



PROMOTING BIODIVERSITY IN AND AROUND THE LAKE VICTORIA BASIN



UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME
 P.O. Box 30030, GPO Nairobi 00100, Kenya
 Tel: +254 (20) 7623120; Fax: +254 (20) 7624266/7 (Central Office)
 E-mail: infohabitat@unhabitat.org; Website: www.unhabitat.org





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LAKE VICTORIA BASIN**



THE UN-HABITAT AGENDA

History

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Originally established in 1978 as the outcome of the United Nations Conference on Human Settlements held in Vancouver, Canada, in 1976, UN-HABITAT is charged with coordinating and harmonizing human settlement activities within the UN system. It facilitates the global exchange of information on shelter and sustainable human settlements development and gives countries policy and technical advice. At the second UN conference on Human settlements, in Istanbul, Turkey in June 1996, governments agreed on the Habitat Agenda and Istanbul Declaration, committing themselves to the goals of adequate shelter for all and sustainable human settlements development in an urbanizing world. Five years later, in June 2001, the declaration on Cities and other Human Settlements in the new millennium, endorsed by the General Assembly, entrusted the organization, then called the United Nations Centre for Human Settlements (Habitat), with continued responsibility of supporting implementation of the Habitat Agenda. In 2002, the General Assembly transformed the organization into a fully fledged programme of the United Nations and renamed it UN-HABITAT; United Nations Human Settlements Programme.

Key recommendations and fine tuning of the agenda are now underway as strategy clusters for achieving the urban development and shelter goals and targets of the Millennium Declaration - the United Nations' development agenda for the next 15 to 20 years. The revitalization has placed UN-HABITAT squarely in the mainstream of the UN's development agenda for poverty reduction with a more streamlined and effective structure and staff and more relevant and focused set of programmes and priorities.



Strategic Vision

With these imperatives in mind and with a sharper focus on urban poverty the UN-HABITAT strategic vision has been further refined:

“To help create by 2013 the necessary conditions for concerted international and national efforts to realize more sustainable urbanisation, including efforts to arrest the growth of slums and to set the stage for the subsequent reduction in and reversal of the number of slum dwellers worldwide.”

By giving more attention to knowledge management, the financing of housing and human settlements and, particularly, to strategic partnerships the expanded strategic vision is both forward looking and pragmatic. It is also consistent with social norms and political principles as well as with UN-HABITAT mandates, capabilities and partners’ objectives. Its main elements are:

- Knowledge management and reporting, expanding the global understanding of urban development, shelter and poverty, and tracking progress in implementing the Habitat Agenda;
- Advocacy of norms for sustainable urbanization and urban poverty reduction, carried forward through two global campaigns and a number of global programmes;
- Technical cooperation in linking norms and campaign/programme goals to urban poverty reduction activities on the ground;
- Innovative financing for urbanization and specific shelter needs of the urban poor; and
- Strategic partnerships to leverage resources and coordinate international programme activities that work toward similar ends.



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For further information:

Cecilia Kinuthia-Njenga
Human Settlements Officer, UN-HABITAT
Urban Environment Section
P.O. Box 30030 Nairobi, Kenya.
E-mail: cecilia.njenga@unhabitat.org

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Effective conservation of biodiversity at all levels - genes, ecosystems - is a precondition for sustainable development



Convention on Biological Diversity



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Acronyms and Abbreviations

| | |
|------------|---|
| CBD | Convention on Biological Diversity |
| CBO | Community Based Organization |
| CDS | City Development Strategies |
| COP | Conference of Parties |
| EIA | Environment Impact Assessment |
| FAO | Food and Agriculture Organization of the United Nations |
| GEF | Global Environment Facility |
| ICLEI | International Council for Local Environment Initiatives |
| IMF | International Monetary Fund |
| IUCN | International Union for the Conservation of Nature |
| LAB | Local Action for Biodiversity |
| LVRLAC | Lake Victoria Region Local Authorities Co-operation |
| LVB | Lake Victoria Basin |
| MDGs | Millennium Development Goals |
| MEAs | Multilateral Environmental Agreements |
| NGOs | Non Governmental Organizations |
| SIDA | Swedish International Development Co-operation Agency |
| UNEP | United Nations Environment Programme |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UN-HABITAT | United Nations Human Settlements Programme |
| USD | United States dollar |
| WSSD | World Summit on Sustainable Development |



Foreward

An estimated 40 percent of the global economy is based on biological products and processes. Poor people, especially those living in areas of low agricultural productivity, depend heavily on the genetic diversity of the environment. The effective use of biodiversity at all levels - genes, species and ecosystems - is therefore critical to sustainable development.

Cities surrounding Lake Victoria all depend on and share a single eco-system which sustains much of their economic activity. They also share similar challenges in conserving biodiversity. These challenges include: poor land use planning, lack of proper liquid and solid waste management; unregulated source and non-source pollution; deforestation, and lack of protection of wetlands.

In response to some of these challenges, the local authorities of Kisumu, Homabay, Entebbe, Jinja, Musoma, Bukoba, Kampala and Mwanza have recently embarked on the process of developing City Development Strategies for improving the urban environment and reducing poverty. City Development Strategies can be defined as participatory planning processes focusing on pro-poor and socially inclusive sustainable urban development.

This publication provides an overview of the processes and outcomes of developing action plans in the above-mentioned cities. Significantly, all of them have recognized the importance of improving the urban environment to enhance economic productivity and reduce poverty.

To date, there are several follow-up proposals for local interventions and initiatives in support of conserving biodiversity. These range from improved sanitation and solid waste management, to environmental education and awareness-raising.

These ongoing initiatives demonstrate that local actions aimed at achieving sustainable urban development can effectively contribute to the attainment of Millennium Development Goal 7 on environmental sustainability and the conservation of biodiversity.

