positive attitudes among the entire populace. The use of riparian school children proved to be very effective in increasing the awareness of the pupils themselves and local community in Nyando Wetland. The challenge however is that wetland conservation is not incorporated in the school curriculum. This is a major challenge as school curricula are developed at the national level with different areas being endowed with different natural resources. However, something needs to be done to take care of the specific aspects of each area which may be possible with the advent of the county governments.

From the foregoing, equipping the local communities with the right knowledge and skills to participate in wetlands conservation and management would go a long way in minimizing this challenge. Whereas the current constitution of Kenya gives this provision for stakeholder participation, no appropriate methodologies have been developed. There is therefore a need to come up with participatory approaches which will catalyze active involvement of resource managers, professionals and all citizens.



8.1.5 Land tenure and ownership

Land tenure and ownership in wetland areas is not clear, thus compromising the success of community based wetland management initiatives. The communities living in these areas need a firm guidance to enable them chart appropriate management measures. According to a socioeconomic survey conducted during the Nyando Wetland Resource Utility Optimization Project, 65.3% of the respondents indicated that wetland is owned by local communities while 34.7% showed that the wetland is owned by the government. However, the nature of this ownership is not clear as some parcels of land allocated to individuals within the wetland areas by the Ministry of Lands fall under areas which should legally be protected. Some claims on parcels of land in the wetlands are sometimes also based on ancestral inheritance, and have been a source of continuous human-human conflicts. Communities living within the Nyando and other wetlands in the country have a problem with regard to land tenure. These uncertainties exacerbate destruction of wetland ecosystems. This is particularly so whenever the lake water level recedes, thus exposing it to degradation forces.

8.1.6 Inadequate funding for wetland conservation and management

Most institutions and organizations participating in conservation of wetlands often do not have adequate skilled manpower, equipment and funds to carry out their work. This includes personnel for monitoring, management, research and community awareness. The government of Kenya has in the past decades allocated minimal funds in the conservation and management of wetland ecosystems. To a great extent, therefore, most of the wetland conservation in the Lake Victoria Basin has been spearheaded by local and international NGOs and through regional projects. This has presented a challenge in light of the massive destruction of these ecosystems, particularly those in unprotected areas.

8.1.7 Inadequate community participation

As partners in the management and protection of national resources, communities have for long not been actively involved, a situation that is now changing, courtesy of Kenya's new 2010 Constitution that recognizes the rights of indigenous communities. Moreover, lack of community involvement has often been a source of resentment, with many communities abandoning their traditionally sustainable wetland use practices in favour of destructive ones as a form of protesting their exclusion. Environmental agencies have also not succeeded in their efforts to educate all the local communities on attitude change in favour of sustainable practices within wetlands and related water catchment areas. Eviction of people and communities from conservation areas has been a thorny issue in the country due to inadequate awareness creation before such actions are taken. Finding the right balance between conservation and sustainable utilization of natural resources in the face of increased demands for natural resources remains a challenge in the conservation of wetlands and other natural resources.

8.1.8 Lack of Wetland Management Plans

Lack of management plans has exacerbated wetland destruction and degradation in many areas around the country. Livelihoods and human developments depend on a number of factors including access to information about the rights and entitlements, the way the communities cope with risks and uncertainties and how they use their resources. There is therefore a need to strengthen processes that incorporate development of participatory management plans as a blue print in the management of wetlands by integrating environmental concerns into development planning while at the same time enhancing sustainability (NEMA, 2004). As a first step, the Management Plan for the Nyando Wetland will need to build on the existing community initiatives.

8.1.9 Political goodwill

Politicians normally enjoy the support of the local communities and as such whatever position they take as concerns natural resource management is very important. Unfortunately, their position are in most cases guided by maximizing the number of votes in the next elections rather than best conservation practices even if they have the right information. In some instances the election of community project management committees can be influenced by alignments to the local politicians. If not well managed, this may introduce mediocrity and compromise the choice of competent persons with proven leadership qualities which might lead to failure of community based wetland conservation initiatives.

Politicians in the region have also introduced another negative aspect of dishing “handouts” to their supporters. This has spread over to other activities including conservation efforts where some members of the community believe that they must be “bribed” to participate fully in any activity. This needs to be addressed very early in a community based wetland management project by inculcating the right attitude if meaningful success is to be achieved.

