

Full Length Research Paper

Sustainable wetland resource utilization of Sango Bay through Eco-tourism development

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Defining and achieving sustainable development is a major issue for policy debates both in the developed and developing countries. Eco-tourism as an important niche market in the world tourism industry has been embraced by developing countries like Uganda, which are trying to use tourism as an engine of national development. It embraces environmental conservation, maintenance of biodiversity, a satisfying experience for the visitors, study and appreciation of nature and sustainable community development. Eco-tourism development is expected to achieve three major goals (3P) namely: Profits (economic), People (Social cultural benefits to communities and tourists) and Place (biodiversity conservation). Based on a research conducted in Sango Bay wetland of Rakai district in Uganda, this paper evaluates the socio-economic benefits of consumptive utilization practices of wetland resources, the recreation and Eco-tourism potential of the wetland, its sustainability and contribution to poverty reduction among the surrounding communities. Secondary data from diverse sources was used to complement primary data collected through Focus Group Discussions (FGD) questionnaires and Participatory Rural Appraisal techniques. The results indicate dominance of consumptive resource utilization practices and the failure to reduce poverty levels. The eco-system is rich in flora and fauna which are important for eco-tourism development. Potential eco-tourism projects, which can be introduced in the wetland for sustainable resource utilization and poverty reduction, are proposed.

Key words: Ecotourism, sustainable tourism development, poverty reduction.

INTRODUCTION

Uganda is emphasizing tourism development in the National Development Plan and it accounts for 7.5% of the Gross Domestic Product (GDP) and 64.1% (US\$449m) of the service export earnings making it the leading export earner for the country (UBOS, 2007). Because of this importance, natural resources including wetlands are being conserved for tourism development. Wetlands are no longer wastelands as they constitute complex ecological zones with a diversity of flora and fauna and act as natural sieves for storm and drainage water. They provide direct income opportunities for rural people and indirect benefits in form of environmental goods and services that improve the quality of living conditions of the rural population through water storage, purification and flood control. When harnessed correctly all these benefits go towards improvements in human development (Mohapatra, 2008; Jones, 2007; Zuo et al., 2004; Adair, 2001).

Wetlands in the Lake Victoria region are experiencing

rapid degradation and are, currently, considered to be some of the most threatened ecosystems in the world. Due to rapid increase in human population, high levels of poverty and unemployment, increasing numbers of marginalized people are moving and settling in fragile wetland areas, adjacent to river banks and waterbeds, in search of new means of livelihood. Consequently, wetland resources are increasingly being degraded through various consumptive uses including agricultural production, sand and clay extraction, pit sawing and papyrus harvesting.

This paper is a result of a study that was conceived on the realization that there is urgent need for alternative wetland resource utilization and management strategies through the propagation and promotion of ecotourism (*Tourism that is nature oriented and incorporates a desire to minimize negative social and environmental impacts*) as a tool for sustainable (*Management of all resources in such a way that economic, social and aesthetic needs*

can be fulfilled while maintaining cultural integrity essential ecological processes, biological diversity and life support systems (3P: Place - Environmental, Profits – economic, People-Social-cultural, sustainability) community development and wetland resource conservation of Sango Bay.

The development and promotion of ecotourism is crucial for sustainable management and utilization of wetland resources in Sango Bay for poverty alleviation and sustainable socio-economic development. This non-consumptive utilization of wetland resources has more advantages over most forms of consumptive uses like agriculture, sand and clay harvesting as ecotourism initiatives endeavour to respect and maintain environmental integrity while at the same time improving existing social and cultural manifestations for community livelihoods. Furthermore, ecotourism initiatives are centred on attracting small numbers of high-spending tourists willing to stay longer in a destination, thus maximising the economic benefits to the stakeholders while minimizing the negative impacts on the environment and society as a whole (Jones, 2007; Hwey-Lian et al., 2004; Pemberton and Mader, 2004; Shores, 2003).

After the introduction, the paper presents the research context, which explains the importance of eco-tourism in achieving sustainable tourism development, poverty reduction and environmental conservation and the research objective. This is followed by the research methodology, which explains the methods used in data collection and analysis. The research findings and the subsequent discussion are presented together for logical flow and clarity. Finally, the paper presents the conclusions and recommendations on the way forward in the utilization of Sango Bay Wetlands in particular and Uganda in general.

Research context

Eco-tourism development, which emphasises environmental conservation, community empowerment and participation and tourist satisfaction, is increasingly becoming an important focus for sustainable national and tourism development world over. In Uganda, communities living around wetlands are increasingly utilising the resources therein consumptively and this is not sustainable. The National Poverty Eradication Action Plan (PEAP) and the Millennium Development Goals (MDG) emphasise need for sustainable resource utilisation through community empowerment and participation (Uganda, 1997).