Dr. Anna Kajumulo Tibaijuka
Executive Director

United Nations Human Settlements Programme (UN-HABITAT)



Executive Summary

In recent times, it has been increasingly acknowledged that healthy ecosystems and biodiversity are extremely critical to the vital functioning of cities. Significantly, healthy ecosystems provide a myriad of social, economic and ecological benefits as well as goods and services that underpin various industries, and by extension, human well-being (WEHAB Working Group Paper, 2002).

This notwithstanding, the last decades have witnessed a rapid decline and degradation of ecosystems. Significantly, the Millennium Ecosystem Assessment Report concluded in 2005, noted that approximately 15 out of the 24 services provided by ecosystems are in decline, including the provision of freshwater, marine fisheries and the ability of the atmosphere to cleanse itself of pollutants.

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Furthermore, the Millennium Ecosystem Assessment Report (2005:6) warned that the continued loss of biodiversity, unless urgently addressed, would also severely constrain the efforts of Governments to achieve the internationally agreed Millennium Development Goals (MDGs) adopted in 2000. Similarly, it is to be noted that the consequences of biodiversity loss and mismanagement as well as ecosystem disruption severely affect the poor, who often cannot access or afford substitutes when confronted with the challenges posed by degraded ecosystems. By extension, therefore, progress towards achieving the goals established in the United Nations Millennium Declaration will only be possible in the future if biodiversity is preserved and the benefits of its use are distributed equitably (WEHAB Working Group Paper, 2002).

In recent times, the Lake Victoria region has been experiencing several problems as a direct result of exponentially rising rates of urbanization and associated socio-economic activities. Similarly, rapid degradation of ecological, forest and bio-diversity has also exacerbated poverty in the basin, with an estimated 50 per cent of the local population living below the poverty line (Africa Environment Outlook, 2005; Lake Victoria Environment Outlook, 2005).



This Working Paper assesses the potential role of local authorities in promoting biodiversity conservation in the Lake Victoria Cities within the existing global framework of the Convention on Biological Diversity. In this regard, the paper sets the broader context of the inextricable linkages between biodiversity conservation and the urban environment. Specifically, it evaluates the emerging role of cities.

A brief overview of the urban management and biodiversity-specific challenges confronting the Lake Victoria Cities is provided. This paper also assesses the specific biodiversity conservation initiatives currently being undertaken by the Lake Victoria Cities as part of UN-HABITAT City Development Strategies (CDS) that ultimately contribute to implementing the Convention on Biological Diversity at the local level. Similarly, the biodiversity conservation and management challenges facing local authorities in the Lake Victoria region are briefly highlighted.

The paper concludes that significant efforts have been made to pursue in situ conservation measures, including promotion of community awareness and environmental education programmes. Nevertheless, significant challenges remain with regard to implementation of the Convention on Biological Diversity at both national and local level. It is critical to enhance the linkages between local, national, regional and global levels in order to ensure the ability of cities to fully benefit from the Convention on Biological Diversity and its related strategies, plans and programmes for action.



CHAPTER 1: LAKE VICTORIA- BASIN SOCIO- ECONOMIC AND ENVIRONMENT OUTLOOK

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Demography

The Lake Victoria Basin (LVB) is located in the upper reaches of the Nile River basin. It occupies an area of about 251,000 km² in the lake area (URT 2001) and is shared by Kenya, Uganda, Tanzania, Rwanda and Burundi. It supports one of the densest and poorest rural populations in the world, with densities of up to 1,200 /km² in parts of Kenya (Hoekstra and Corbett 1995). The basin contains Lake Victoria, the largest freshwater lake in Africa and the second largest in the world.

Lake Victoria has three riparian countries: Kenya, Uganda and Tanzania and draws 20 per cent of its water from the Kagera, Mara, Simiyu, Gurumeti, Yala, Nyando, Migori and Sondu-Miriu rivers. The remaining 80 per cent is from rainfall. Average population densities on the Kenyan, Tanzanian and Ugandan sides of the lake are 297, 97 and 635 per km² respectively - with an annual average growth rate of three per cent.

Socio-Economic Indicators of Well-Being

On the Tanzanian side of the Lake, the dependency ratio is 106 per cent (Tanzanian population census, URT 2002) while for Uganda it is 120 per cent (Republic of Uganda 1994) and 125 per cent for Kenya. Livelihood standards in the Lake Victoria Basin have deteriorated, as noted by Aseto



and others (2003), not just because of the consequences of population increases, but also through a host of driving forces, including agricultural and livestock production that have led to land degradation and declining productivity.

Table 1.1: Selected social indicators for the Lake Victoria basin¹

| Administrative Region | Education (Those without formal education - %) | Health (mean distance to hospital-km) | Land ownership (acres) | Basic needs poverty line |
|---------------------------|--|---------------------------------------|------------------------|---------------------------------------|
| Kagera | 25 | 25.1 | 4.0 | 29 |
| Mara | 24 | 13.4 | 8.0 | 46 |
| Mwanza | 27 | 30.1 | 6.8 | 48 |
| Shinyanga | 40 | 18.9 | 14 | 42 |
| National average | 23 | 21.3 | 5.3 | 36 |
| LVB (Tanzania) Average | 29 | 21.9 | 8.2 | 41.3 |
| Central | 23 | 21.5 | 3.2 | 25 |
| Eastern | 41 | 34.1 | 3.4 | 36 |
| Western | 35 | 42.5 | 4.7 | 38 |
| National Average (Uganda) | 37 | 32.4 | 5.4 | 39 |
| LVB (Uganda) Average | 33 | 27.8 | 4.7 | 34 |
| Nyanza | 14.3 | 12.4 | 3.35 | 70.9 ^a (42.8) ^b |

¹1111a = Refers to income poverty in 2000. b = Refers to Human Poverty Index (HPI) in 2003. HPI measures human deprivation in basic dimensions of human poverty and is the proportion (per cent) of people left out of progress. HPI includes the adult literacy rate, the percentage of population expected to reach age 40 and overall economic provisioning. The latter is a composite of three indicators - percentage of people with access to safe water, percentage of people without access to health services and percentage of children under five years of age who are underweight.