8.1.10 Variability of climatic conditions

The Nyando Wetland is situated in an area which experience extremes in climatic conditions with perennial flooding during the rainy and drought during the dry seasons. This had various impacts on the management of Nyando Wetland by the community. The most obvious ones include massive degradation during drought when all the livestock of the riparian communities are driven to the wetland for grazing, reclamation of wetland for agricultural purposes, overharvesting wetland plants for construction of houses and making of fishing gears, destruction of fish spawning and breeding grounds through destructive fishing techniques and burning of wetlands for various purposes among others. Apart from degrading the wetland, these activities increase the number of resource use conflicts among the stakeholders (Obiero *et. al.*, 2012).

Floods in Nyando are a blessing in disguise to the conservation of the wetland. During the rainy seasons, everybody is normally forcefully thrown out of the wetland, making it the best time for these ecosystems to recover from anthropogenic stress during the dry seasons. However, flooding events paralyze the community livelihood activities as all their investments normally go down the drain. During the KDC-VIRED-UNDP Nyando Wetland Resource Utility Optimization Project, some of the alternative livelihood activities like horticulture suffered a great deal from flooding events, making the activity unsustainable. It would therefore be important to design appropriate adaptation and mitigation measures to minimize the impact of unpredictable climatic changes.



8.2 Lessons Learnt

The discussion below summarizes some of the key lessons learnt during the few years of community based management of Nyando Wetland.

8.2.1 Literacy level of the stakeholders

Wetland conservation is a new and emerging science with several unfamiliar terminologies and concepts which must be well understood to ensure wise use of wetland ecosystems. Conserving these ecosystems therefore requires above average understanding of their ecological interactions with both water and the terrestrial environments. The new terminologies notwithstanding, the riparian communities who have lived in these areas from time immemorial also have a wealth of indigenous knowledge which needs to be harnessed. During the Nyando Wetland Resource Utility Optimization Project it was learnt that the literacy level of the local communities had minimal effect on the overall achievement of project activities.

The success of any intervention lies in the participatory approaches used in the mobilization and implementation of the activities. In the current intervention, before any engagements was made with the community members, a Participatory Rural Appraisal (PRA) was carried out which provided a suitable entry point. The development of awareness creation and capacity building packages was informed by the findings from the PRA exercise. Thirdly, the participation of all stakeholders was catalyzed by the use of appropriate language and methodologies. When all the above are taken care of then it is easy to achieve success in the interventions irrespective of the literacy levels of the riparian community. However, for long term benefits to the country, it would be most appropriate to include wetland conservation in the school curricula, right from primary school to the university level. During the life of the intervention, greater and faster achievements were made by the schools component of the project as compared to the local community. It would therefore be important to elicit the full participation of the riparian schools in a community based wetland management initiative.

8.2.2 Attitude of the riparian community

Historically, the Nyando basin has suffered perennial floods which normally affect the livelihood investments of the riparian community. During such times, the community has always benefited from relief food and other goods donated as humanitarian aid from the government and other nongovernmental organizations. This has made some members of the community to believe that any aid should be given as handouts in the form of cash. The project area also happens to be a hotspot that attracts many interventions by different organizations, with different approaches in mobilizing the community members, approaches that may include cash handouts. The situation has recently been worsened by politicians who buy the electorate to achieve their political ambitions, something known locally as the “*gonyia*” syndrome. These, together with the fishing industry and the large labour force occasionally needed in the rice irrigation scheme, has turned the local community to be accustomed to very quick financial gains. This attitude affected community participation in the project as most of them enrolled as members expecting quick financial rewards only to withdraw on realizing that the intervention was advocating for their active participation.

8.2.3 Introduction of Alternative Livelihood options

Where community members are poor, it is imperative that an alternative livelihood be incorporated to help achieve conservation goals. The concept which was introduced by the project went a long way in sustaining a reasonable number of community members. It has also addressed the issue of sustainability of the activities beyond the project life span. Other lessons learnt were that alternative livelihood activities, though a great idea in helping to divert attention off the stressed wetland resources, can also be abused if not implemented with emphasis on the conservation agenda.


For alternative livelihood options to be successful and sustainable, it is imperative to link communities to markets. One way the intervention achieved this was by setting up marketing centres or outlets for the wetland products in strategic areas such as Rabuor, Kibuye and Ahero. Structures were also put in place to plough the money back to the community. With such direct access to markets, “middle men” are cut off and the communities make more money from their produce.