Sustainable development

Sustainable development is one where resources are utilised to satisfy the livelihood needs of the present generation but bearing in mind that the future generations will use the same resources to satisfy their needs and aspirations. It is based on three pillars (3Ps) Profits, Peo-

ple and Place (Figure 1) which evolves into Environment Sustainable Development (ESD) triangle (Figure 2) advocated by World Bank (Serageldin, 1994).

Eco-tourism

This is sustainable tourism, which is nature based and incorporates a desire to minimize negative social and environmental impacts (Swarbrooke, 1999) and embrace economic, environmental, social, community and visitor benefits (Herath, 2002).

It was on this basis that the study was conceived to evaluate the current consumptive resource utilization strategies in Sango Bay Wetlands, assess the current and potential possibilities of developing eco-tourism as a non-consumptive resource utilisation strategy, which would not only conserve the environment but help government in fighting poverty among the communities in the region.

An understanding of eco-tourism and identification of the requisite natural resources can help government planners, community decision makers and tourism promoters identify real concerns and issues as a precursor to introducing policies and actions for its promotion and development.

Research objective

The objective of the study was to conduct a socio-economic evaluation of the current consumptive wetland resource utilization practices, evaluate the existing and potential eco-tourism resources for alternative utilization practices for poverty reduction and environmental conservation.

RESEARCH METHODOLOGY

Data were collected from secondary sources including textbooks, journals, economic surveys, government and NGO reports, academic research findings, consultancy and news paper reports. Secondary data were synthesized into information on current socio-economic status of the wetland resources and ecosystem biodiversity.

Collection of primary data involved the use of various participatory approaches including questionnaire to 150 respondents (community leaders, members, CBO and NGO leaders). Focus Group Discussion (FGD) with government officials, community members and leaders and Participatory Rural Appraisal (PRA) techniques. Through these methods, data and information collected included:- wetland resource utilization practices; gender roles, socio-economic importance, management practices, government role, environmental conservation practices, available and potential ecotourism resources and facilities, potential community based ecotourism projects and problems encountered with the current consumptive utilization practices.

The study was undertaken in Sango Bay Wetlands Southern Uganda. It covers 2,400 km² (1% of Uganda), less than 1,300 metres above sea level, East of Rakai District in Kakuuto and Kyotera counties and includes Kagera flood plain of L. Victoria, which stretch to Tanzania. Sango Bay was selected due to its eco-