| | | | | |
|--------------------------|------|------|------|-------------|
| Rift Valley | 25.7 | 18.4 | 5.9 | 56.4(35.6) |
| Western | 14.8 | 10.8 | 3.8 | 66.1 (38.5) |
| National Average (Kenya) | 49.3 | 24.5 | 3.95 | 52.6 (34.1) |
| LVB (Kenya) Average | 18.3 | 13.6 | 4.35 | 64.5(39) |

Source: CBS, 2004, Republic of Kenya, 2000; SID, 2004 and UBS, 2001

Livelihoods, Culture and Natural Resources

Livelihoods

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The people in the Lake Victoria basin live off a number of activities including fishing, farming, bee-keeping, trade, quarrying, and mining of gold and other minerals. The perceptions and practices related to the exploitation of natural resources are closely intertwined with livelihoods and culture. In Tanzania, for instance, all land belongs to the State and is vested in the presidency, but customary rights are recognized. Tanzanians may lease - though not own - land, and therefore their rights of access and use are insecure as the government may reallocate land to other users at any time.

Culture

Cultural practices, beliefs and norms in the Lake Victoria area are closely linked to local natural resource management. Socio-economic research has highlighted gender differences in natural resource uses (Nakijoba 1996; Nanjunya 2001; Ochola et al. 2000; Yanda et al.). Degradation of resources tends to affect men and women differently as evidenced, for example, by the impact of reclamation of the Nakivumbo wetlands in the Kampala area. It has been observed that declining wetland resources affect women more adversely than men, because they make more intensive use of these areas than men for household food and medicinal purposes (Nakijomba 1996).



Natural resources

The Victoria Lake basin directly provides for the livelihoods of about one third of the combined population of the three riparian East Africa Community partner States and about the same proportion of their combined gross domestic product (GDP). Subsistence agriculture, pastoralism and agro-pastoralism currently support about 21 million people in the basin, with average incomes equivalent to a range of USD90-270 per annum (World Bank 1996). Fishing is by far the most important economic activity for those living in lakeshore areas. Introduction of Nile perch and the subsequent expansion of fish export exports to Europe and Asia triggered a boom in this sector. Tourism would be a potential major income earner if local communities reaped any of the associated benefits, a situation that has led to periodic conflicts in some game reserves such as Masaai Mara in Kenya.

Biodiversity

Resource State and Trends

The Victoria Lake basin is rich in biodiversity although natural habitats are under threat from rapidly increasing human population. Biodiversity in the main consists of fish species, birds and higher vertebrates like amphibians, reptiles and mammals as well as several plant species. A total of 31 amphibian, 28 reptilian and 44 mammalian species have been recorded on various sites in the Lake Victoria basin. Inshore waters, satellite water bodies and fringe wetlands support several species of reptiles, the commonest of which are the Nile crocodile (*Crocodylus niloticus*, Laurent 1769) and snakes such as African rock python (*Python sebae*, Gmelin 1789), mambas and cobras (Chisara et al. 2001).

The dominant terrestrial vegetation comprises dry forest and woodland in the southern parts (Tanzania) of the basin, deciduous bush land and thicket in the northern parts (Uganda) and dry, peripheral, semi-evergreen rainforest and scrub forest in the eastern parts (Kenya) of the basin. Several species are currently threatened, particularly those in fragile areas such as wetlands. Much of the lake margin is swampy and vegetated mainly by the cyanobacteria *Cylindrospermopsis* and *Planktolynghya*, and the diatom *Nitzschia* (Komarek and Kling 1991; Hecky



1993). Zooplanktons consist of abundant copepods and cladocerans (Branstrator and others 1996). As recently as the 1960s, Lake Victoria supported an endemic cichlid fish species flock of over 500 species (Seehausen 1996), but these have progressively disappeared from the catches to become poorly represented today. The losses are attributed to habitat degradation in the catchment area, land use changes, introduction of exotic species (particularly Nile perch) and heavy fishing pressure.

Lake Victoria experienced dramatic changes in the past century as a result of land use and land cover changes, industrialization, agricultural developments, introduction of invasive alien species and non-selective fishing. These, among other factors, have led to the destruction of native and endemic biota specific to the Lake Victoria basin. Lake Victoria lost about 60 per cent of its cichlid taxa in the last decade and has been facing deterioration in water quality, partly due to over-exploitation of fish resources and human impact on the ecosystem (Kecky 1993; Witte and others 1997). Other affected components of the aquatic ecosystems include algae, macrophytes, invertebrates, birds, amphibians and reptiles.

The Lake Victoria fish stock and fisheries have undergone remarkable changes over the past 20 years. In 1998, about 100 native fish species endemic to the lake were entered in the IUCN Red Book of endangered species. A number of studies report dramatic post-perch structural changes directly impacting on the niche composition at all levels of biodiversity (Mbahinzireki 1994; Mugidde 1993; Gichuki & Odhiambo 1994; Seehausen & Witte 1995; Chapman et al. 2001). The wetland ecosystems in the Lake Victoria basin are rich with vertebrates. Other than fish, most of these are not well researched.

Value, Opportunities and Potential

Biodiversity as an asset of Lake Victoria basin offers both social and economic uses in tourism, traditional medicine, food security and trade in traditional handicraft goods such as mats, baskets and other woven goods (UNEP 2004). The main issues of concern with loss of Lake Victoria basin biodiversity include:



- rapid deterioration
- lack of inventory, classification and valuation
- low capital expenditure from governments
- poor implementation of the international biodiversity convention
- governance issues regarding the exclusion of local communities in management of biodiversity resources, and
- the effects of invasive alien species.