The intervention also facilitated the setting up of a community Marketing Federation. The process involved the training of the communities in entrepreneurship, leadership, resource mobilization, proposal writing and development of business plans. They were also taught sustainable ways of exploiting wetland resources, making quality products, packaging and branding that resulted in higher value products. Other opportunities offered for marketing the wetland products were done through displays during the World Wetlands Days, World Water Days and the annual agricultural shows. To authenticate some of the products, the Nyando Wetland honey was certified by the Kenya Bureau of Standards, substantially increasing its demand. The project worked with the honey producing communities to increase the production to cope with the demand.

Organic production of horticultural crops was successful in terrestrial areas around the wetlands where most schools are found. The potential is higher in areas riparian to the wetland due to the fertile soils. However, pests and diseases destroy the crops, making the production minimal without the use of pesticides. Poultry production by the community members was initially based on the broilers which are labour intensive. They fetched higher prices but since they used commercial feeds, production costs were high. The community members had to shift to free range local chicken which eat less and are more resistant to diseases. These free range local breeds were preferred due to their better taste as well as the quality of eggs they produce. The free range chicken can be kept long after maturity for egg production while broilers have no more value once they are big enough for meat yet they continued to demand feeding and care.

8.2.4 Level of awareness of stakeholders

Level of awareness among stakeholders is very crucial in achieving set objectives in a community based wetland conservation initiative. The project used different approaches in creating awareness. It was clear at the beginning of the project that all the stakeholders from local communities to those at policy level were not aware of different aspects of wetland conservation and management. Different approaches proved to be successful for some stakeholders than others. Government officials for instance, benefited most from seminars and national celebrations. In schools, awareness creation through competitive activities such as drama, choral verses, songs and essay writing were very successful. The teachers who were the backbone of the schools programme benefited most from workshops with a focused message. Teachers proved to be the best group to work with as they were able to grasp issues very quickly and translate them to action which would be seen immediately in the participation of their pupils on stage. As concerns the local community, radio programmes, ‘barazas’



and wetlands day celebrations proved to be the most popular approaches. From the foregoing, it is important when planning to create awareness among a cross section of stakeholders to identify which approach will give the best output.

8.2.5 Coping with Climate Change

The single most problematic issue that affected both the wetland conservation and the success of alternative livelihoods in the project was variability in climatic conditions in the Nyando. The resilience of the livelihoods of the poor and the resource base upon which they depend must be improved in response to current and future climate variability. As such, means must be sought to ensure the transition from coping with shocks towards more adaptive resilient systems that can confront future climate extremes.

Most of the alternative livelihood activities such as horticulture introduced in the project failed to pick up due to the variability in weather conditions. The ones that passed the test include apiculture, papyrus based wetland products, planting of bamboo, mulberry trees and fish farming. To mitigate the variability of extreme weather conditions, the World Vision funded some of these communities to start green house farming for horticultural products.

Flooding necessitated putting beehives at a level that would not be reached by water during floods; by putting them on higher ground --on trees or erected platforms. This was done by assessing the farthest points beyond which none of the major rivers could route themselves. It was however discovered that on some high ground, the bees migrated during the dry season in search of water. It is important to make water retention ponds near the beehives that would retain the water when the floods recede.

8.2.6 Leadership/Governance of Wetland resources

Leadership and overall governance in natural resource management is very important for any conservation initiative to achieve the desired goal. The project devolved the leadership of group activities to the local communities with the local leaders such as the Chiefs acting as patrons. Apart from group activities, the overall decision making organ to oversee all the conservation of the entire wetland ecosystem was lacking. It was learnt that despite some community members having parcel numbers of land within the wetland, an oversight authority was lacking. This role was neither played by the government nor the community, thus compromising the management of sites set aside for rehabilitation.

Political leaders in the area were not seriously involved in the management of natural resources in the region. However, the provincial administration played a very important role in coordination and conflict resolution in some critical project activities. It is therefore advisable to actively involve the local administration in all project activities. To improve the governance issues, the project came up with a participatory wetland management plan which also needed to be anchored onto some institutional framework that would foresee its implementation. NEMA coordinates all environment initiatives. However, there is need for the formation of an independent government agency with the mandate to coordinate, supervise and oversee wetland conservation activities.

To reduce the opportunity for any official to take advantage of the group members by selling the produce and keeping the money to himself or herself, it was agreed that the sale of any of the community products would be done by more than one person and that the leadership of the community wetland management groups would rotate periodically.