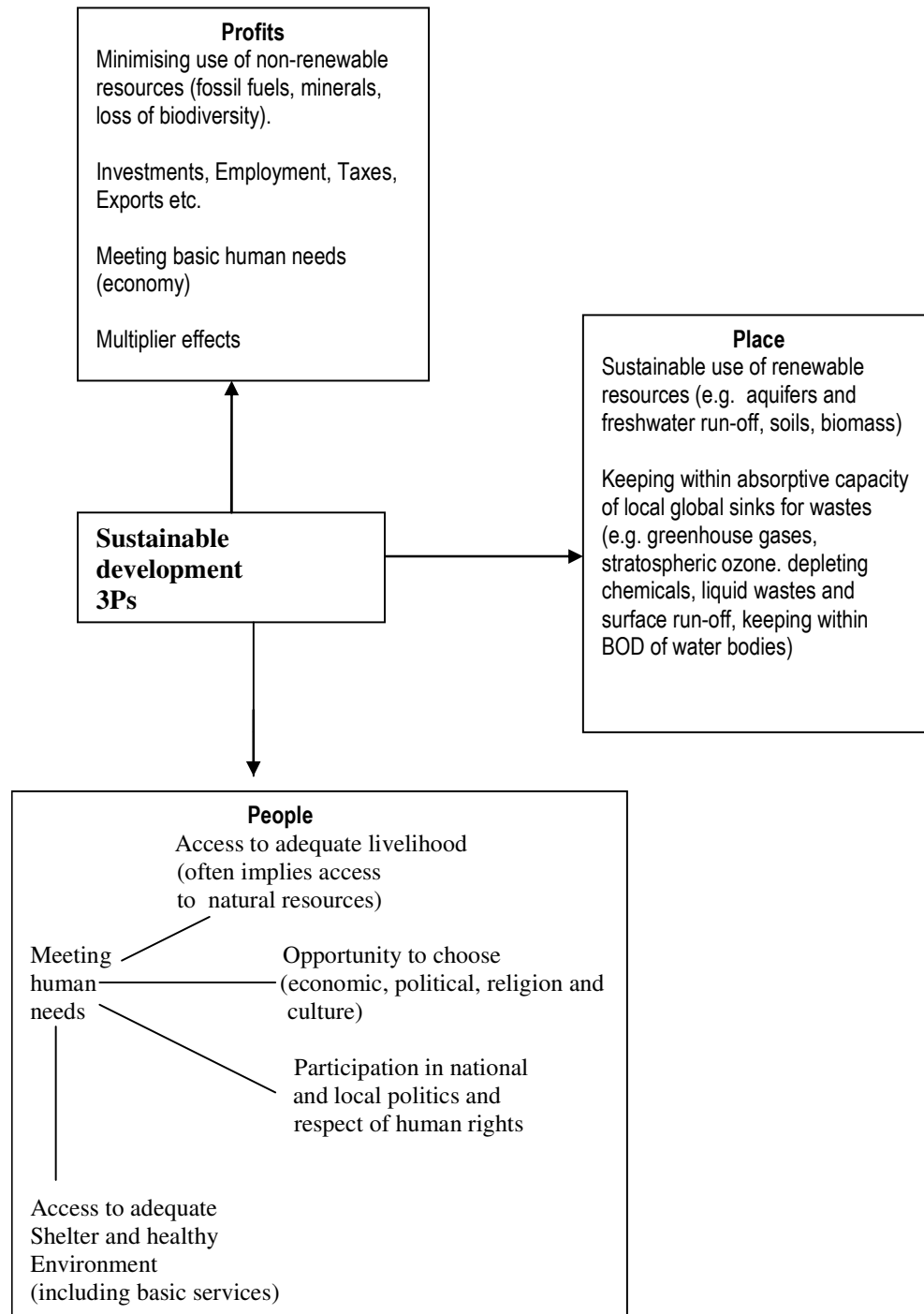


Figure 1. Goals of sustainable development. Source: Modification of Hardoy, Mitlin and Satterthwaite (1992).

its ecological diversity and socio-economic significance in the Lake Victoria region which was the focus for the research funders Lake Victoria Research – (VicRes). The area has a major Lake (Victoria), wetlands, fisheries biodiversity with ecosystems that are still intact (herbaceous swamps, swamp forests, flood plains and lake shores). There is also forest savannah mosaic, savannah communities, patches of scrub, forest remnants, thickets and re-colonising savannah trees (Fuller et al., 1996). Forests are internationally

important for biodiversity with species and habitats some of which are very restricted e.g. butterflies, dragonflies, amphibians, flowering plants, reptiles, mammals and birds (Fuller et al., 1996). Sango Bay has got contiguous wetlands and critical river systems that drain into Lake Victoria. There is also diverse riverine vegetation, cascading landscapes, unique floral and faunal species and diverse bird species. These diverse natural resources are ideal for the development of ecotourism and other forms of recreational

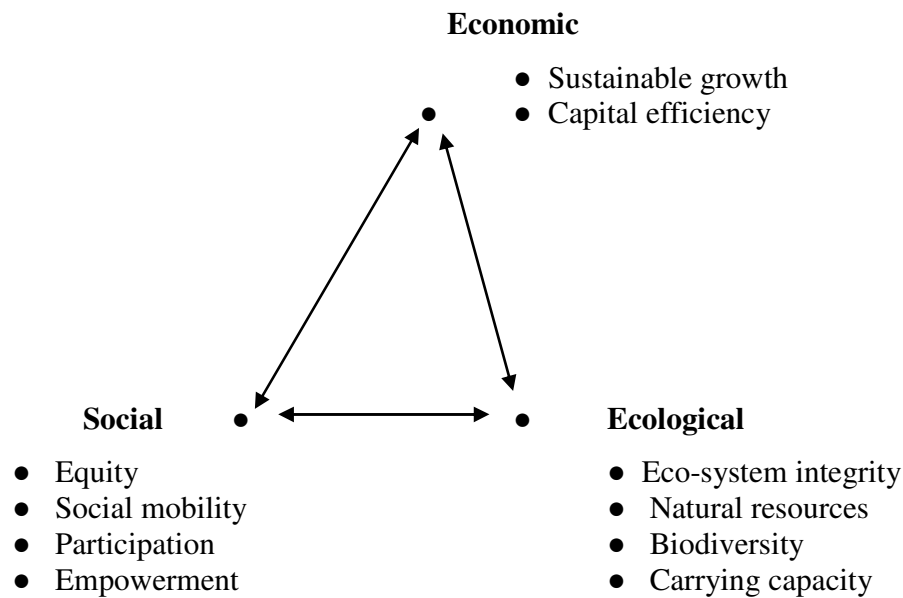


Figure 2. Environment sustainable development triangle.

Table 1. Main consumptive uses of wetland (according to economic valuation as computed from questionnaire responses).

	Activity	Income per person per month
1	Fishing Legal	\$ 166.7
2	Illegal	\$ 277.8
3	Livestock rearing (10 head)	\$ 22.5
4	Harvesting of medicinal plants	\$ 22.2
5	Pit sawing	\$ 20
6	Papyrus harvesting for handcraft	\$ 19.4
7	Firewood and charcoal burning	\$ 16.7
8	Brick making and pottery	\$ 15.5
9	Sand collection	\$ 10.2
10	Crop cultivation ($\frac{1}{2}$ acre one season)	\$ 10
11	Subsistence hunting	\$ 9.7

\$ = 1,800 Uganda shilling (as of July 2006).

l activities suitable for domestic and international tourism. However, as is the case with most wetlands in the Uganda, Sango Bay wetland resources are currently undergoing rapid transformation due to increasing human settlement, reclamation for agricultural production and other forms of consumptive community livelihood strategies.