The inhabitants of the Lake Victoria basin are highly dependent on land-based and aquatic resources for their livelihoods. As a result, these resources have come under intensive pressure that has been exacerbated by three major factors: (i) high and rapid population growth rates; (ii) rapid expansion of unplanned urban and rural settlements that lack basic infrastructure, water and sanitation provision; and (iii) lack of expert knowledge in sustainable land and water resources management and practices at the local and sub-basin levels. Pervading these intensive driving pressures is the abject poverty that is the lot of almost 70 per cent of basin inhabitants. In such circumstances, the observed environmental degradation is a logically predictable outcome.

Despite this bleak picture, there are several opportunities to turn around the degradation in land and water resources and improve the livelihoods of basin inhabitants. Local authorities in eight cities in the Lake Victoria region, with support from UN-HABITAT, have embarked on City Development Strategies for improved urban environment and poverty reduction through community participation in a bid to improve quality of life for all. The following chapters discuss these proposed local interventions in greater detail, while bringing to light the emerging role of cities in efficient use and conservation of their surroundings within the global framework of the international Convention on biological diversity (Rio de Janeiro, June 1992).



CHAPTER 2: LOCAL AUTHORITIES

AND BIODIVERSITY CONSERVATION IN THE LAKE VICTORIA BASIN

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“Because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and co-operation of local authorities will be a determining factor in fulfilling its objectives...as the level of governance closest to the people, they play a vital role in educating, mobilizing, and responding to the public to promote sustainable development”

Agenda 21: Programme of Action for Sustainable Development, 1993

Concerted efforts have been made to involve local authorities in global progress toward sustainable development and, in particular, to reduce losses in biodiversity. For example, the International Council for Local Environment Initiatives (ICLEI) has recently launched the Local Action for Biodiversity (LAB) scheme, an initiative that recognizes the important role of local authorities in halting biodiversity loss in urban areas and integrating such strategies into overall urban city planning (UNEP, 2007). In this regard, it is widely recognized that cities can play a major role in global efforts to protect vulnerable ecosystems and biodiversity through various urban measures to enhance energy efficiency; an example of these is energy-efficient “green roofs” designed to reduce storm water runoff and attract bird and insect life (UNEP/UN-HABITAT, 2005). Carefully managed urban agriculture can also



contribute to soil conservation, urban hydrology, microclimate improvement and urban biodiversity (UNEP/UN-HABITAT, 2005).

In order to address the myriad environmental issues confronting the area, the Lake Victoria Region Local Authorities Co-operation (LVRLAC) was established in 1997 in recognition that all the States in the area as well as local authorities around the lake face similar challenges. The main objectives concentrate on six major strategic areas, including improved ecological conditions and environmental management, health issues and promoting systematic urban and rural planning that support overall sustainable development strategies (LVRLAC Action Plan, 2006-2008).

Biodiversity Conservation Initiatives by Local Authorities in the Lake Victoria Basin



Photo credits: Kisumu Municipal Council

Local authorities in the Lake Victoria region have embarked on various local initiatives aimed at preserving biodiversity. However they lack the capacity to implement sustainable development policies, especially in the face of exponentially rising rates of urbanization and weak national/regional economies (UN-HABITAT,

2005). Furthermore, high population growth rates (estimated at an annual three per cent average), together with endemic poverty, high prevalence of HIV/AIDS and an inadequate revenue base add to the challenges confronting Lake Victoria cities (Lake Victoria Environment Outlook, 2005; Africa Environment Outlook, 2005).

UN-HABITAT is responding to these challenges with support from the City Development Strategies scheme (CDS, sponsored by SIDA) in eight cities in the Lake Victoria region:



- Kisumu and Homa Bay (Kenya)
- Entebbe, Jinja and Kampala (Uganda) and
- Musoma, Bukoba and Mwanza (Tanzania).

CDSs are defined as “action plans for equitable urban growth as developed and sustained through participation to improve quality of life for all citizens” (UN-HABITAT, 2005:3) The objectives of a City Development Strategy include “a collective city vision and action plan aimed at improving urban governance management, increasing investment to expand employment and services, and systematic and sustained reductions in urban poverty” (UN-HABITAT, 2005:3).

The process of devising a City Development Strategy generally adopts a multi-stakeholder, consensus-building approach in the identification of major issue-specific areas, including the subsequent development and implementation of Strategic Action Plans (SAPs). These Strategic Action Plans (2006-2010) have all recognised and reiterated the importance of improving the urban environment for the sake of enhanced productivity and poverty reduction.

To date, some of the proposed local interventions and initiatives by the respective municipal councils (which are consistent with the obligations set out in the Convention on Biological Diversity with regard to in situ conservation as the principal means of conserving biodiversity) include the following:

Figure I: The Region and Project Sites: Musoma, Kisumu and Kampala



Source: Cities Development Strategies for Improved Urban Environment and Poverty Reduction In The Lake Victoria Region: UN-HABITAT 2001



Kisumu (Kenya)

In Kisumu, waste management is recognized as a major environmental concern. Most of the solid waste in the city remains uncollected - with a collection efficiency estimated at 20 per cent of the 500,000 tons generated - resulting in both air and water pollution. Such pollution affects ground water and soil in a number of ways:

- leachate generation
- spread of infectious diseases
- blocked sewers and drainage systems
- spread of foul smoke from private burning of waste and
- pollution of Lake Victoria through run-off and dumping of plastic waste.

In response, the Municipal Council of Kisumu and UN-HABITAT, with support from the International Labour Organisation (ILO), Practical Action and the Umande Trust, has launched the Kisumu Integrated Sustainable Waste Management Project (KISWAMP). The 18-month initiative aims to improve waste management and promote environmental conservation through a public-private partnership approach. The project involves several capacity-building approaches for the improvement of the regulatory environment. These include:

- enforcement of reviewed by-laws
- fee collection
- monitoring and evaluation systems
- private sector linkages
- start-up machinery and
- land-fill development by the Kisumu City Council.