8.2.7 Gender issues

Equitable involvement of all gender is critical in conservation of wetland resources for it was learnt that different gender makes use of different wetland resources at different times and purposes. However, women were the majority in conservation and marketing activities, with men and the youth always being underrepresented. This overburdened the women whose daily itinerary was already crowded. Future community based wetland management should seek ways of improving the involvement of men and the youth to actively participate in conservation activities.

8.2.8 Participatory approaches

Whereas participatory approaches are the best with popular activities for members of the community, it was learnt that other intervening factors should also be taken into account. For instance, horticultural production came up as the most popular alternative livelihood activity which was addressing food insecurity among all the community groups. However, due to the erratic weather conditions in this area (which included drought and flooding as well as pests and diseases) the activity proved to be unsustainable. Participatory approaches are however very important as they lead to an all inclusive broad based involvement with all the stakeholders knowing and being part of what is being implemented, thus creating a strong sense of ownership.

8.2.9 Conflicts in wetland resource use

It was learnt that there are many types of conflicts that arise from the utilization of wetland resources by different stakeholders in the Nyando Wetland. These conflicts were worsened by erratic weather conditions, particularly during droughts when the level of degradation and number of conflicts escalated. These conflicts also affected the food security situation of the area, thus triggering further degradation. Coping mechanisms should be designed to mitigate negative impacts of resource use conflicts.

8.2.10 Policy issues

To date, Kenya does not have a national wetland policy. This is a major drawback to wetland conservation and management, particularly for those wetlands outside protected areas. Even when a provision exists, such as the ones on regulations governing wetlands, riverbanks, lakeshores and seashores, the mechanisms for enforcement at the community level is very poor. Sectoral conflicts still exist that undermine implementation of such key issues like delineation and protection of the buffer/ riparian zones in both lacustrine and riverine wetlands. This situation is worsened by the allocation of land ownership rights to individuals by the ministry of lands in fragile wetland ecosystems without consultation with other key ministries such as Water, Fisheries and Environment. For instance, when Lake Victoria receded, it was extremely difficult to stop further destruction of the wetland due to contradictions on the boundary of the buffer zone from different sectors of the government. Something must be done urgently to mainstream relevant policies at all levels through co-management approach if the remaining stressed wetland resources are to be saved. From the foregoing, the project mobilized the community to come up with their own bylaws to protect their wetland.



8.2.11 Fatigue by the community

A number of interest groups had been conducting research activities in Nyando Wetland over time, with most of them seeking the same information from the local communities. With time, the communities became fatigued, some becoming uncooperative with researchers. However, the project benefited from the good rapport with the community over time. Nonetheless, it is important to note that fatigue may result in researchers collecting unreliable data, thus making inaccurate decisions in a community based wetland management initiative.

8.2.12 Partnerships and collaborative activities

The project benefited greatly from working with different institutions, considering that the project offered opportunities for researchers, students and managers to come and learn about community based wetland management. In the life of the project, several students from institutions of higher learning, both nationally and internationally, were attached to the project as part of their professional training.

8.2.13 Communication and information sharing

There is also a need to come up with a formal communication strategy in a community based wetland management initiative. Some of the representatives of the community groups who attended meetings/trainings, for example, were unable to pass the information when they went back home. Documentation and sharing of data collected is important so that other interested parties do not go back to the communities for the same information.

In the life of the project, several need-driven research activities were carried out which proved useful in informing the interventions that were implemented. This approach can be replicated in other community based wetlands management initiatives as a best practice. Where it is not possible to do both, there should be a link between the implementers of the wetland community based management with institutions of research or higher learning to provide the much needed information. Regular dialogue between scientists and policy makers to inform and guide policy regarding wetland management is also crucial. From the foregoing, it is important to establish a resource centre having all the data regarding the particular wetland and link it with the national wetlands database.

References

IUCN (1999). *Wetlands, Water and the Law; Using law to advance wetland conservation and wise use*. Environmental Policy and Law Paper No. 38. IUCN Environmental Law Centre.

EMCA (1999). National Environment Management Authority, Nairobi, Kenya

NEMA 2004.

Obiero K. O., Raburu. P. O., Okeyo-Owuor J. B. and Raburu E. (2012). Community Perceptions on the Impact of the Recession of Lake Victoria Waters on Nyando Wetland. *Scientific Research and Essays* Vol. 7(16), pp. 1647-1661