RESULTS

The results and discussions are presented together for easy flow and clarity.

Consumptive wetland resource utilization practices

Sango Bay wetland resources are currently undergoing

rapid transformation through diverse consumptive practices by the communities for their daily survival. Most communities perceive wetlands as sources of direct benefits (crop production, fishing, craft materials, sand, clay and water harvesting) but fail to appreciate the ecological functions and other life support non-tangible benefits like filtering of polluted water, reduction of river flooding and siltation.

Despite increased consumptive utilization of wetlands in Sango Bay, the income derived is low (Table 1) and majority of the local people still live in abject poverty facing a truncated view of the future associated with inadequate housing, health facilities, supply of clean water and low levels of school enrolment, particularly at middle and tertiary level (53% primary and 3% tertiary).

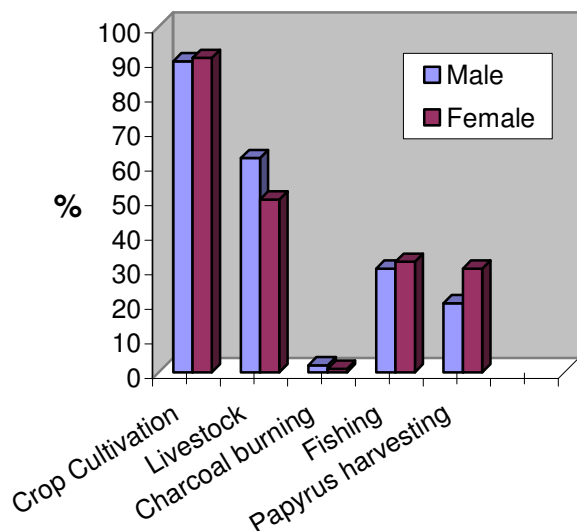


Figure 3. Wetland resource utilization based on gender.

As a consequence, wetlands continue to shrink with no signs of recovery. This entrenches the cycle of poverty and increase socio-economic deprivation especially among the more vulnerable groups such as women and the youth. It is therefore imperative that Sango Bay wetlands need to be conserved and put to non-consumptive utilization such as ecotourism for sustainable socio-economic development of the communities and the region as a whole.

Wetland resources are used differently depending on socio-demographic attributes especially gender and age. In most rural communities socially constructed attributes determine the different roles and entitlement of men and women. Community development processes depend on the different roles, responsibilities and socio-economic status of both men and women. For instance, food production and home maintenance chores are usually undertaken by women while men are entrusted with the decision making process as heads of households.

Questionnaire responses and FGD revealed that males play a greater role than females in the utilization of wetland resources for commercial purposes - logging (pit-sawing), charcoal burning, grazing livestock, fishing, mining (clay and sand). While men are engaged in cutting of papyrus, the women perform labour intensive activities such as weaving papyrus mats and agricultural production Figure 3.

An examination of the income derived from utilization of wetlands in relation to gender indicate that more females (60%) earn less than \$20 per month as compared to males (20%). The upper income bracket of \$>100 per month is dominated by males with insignificant number of females (1%).

The results indicate that the income derived by the communities from the consumptive utilization of wetland resources is inadequate and cannot provide for their

needs. Consumptive utilization of wetland resources degrades them and therefore not sustainable. However, the diverse resources can be used for eco-tourism development which not only helps in conserving them but also provide sustainable income for the communities.

Tourism has a comparative advantage of a “flow through” or “catalyst effect” across the economy in terms of employment creation and production Figure 4.

Tourism creates employment, demand for transport, telecommunication, financial services, handicrafts, consumption of local products (foods), accommodation, linkages to agriculture, fisheries, food processing, light manufacturing and the informal sector.

Existing and potential eco-tourism resources and development

Sango Bay wetland is endowed with diverse and unique natural and cultural resources that are suitable for ecotourism development and promotion. It ranks 3rd and 4th in mammal and bird species respectively when compared with Uganda’s ten National Parks (Bakamwesiga, 1999; ITE, 1995). This makes it an important biodiversity area worth conserving.