Apart from waste management, in 2001 the Kisumu Municipal Council rehabilitated the Jomo Kenyatta Grounds and Owen Park. Like many other public facilities in Kenya, the grounds suffered many years of disrepair, neglect and lack of maintenance. The grounds were also under threat of land grabbing for allotment to private developers for construction of office and shopping facilities. With support from SIDA and local stakeholders, the Kisumu Municipal Council established the Lake Victoria Trust Fund to oversee upgrading of the park; this included ensuring that



*Jomo Kenyatta Grounds, Kisumu Kenya
(photo credits: Kisumu Municipal Council)*

the recreational facilities were accessible to all members of the public for recreational, educational, business, entertainment, sports, and exhibitions purposes, over and above ensuring maintenance.

Furthermore, the Kisumu Municipal Council, in partnership with the International Center

for Research in Agroforestry (ICRAF) is implementing a schools environmental improvement programme that involves tree planting and the rehabilitation of gullies to protect existing green spaces from soil erosion.

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Homa Bay (Kenya)

In Homa Bay, a major challenge is conservation of the Asego, Simenya and Got Rabuor Hills to curb run-offs from the hills on account of deforestation and extraction of building materials for mining. The Municipal Council responds with the following:

- planting and protection of approximately 200,000 trees annually, through community sensitization programmes
- re-introducing tree nurseries in primary schools, and
- promoting energy-saving cooking technology to reduce dependence on firewood.

Additionally, the council aims to promote the sustainable use of wetlands on the Lake beaches of Paya, Koginga, Lela and Angalo. Rehabilitation and protection of wetlands will include the construction of public washrooms, a modern car wash facility and sensitization of the community to better environmental practices. (Municipal Council of Homa Bay CDS Report, 2006-2010). With support from UN-HABITAT's Lake Victoria Water and Sanitation Initiative, the council is also expected to improve water and sanitation services for approximately 150,000 people. The focus is on rehabilitation of



Aerial view of Homabay Town (photo © UN-HABITAT)

water supply sources, extending water supplies to the poor and constructing sanitation facilities. These facilities include supply and installation of solid waste handling equipment, rehabilitation of treatment works, construction of public water kiosks and integrated sanitation facilities at schools.

Musoma (Tanzania)

In Musoma, poor waste management is recognised as a major environmental challenge. The Municipal Council manages only 12 per cent of the solid waste, out of an average 19,032 tonnes generated every year, and only 0.4 per cent of liquid waste out of an annual average of 1,756 million litres. The uncollected waste remains in soak pits and septic tanks, causing pollution to the environment.

With flooding of the Kitaji swamp - a site used for dumping solid waste - this problem is compounded even further. The swamp covers an area of 6.24 hectares, but the 200-odd households in the vicinity are compelled to vacate their houses during the rainy season. Nuisances such as bad smell, vermin and mosquito infestation lead to disease outbreaks.

The local action agreed upon during the CDS process is to drain the pond and turn it into a park. Landfill areas are to be developed to serve as alternate designated dumping sites; the council is to purchase refuse collection equipment and promote recycling of waste in a bid to improve the collection rate from 12 to 80 per cent. Other initiatives the council is involved in include landscaping, construction of a spillway and tree planting. (Municipal Council of Musoma CDS Report, 2002-2007).



Bukoba (Tanzania)



*Aerial view of Bukoba Town, Tanzania
(photo © UN-HABITAT)*

In Bukoba, mineral resources such as rocks and sand are available and are extracted by local medium- and small-scale miners. Other sectors also depend on these mineral resources for construction activities, resulting in land degradation and the disruption of biodiversity.

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Forests and natural vegetation have also been depleted in Bukoba. The cover is indiscriminately cleared for agricultural activities, fuel wood collection, uncontrolled fires and urban development. Most tree nurseries are owned by individuals who provide seedlings that are planted in open spaces and along the town's streets. The result is an increase in soil erosion, loss of soil fertility, loss of some tree species and drying up of water sources. This also causes siltation - accumulation of sand and mud caused by surface water run-off - that raises the depth of Lake Victoria.

Open burning of solid waste, direct discharge of liquid waste on land and streets, overflowing of toilets during the rainy season and the continuous use of insecticides on tomato plants combine to cause both air and water pollution.

Through a consultative process, the Bukoba Municipal Council has decided a number of local interventions for the conservation of biodiversity. They include the following:

- implementing action plans for the restoration of soil potential
- safeguarding flora and fauna through enforcement of by-laws on water safety and related aspects, and
- promoting a tree planting programme in addition to community environmental education, in order to enhance community conservation awareness (Municipal Council of Bukoba CDS Report, 2006).



Entebbe (Uganda)



*Entebbe Botanical Gardens, Uganda
(photo credits: Deo Gratias Byabafumu)*

Entebbe is home of the Entebbe Wildlife Educational Center, which showcases Uganda's wildlife, especially chimpanzees and exotic birds, as well as the Entebbe Botanical Gardens - a tropical paradise of Ugandan plant life. These beautifully landscaped gardens developed from natural forest have a collection of 309 species, of which 199 are indigenous to Uganda, 122

with known medicinal value and 110 exotic. As a popular attraction for about 40,000 people per year since rehabilitation in 1998, the Botanical Gardens serve as leisure and a recreation site due to the amenities they provide. For further promotion of conservation and sustainable use of biodiversity, local interventions include the following:

- raising community awareness of the management of plant species
- developing appropriate research programmes in collaboration with national, regional and international institutions; and
- improving documentation of preserved plants and seed stock.

Entebbe is well endowed with other natural resources, including Lake Victoria and its wetlands, fish and wild flora/fauna. Apart from supplying food and water, the wetlands provide vital sources of income for many residents of Entebbe which, if safeguarded, would cater for the survival of current and future generations.

However, due to increasing economic activity in the lake and along the shores, sustainability of both renewable and non-renewable resources is endangered. Overexploitation of resources through over-fishing and timber harvesting poses serious environmental risks, as do brick-making, sand mining, reclaiming of swamps and poor solid waste management along with noise and air pollution.