Plant diversity in anyone eco-system is important for supporting diverse fauna especially herbivores and this is important for ecotourism development, which can be used to positively change the livelihoods of a community. The wetland resources of Sango Bay should be used to develop different eco-tourism activities (Table 2). As nature and cultural tourism in developing countries are among the fastest growing sub-sectors of the tourism industry (Ceballos-Lascurai, 2003; Wall 1997) and tourism is itself the world’s largest and fastest growing Industry generating 11% of world income, employs 200 million people, transports 700 million international travellers per year and is expected to double in size by the year 2020 with an anticipated one billion tourists per year (Roe and Khanya, 2001). In Uganda, Tourism accounted for 64.1% of service export receipts US \$ 316.6 million in 2004 with tourist numbers growth rate at 6.5% per annum (www.mtti.go.ug), 538,586 tourists came to Uganda and US \$ 447m was earned in 2006 (UBOS 2007).

The justification of proposing the development of eco-tourism in Sango Bay wetland was based on the results of a SWOT analysis Table 3.

It is evident from the SWOT analysis that the development of eco-tourism in Sango Bay wetland enjoys more strength and opportunities than weaknesses and threats. The development of eco-tourism can be more beneficial to the community as a whole than the present consumptive use of resources that has led to resource degradation and continued high levels of poverty.

Community involvement in eco-tourism development

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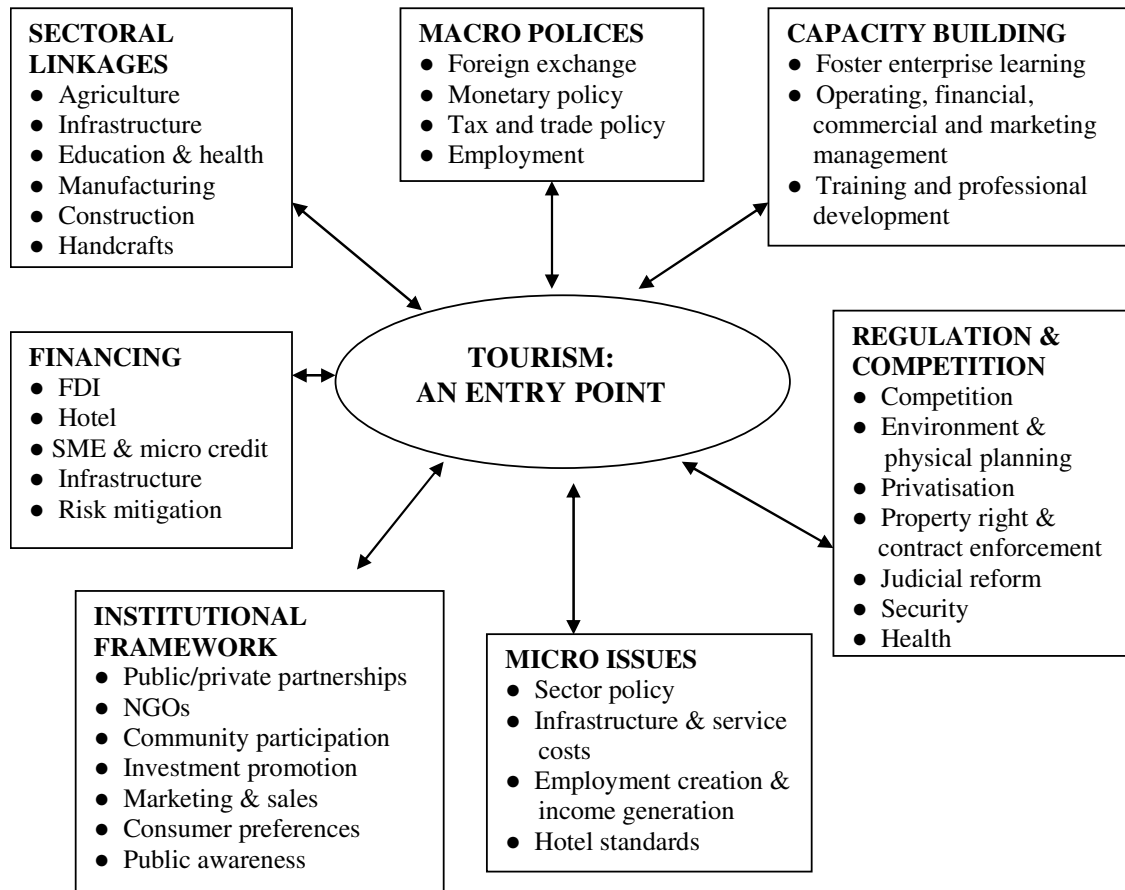


Figure 4. Tourism as an entry point in the economy. **Source:** Modification of Christie and Compton (2001).