The Entebbe Municipal Council has put in place restrictive measures to control sand mining and brick-makers. It is also engaged in other local interventions that include tree planting along the reserve areas for roads, and better land use for urban agriculture and farming through a community home improvement programme. The council is also promoting water harvesting, especially in schools, along with valley dams and the use of tanks especially in dry belts. Additionally, the Entebbe municipality promotes careful handling, storage and disposal of medical/solid wastes as well as proper landscaping (Entebbe Municipal Council Report, 2005).

Jinja (Uganda)

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Bujagali Falls, Jinja Uganda (photo © UN-HABITAT)

In Jinja the Municipal Council, with support from the French Embassy, has established an Environmental Pedagogic Centre (EPC) to stimulate environmental awareness and support behaviour change amongst the community.

The council has also developed other programmes with respect to land and resource management, as well as the designation of environmental zones within the municipal boundaries, in a bid to restrict development, safeguard shorelines and wetlands as well as control runoffs and erosion from municipal lands. Industrial development zones have been designated in order to prevent harmful effluents from polluting water resources. In addition, the Department of Environmental Protection in Jinja carries out on regular basis conservation initiatives such as maintenance/ beautification of open spaces and street islands, revegetation programmes and tree planting, including the upgrading of tree seedling nurseries. (Municipal Development Plan, 2006-2009)



Kampala (Uganda)



Ggaba beach, Kampala Uganda.
(photo © UN-HABITAT)

Kampala's wetlands have been greatly degraded due to the location of the capital district in an area that combines high population densities with commercial and industrial development. The size and biodiversity of unconverted portions of the wetlands have drastically diminished, with some areas completely converted. Housing, industrialization

and infrastructure development play an important role in wetland degradation. The encroachment and degradation is further driven by various factors such as:

- political interference in abuse of wetlands
- inadequate enforcement capacity amongst the various institutions charged with environmental management
- lack of knowledge and understanding amongst wetland users, law enforcement officers and legislators about the functions of the wetlands, the laws and regulations in place, and the mechanisms for law enforcement. (Makerere University, 2005)

Due to rapid population growth in the city, households generate increasing amounts of unsorted garbage. This combines with indiscriminate dumping of waste and litter even where garbage skips have been provided. This is why Kampala has designated waste management and slum upgrading for immediate action under the CDS. Plans include sensitization to, and training in, sound solid-waste management practices for council officials and community-based enterprises, in addition to supplying garbage skips to all potential garbage collection points in the city. (Kampala CDS report, 2005)



Challenges and Opportunities for local interventions in Biodiversity Conservation

From the onset, it is important to point out that none of the local authorities in the Lake Victoria Cities have to date developed a specific city-wide biodiversity strategy, although emerging challenges in the region are increasingly acknowledged as urban in nature and thus, by definition, local. According to Katschner et al (2005), development of city-wide biodiversity strategies offers a unique opportunity to introduce a paradigm shift, including the following major elements:

- a coordinated and integrated approach to conservation and biodiversity from a city-wide perspective and across line functions
- biodiversity goals based on city-wide biodiversity targets
- equitable distribution of, and access to, biological wealth
- improved and redistributed benefits to local communities arising directly from the conservation of biodiversity
- participatory, open, and transparent approaches to conservation of biodiversity, rather than those of a restrictive nature, or
- creative approaches to the protection and enhancement of biodiversity.

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This notwithstanding, one of the most significant challenges confronting local authorities in the Lake Victoria Cities remains the paucity of information regarding the distribution of biological diversity within the urban environment, or the way it is being used and how best it should be managed (UNESCO/FAO Ecosystem Conservation Group Issue Paper, 2001; State of the World Report, 2007). Likewise, awareness and appreciation of the existence and importance of urban biological diversity is still extremely limited, highlighting the urgent need for interdisciplinary research to assist urban managers and planners to determine the extent, distribution and importance of the city's biological diversity resources (WEHAB Working Group Paper, 2002, UNESCO/FAO Ecosystem Conservation Group Issue Paper, 2001). The situation for local authorities of the region is further exacerbated by the following seven factors:

- lack of financial resources and scientific data
- lack of human and institutional resources;



- outdated urban planning information
- lack of mainstreaming and integration of biodiversity into other sectors, including the use of tools such as Environment Impact Assessments and Social Impact Assessments (SIA)
- inadequate public awareness and stakeholder involvement
- weak or non-existent legislation and policies, hampering monitoring and compliance;
- poor governance systems including lack of cross-sector co-ordination and effective partnerships, leading to fragmented decision-making (WEHAB Working Group Paper, 2002; CDS Municipal Reports: Kisumu, Musoma, Kampala (2005), Bukoba (2006) and the Municipal Plan of Jinja, 2006-2009).

In order to address these challenges, local authorities could undertake the following (under the overall umbrella of Lake Victoria Region Local authorities Co-operation):

- develop co-ordination mechanisms among municipalities and relevant institutions, in order to plan and act in consistency with broader concepts (for example, ecosystems, watersheds and mountains). In this regard, it is important to ensure that the internal organisation and processes of local government are coherent, as this can have a profound influence on their ability to take effective action (Gilbert et al. 1996)
- develop and apply incentives for the preservation and sustainable use of urban biological diversity
- proactively engage local communities in the management of biodiversity resources
- reform public policies and subsidies that undermine urban environment
- launch public education and awareness campaigns, including local/regional workshops, and dissemination of information materials related to the urban environment and biological diversity; and
- provide professional training and education for technicians, decision-makers and policy-makers to promote interdisciplinary activities as well as improve linkages and information flow between government and municipal institutions (UNESCO/FAO Ecosystem Conservation Issue Paper, 2001).



CHAPTER 3: THE BIODIVERSITY

PLANNING PROCESS

Steps to Mainstream Biodiversity Issues into the City Development Strategies

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It is increasingly recognized that cities play a vital role in ongoing global efforts to protect and manage vulnerable ecosystems and biodiversity. Nevertheless, it should be made clear that while the inextricably linked issues of biodiversity loss and degradation of ecosystems are undoubtedly global, in practice, only local and national action has the potential effectively to address the situation (UNEP/UN HABITAT, 2005). This underscores the urgent need for local authorities in the Lake Victoria Cities to link urban management to ecosystem protection and biodiversity conservation, and also ensure their integration into policy documents including the City Development Strategies (CDS).

To date, extensive research by the World Resources Institute (WRI) (in collaboration with UNEP and IUCN and based on global experiences with national biodiversity planning) indicates that the following six steps can be taken into consideration in a typical biodiversity planning

Step 1: Get a Focal Point

From the onset, a municipal authority must establish a focal point within its functions to ensure that there is a coherent driving force for the process. It is also critical to form a multi-stakeholder partnership (through the creation of a Biodiversity Task Force) and systematically identify relevant stakeholders, including government agencies, NGOs, CBOs, businesses, research institutions, local communities and donors,



etc., for a broad range of perspectives and to instil a sense of ownership of the process.

Equally important is adequate funding; the question of resources should be addressed from the beginning and throughout action planning and implementation. It is also critical to involve donors at an early stage and capitalize on synergies with ongoing existing initiatives (UNEP/UN-HABITAT, 1999).

Step 2: Develop a City Environmental Profile

The Environmental Profile should be aimed at extensive information gathering on the current status of, and trends in, the inventory of biodiversity and biological resources in the city. The profile should also include monitoring of the urban environment, laws, policies, human/institutional capacities etc. In this regard, the following are critical:

- select preliminary goals and objectives
- identify gaps between desired and current situations
- review options to close gaps, and
- estimate costs, benefits and unmet needs.

If properly carried out, this environmental profile provides a valuable starting point as well as a common information base which should be regularly updated as new information becomes available. The profile also helps clarify issues further and promotes a wider mutual understanding among the major stakeholders and institutions to be involved in the process (UNEP/UN-HABITAT, 1997).

Step 3: City Consultations

A city consultation brings together a full range of stakeholders including the poor, women and other marginalized groups. It helps break down barriers between various stakeholders, and serves equity objectives as it gives many groups a genuine opportunity to participate in the environmental management and governance of their city. In so doing, a city consultation is one of the most important mechanisms for genuine participation and civic engagement. It promotes openness and transparency while creating a positive environment for collective



problem-solving, in the process enhancing the efficiency of local governance.

Step 4: Develop a City-Wide Biodiversity Strategy

This process entails determining goals and operational objectives, as well as reviewing and selecting the measures required to close any gaps. It is important at this stage to set up Working Groups and hold further consultations and dialogue until consensus is reached on acceptable targets and mechanisms for action. For this purpose, the potential respective roles and responsibilities of stakeholder groups must be clearly identified. This approach recognizes that “strategy building is not simply a technical exercise, but an activity of consensus-building and compromise across a range of technical, political, social and economic interests and factors” (UNEP/UN-HABITAT, 1997:31).

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Step 5: Develop a Strategic Action Programme

It is recommended that the co-ordinated Strategic Action Programme is both agency-specific and stakeholder-specific, describing every agency’s or stakeholder’s commitments for priority action within a well-defined timetable (UNEP/UN-HABITAT, 1997). The process of developing and implementing a biodiversity action plan also involves the following eight major elements:

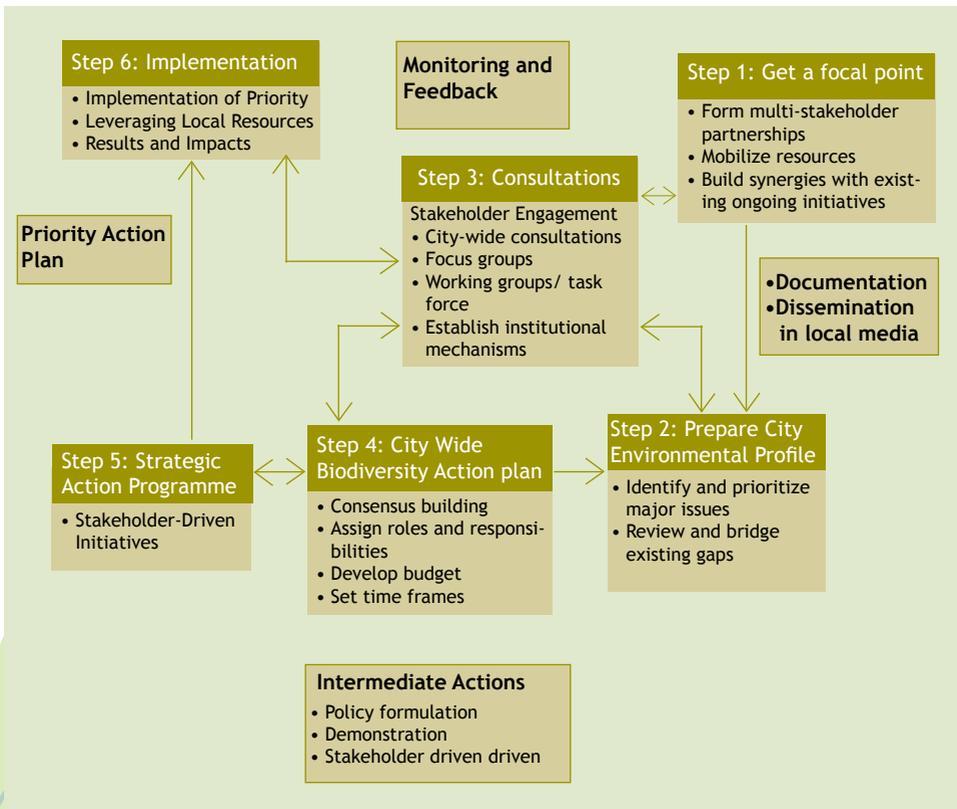
- establishing priorities and targets
- assigning roles and responsibilities
- agreeing on the tools and approaches to be used
- establishing the timeframes and deadlines for completion of tasks
- securing funding;
- agreeing on indicators and measurable targets against which progress can be assessed
- determining reporting responsibilities, frequency and formats; and
- establishing procedures for inclusion of any lessons learnt into the revision and updating of the biodiversity strategy (Djoughlaf, 2006; UNEP/UN-HABITAT, 1999).