Table 2. Possible eco-tourism activities in Sango Bay wetland

<ul style="list-style-type: none"> - Diverse bird species some of which are seasonal (bird watching) - Forests, Natural glades and unique riverine vegetation (nature walks, camping) - Variety of butterfly species (butterfly watching and farming) - Fauna - mammals, reptiles and amphibians (wildlife viewing and photographing) - Cascading waterfalls (sight seeing) - River Kagera (river rafting and boat riding/racing) - Variety of fish species (sport fishing) - Caves (cave exploration) <p>Cultural attractions pottery, basketry, dance performance and traditional cleansing, (cultural tourism)</p>

would take different forms namely community driven, local involvement and community control (Table 4). While involving the communities, their indigenous knowledge and understanding of the local environment should be tapped (<http://www.gorilla-safari.com/Uganda-ecotourism1.html>)

It is important to note that the development of eco-tourism has got comparative advantage as a tool for poverty reduction and enhancement of community development and biodiversity conservation (Kiss, 2004; Pem-

berton and Mader, 2004; Figure 5) as:-

- It is a diverse industry – increase scope for wide participation including the informal sector.
- The customer comes to the product – opportunities for making/selling of souvenirs.
- Depends on natural capital (wildlife, scenery) and culture.
- It is more labour intensive than manufacturing sector A higher proportion of benefits (jobs, petty trade) go to wo-

Table 3. SWOT analysis

Strength	Weaknesses
<ul style="list-style-type: none"> - Diverse and abundant flora and fauna, culture and physical environment - Some communities ready to adjust to new challenges. - Government commitment for tourism development - Eco-tourism is a vibrant international industry. - Available international market - Enabling policies - Source of foreign exchange - More multiplier effects - Involve diverse sectors of the communities/economy - Limited accommodation facilities available - Nabugabo wetland declared Ramsar site 	<ul style="list-style-type: none"> - Illiterate/semiliterate communities - Poor communities (Lack of investment funds) - Poor infrastructure development. - Conflicting land tenure systems - Inadequate supply of trained/professional human resource - Some sections of communities feeling insecure about ecotourism development as it threatens their survival strategies.
Opportunities	Threats
<ul style="list-style-type: none"> - Establishment of Ecotourism projects/facilities by different stakeholders. - High income earnings through ecotourism. - Community participation - Resource conservation - Private Sector involvement - NGOs, CBOs, involvement - Higher/Research Institutions participation. - Diversity in employment opportunities. - Diverse backward and forward linkages with more multiplier effect 	<ul style="list-style-type: none"> - Continued consumptive use of wetland resources. - Degraded wetlands - Competition for resource utilization. - Political interference in policy implementation - Exploitation of communities by private sector investors - Cultural degradation

Table 4. Forms of community involvement in eco-tourism development.

Type of enterprise/Institution	Nature of local involvement	Examples
Private business run by outsider	<ul style="list-style-type: none"> • Employment • Supply goods and services 	<ul style="list-style-type: none"> • Kitchen staff in a lodge • Sale of food, building materials, etc
Enterprise or informal sector operation run by local entrepreneur	<ul style="list-style-type: none"> • Enterprise ownership • Self employment • Supply of goods and services 	<ul style="list-style-type: none"> • Craft sales, food kiosk, campsite, home stays • Guiding services • Hawking, sale of fuel-wood, food
Community enterprise	<ul style="list-style-type: none"> • Collective ownership • Collective or individual management • Supply of goods & services • Employment or contributed labour 	<ul style="list-style-type: none"> • Community campsite • Craft center • Cultural centre
Joint venture between community and private operator	<ul style="list-style-type: none"> • Contractual commitments • Shares in revenue • Lease/investment of resources • Participation in decision-making 	<ul style="list-style-type: none"> • Revenue-sharing from lodge to local community on agreed terms • Community leases land/resources/concession to lodge • Community holds equity in lodge
Tourism planning body	<ul style="list-style-type: none"> • Consultation • Representation • Participation 	<ul style="list-style-type: none"> • Local consultation in regional tourism planning. • Community representatives on tourism board and in planning

Table 5. Impacts of tourism development on community assets.

Assets	Negatives	Positives
Financial Assets	-	Long term: Equity
Physical Assets	-	Tourism earnings invested in livestock buildings, agriculture, etc
Natural Resources	- Increased competition - Loss of access to exclusive tourism areas - Conflict with communities	- Enhanced collective management - Incentive to work Together
Human Resources	-	Training, skills development
Social capital	Community conflicts over tourism	Stronger social organisations for tourism development

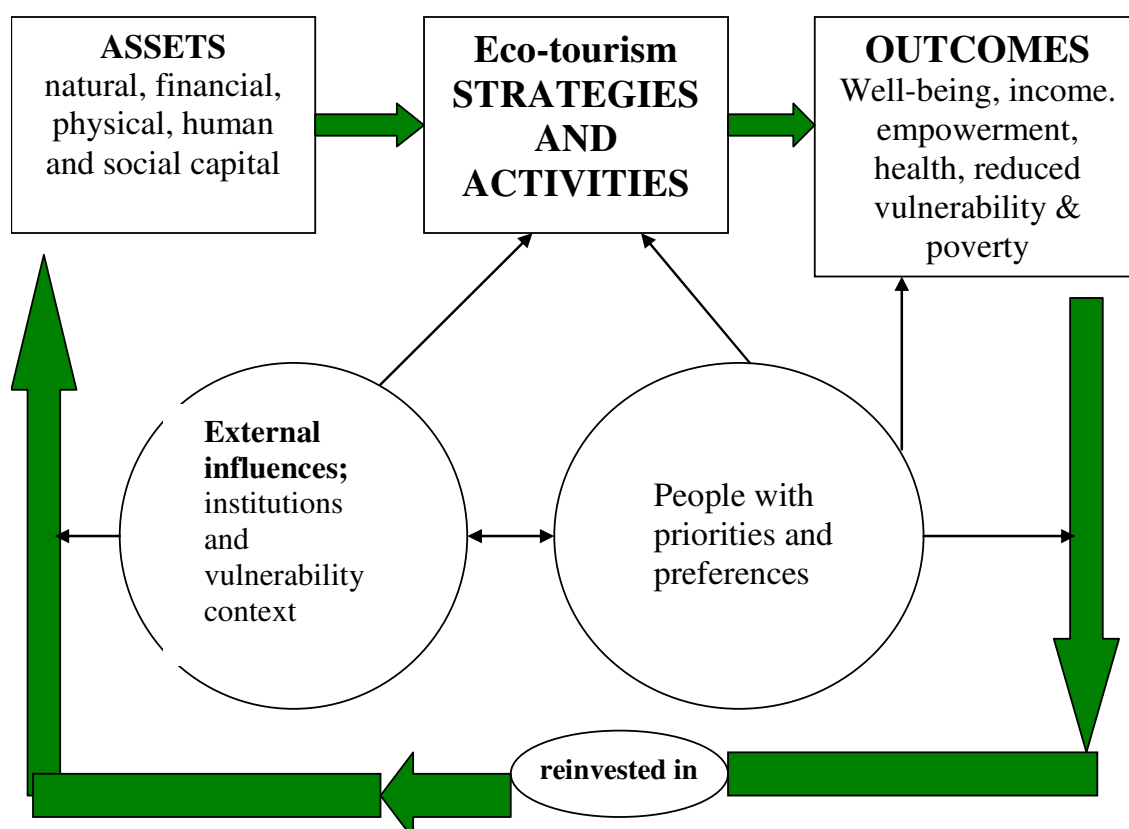


Figure 5. A simplified livelihoods framework. Sources. Modification of Ashley (2000) as adapted from DFID 1999.

men and youth.

Since the development of eco-tourism has got both positive and negative impacts (Table 5) it is imperative that the positive impacts are enhanced and the negatives reduced and controlled.

When developing eco-tourism, the main guiding principle is to compliment rather than undermine livelihood and social security of the community. If the weaknesses and challenges are addressed then eco-tourism as a sustainable use of wetland resources can assist in the

reduction of poverty among the rural communities living in areas adjacent to Sango Bay wetland.

In Kenya and Namibia community based tourism development transformed the livelihoods of the communities through both full-time and casual employment by making the cash strapped households meet their needs (Ashley 2000). In Uganda, the Kibale Association for Rural and Environmental Development (KAFRED) a community-based organization has not only used eco-tourism to conserve Bigodi wetland but also empowered the surrounding communities through training and infrastructure

development (Nyakaana, 2007). The expected eco-tourists to Sango Bay will include adventure tourists, birders, studying, culture and nature tourists.

Challenges of eco-tourism development

Developing eco-tourism in Sango Bay wetland is bound to face several challenges and notable among them are:-

- Inadequate/lack of skills by the communities.
- Poor infrastructure (roads, accommodation, communication, medical).
- Limited financial resources by the communities.
- Low-level awareness of eco-tourism enterprises by the communities.
- Limited knowledge on eco-tourism market opportunities by the communities.
- Conflicting land tenure systems.
- Continued consumptive use of resources.

Conclusion

Currently, there is increasing level of poverty, underdevelopment and unemployment in Sango Bay region despite the increasing consumptive use of the natural resources. With the rapid increase of human population in recent years, increasing numbers of marginalized people, especially women and the youth, are moving and settling in the wetlands in search of new means of earning a living. Within this broad socio-economic and environmental context, the development and promotion of ecotourism and other forms of recreational non-consumptive uses of the wetland is crucial for long-term conservation of resources and poverty reduction.

Thus, in the overall, eco-tourism which denotes a sustainable form of tourism that is small in scale and in which local control and benefits are of primary importance to the communities should be introduced to conserve the resources and provide an alternative sustainable livelihood strategy to reduce poverty in the community.

Recommendation

Successful eco-tourism development needs government participation through:-

- Training the communities on environmental conservation and development of eco-tourism enterprises
- Financial empowerment of the communities through partnerships with CBOs, stimulating micro and small eco-tourism private enterprises and boosting local craft and tourist shopping.
- Harmonizing the conflicting policies and setting new ones which encourage/support/integrate tourism in the community livelihood strategies.
- Facilitating destination level partnerships between

communities and private sector.