It is also helpful for any strategies identified “to be articulated and publicized in the form of both technical and non-technical presentations



and reports to facilitate the ongoing process of clarifying policy options and agreeing on strategies” (UNEP/UN Habitat, 1997:27).

Figure II: The biodiversity planning process





Step 6: Implementation

Activities and policies should be launched in practical ways, so that partners take charge of particular elements of the plan. It is also important to adopt a “multi-stakeholder approach to implementation, so that it becomes possible to use in a co-ordinated and mutually reinforcing way a wide variety of implementation instruments and techniques, including laws and regulations, fiscal and economic incentives, strategic capital investments and public information and education campaigns” (UNEP/ UN-HABITAT, 1997:37). A Biodiversity Forum could also be convened by the city to facilitate communication as well as to enhance partnerships and co-ordination around selected biodiversity issues (Katzschner et al. 1995).

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Monitoring and Evaluation

Any city must observe and measure the impact its the action plan it is conducting as part of its biodiversity strategy. In connection with this, cities must also develop social indicators and record changes in laws and policies (including behavioural responses to biodiversity conservation improvement). Therefore, it is important for municipal authorities to develop a clear and reliable institutional framework for this purpose.



Reporting

Periodic reviews of biodiversity should be made to facilitate continuous flows of information and networking amongst stakeholders. It is also important to carry out a specific programme of advocacy, monitoring and action to disseminate information on biodiversity to the Central Government and the general public, while ensuring that the conservation of biodiversity is duly considered in policy and planning processes at local, national and regional levels (<http://www.gefweb.org>).

In order to implement the above-mentioned steps of biodiversity planning in the Lake Victoria Cities, it will be important for local authorities to set up forums that promote information exchange and the sharing of experiences on biodiversity. It will also be crucial to build synergies with ongoing initiatives under the overall umbrella of the Lake Victoria Regional Local Authorities Association; this will help maximize potential complementarities such as shared budget allocations, co-ordinated instruments for implementation and overlapping geographic scope in the process of developing city-wide biodiversity strategy plans (UNEP/ UN-HABITAT, 1997).





CHAPTER 4: CONCLUSION

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This Working Paper set out to examine the potential role of local authorities in promoting biodiversity conservation in the Lake Victoria Cities within the existing global framework of the international Convention on Biological Diversity. In setting the general context, the inextricable linkages between biodiversity conservation and the urban environment (including the emerging role of cities) was briefly discussed. In this regard, it was emphasized that local authorities, as the level of government closest to the population, have a critical role to play in enhancing both national and global efforts to achieve sustainable development and mitigate loss of biodiversity. Therefore, it remains critical for local authorities to ensure the integration of biodiversity concerns and values into work programmes and action plans, in order to reconcile socio-economic considerations with biodiversity objectives through an ecosystem approach and the application of practical tools such as Environment Impact Assessments (UNEP/UN-HABITAT, 2005).

With regard to the specific biodiversity conservation initiatives being undertaken by local authorities in the Lake Victoria Cities, it was noted that significant efforts had been made to pursue in situ conservation, including promotion of community awareness and environmental education programmes. This notwithstanding, it was emphasized that further concerted efforts were required by local authorities in the region in favour of education and public awareness campaigns on the concept of biodiversity; this should take the form of infrastructure that actively supports both in situ and ex situ conservation, in joint collaboration with local communities. The paper highlighted the need to put in place legislative and regulatory frameworks for the management and protection of threatened species and also ensure the mainstreaming of tools such as environment/social impact assessments. Also underscored was the importance of deploying information and monitoring systems on urban biodiversity, including biodiversity research centres.



In addition, of the paper summarised the major elements of the Convention on Biological Diversity - the existing global framework for biodiversity conservation and sustainable ecosystems management. In this regard, it was noted that the main framework for action under the Convention was the ecosystems approach; this approach seeks to strike a balance in the Convention's objectives through an integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (WEHAB Working Group Paper, 2002; Martinez, 1995). Nevertheless, significant challenges remain with regard to implementation of the Convention at the national level, underscoring the urgent need to mainstream national biodiversity strategies and action plans with those focusing on sustainable development, the environment and individual sectors. It is also critical to enhance the linkages between local, national, regional and global levels, in order to ensure that the needs and capacities of cities are fully articulated in the negotiation of biodiversity instruments and other related Multilateral Environment Agreements (MEAs).

Consequently, it is therefore imperative for local authorities in the Lake Victoria Cities to approach biodiversity from a socio-economic perspective and to favour integration of ecosystem and biodiversity issues into their formal strategy action plans and other major policy documents (including City Development Strategies). In addition, there is need to bridge the widening gaps of implementation between national and local levels; in the process, cities in the region would effectively recognize that urban experiences in ecosystem conservation and biodiversity protection can strengthen national policies, and by extension enable national governments to use local experiences to contribute positively towards the improvement of global policies for ecosystem and biodiversity conservation (UNEP/UN-HABITAT, 2005).

In the final analysis, therefore, the challenge that lies ahead for local authorities in the Lake Victoria Cities remains that of turning the priorities they have identified with regard to biodiversity into effective conservation action on the ground. This will involve mainstreaming prioritised biodiversity issues in the policies, plans and actions of a wide range of stakeholders whose core business is not biodiversity, but whose day-to-day decisions ultimately determine the path towards the sustainable development of a shared urban environment.



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