- Involving the communities in the planning and implementation of eco-tourism related activities.
- The private sector should also be pro-community development through employment, demand for goods and services for their tourism enterprises.
- The community should embrace eco-tourism development as a new viable and sustainable resource utilization activity.

REFERENCES

- Adair SE (2001). Wetlands for the Future. *Ecological Engineering*. 16 (4): 573-574.
- Ashley C (2000). The impacts of Tourism on Rural Livelihoods: Namibia's Experience. Overseas Development Institute working paper 128, London.
- Ashley C (2000). Applying Livelihood Approaches in Natural Resource Management Initiatives: Experiences in Namibia and Kenya. Overseas Dev. Institute working paper 134. London.
- Bakamwesiga H (1999). The Distribution, Diversity and Status of Species in Sango Bay Area. Unpublished, M.Sc. Thesis in Environment Management. Makerere University, Kampala, Uganda
- Ceballos – Lascurain H ((2003). Preface. In M Luck and T Kirstges (eds). *Global Eco-tourim Policies and Case Studies . Perspectives and Constraints*. Clevedon: Channel View Publications.
- Christie I, Compton D (2001). Tourism in Africa. Africa Region working paper Science No 12. World Bank, Washington, DC.
- Fuller RM, Groom G, Mugisha S, Pomeroy D, Ipuet P, Katende A, Bailey R, Ogutu-Ohwanyo R (1996). The intergration of Remote Sensing and Field for Biodiversity Assessment, A Case Study in Tropical Wetlands of Sango Bay – Uganda. Elsevier Science Ltd.
- Hardoy J, Miltlin D, Satterthwaite D (1992). *Environmental Problems in Third World Cities*. London: Earthscan.
- Herath G (2002). Research Methodologies for Planning Eco-tourism and Nature Conservation. *Tourism Econ*. 8: 77- 101. <http://www.gorilla-safari.com/Uganda-eco-tourism.html>.
- Hwey-Lian H, Chang-Po C, Yaw-Yuan L (2004). Strategic Planning for Wetland Conservation Greenway along the West Coast of Taiwan. *J. of Ocean and Coastal Manage*. 47 (5 – 6): 257 – 272.
- ITE (1995). Darwin initiative: Computers in Terrestrial Ecology, Sango Bay. Final Report. Project T0207215. Institute of Terrestrial Ecology.
- Jones S (2007). Community-Based Eco-Tourism: the Significance of Social Capital. *Annals of Tourism Res*. 32(2): 302 – 324.
- Kiss A (2004). Is community-based ecotourism a good use biodiversity conservation funds? *Jr. of Trends in Ecology and Evolution*. 1(5): 232 – 237.
- Mohaptra PC (2008). Strategic Development Wetlands: An Eco-tourism Perspective. (ICFAI J. of Business Strategy. 5(1): 21 – 29.
- MTTI, (2004). Ministry of Tourism Trade and Industry Home Page. www.mtti.go.ug
- Nature Uganda, (2007). Important Bird Area in Uganda . Poster.
- NEMA (1997). District Status Environment Report. Kampala, Uganda.
- Nyakaana J B (2007). Community participation in tourism development: case of Kibale Association for Rural and Environmental Development" in Kloek, N E ad Rene Van der Duim (eds). *Local communities and participation in African Tourism*. Thematic proceedings of ATLAS Africa Conferences Vol 2. ATLAS. Arnhem, The Netherlands.
- Pemberton CA, Mader CK (2004). Eco-tourism as a means of Conserving Wetlands." http://www.wetlands.org/RDB/Ramsar_Dir/Trinidad&tobago/TTOID02.htm.
- Roe D, Khanya PU (2001). Pro-Poor Tourism: Harvesting the World's Industry for the World's Poor. International Institute for Environment and Development. London.
- Serageldin I (1994). Sustainability and the wealth of Nations: it steps in an on-going Journey. The World Bank Washington, D C
- Shores JN (2003). The challenges of Eco-tourism: A Cell for Higher standards. <http://www.mtnforum.org/resources/library/shorjaba.htm>

- Swarbrooke J (1999). Sustainable Tourism Development. CABI Publishing, Cambridge, UK
- UBOS (2007). Uganda Bureau of Statistics. Ministry of Finance, Planning and Economic Development. Kampala, Uganda.
- Uganda (1997). Poverty Eradication Action Plan. Ministry of Planning and Economic Development.
- www.mtti.go.ug Ministry of Tourism, Trade and Industry:
- Zuo P, Wan SW Qiu P, Du J, Wang H (2004). A Comparison of the Sustainability of Original and Constructed Wetlands in Yancheng Biosphere, Reserve China: Implications from Energy Evaluation. *Jr. of Env. Science and Policy*. 7 (4): 329 – 393.