Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:
1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

LUTEMBE BAY WETLAND SYSTEM RAMSAR INFORMATION SHEET (RIS)

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2. **Date:** 18 September 2005.

3. Country: The Republic of Uganda

4. **Name of the Ramsar site:** Lutembe Bay Wetland System

5. Map of the Ramsar site:
Hard copy: attached
Digital (electronic) format: yes

6. Geographical Coordinates: 32°32" – 32°36"E and 00°09" – 00°11"N**.**

7. General Location:
Lutembe Bay Wetland System is found 25 km south of Kampala**,** the Capital City of Uganda. It is situated in Wakiso district in the sub-counties of Ssisa and Katabi in the central part of Uganda. The Bay is a secluded backwater at the mouth of Lake Victoria's Murchison Bay, between Kampala and Entebbe.

8. Elevation: 1,135 m to 1,173 above sea level.

9. Area: 98 hectares.

10. Overview:
Lutembe Bay at the mouth of Lake Victoria's Murchison Bay and the surrounding highly populated areas have been strongly affected by commercial and industrial development, urban wastewater and conversion to agricultural land. ***Nature***Uganda identified the Wetland as an Important Bird Area for Uganda. It is a freshwater shallow bay and almost completely cut-off from the main body of Lake Victoria by a *C. papyrus* island. Some parts of the wetland remain intact, with *Papyrus*, *Phragmites*, *Typha* and sedges as the dominant vegetation. The bay extends into a *Miscanthus* swamp and merges into the forest remnants to the north and recently cleared horticultural farm to the northwest on the landward side of Lutembe Bay.

Murchison Bay is fed by several swamps most of them having their origins from Kampala. The waters entering Murchison Bay may therefore affect the wellbeing of Lutembe Bay, which forms the backwaters at the mouth of Lake Victoria's Murchison Bay.

The Lutembe Bay wetland System plays an important hydrological role. The swamps surrounding the Murchison Bay have for long also acted as natural filters for the silt, sediments and excess nutrients in the incoming surface run-off, wastewaters from the industries and the sewerage from Kampala City. This helps to purify the surface run-off and maintain the natural clean water conditions important for the survival of many fish species. Murchison Bay is also the source of water for Kampala City's Gaba Water Works. It is also source of water for livestock and domestic use and source of fish for both domestic consumption and export.

The bay supports globally threatened species of birds, endangered Cichlid fish, rare butterfly species, regularly supports Palaearctic and Afrotropical migrant birds, breeding ground for Clarias and lungfish, supports huge congregations of individual species of birds and more than 1% of the White-winged Black Terns' population. However, Lutembe Bay is being reclaimed and decimated for horticultural activities.

The site is being proposed for listing because of its importance as a stopover for Palaearctic and Afrotropical migrant birds, its support to more than 1% of individual populations of one bird species, globally threatened birds and its importance to Lake Victoria fisheries.

11. Ramsar Criteria:

Criteria used to justify wetland include: 2, 3, 4, 5, 6 and 8.

12. Justification for the application of each criterion listed in 11 above:

Criterion 2: Lutembe Bay supports rare, vulnerable, endangered, or threatened species.
Lutembe Bay supports one globally vulnerable species, the Shoebill (*Balaeniceps rex*) and the near-threatened Gonolek (*Laniarius mufumbiri*). There have been several reports of the vulnerable Papyrus Yellow Warbler (*Chloropeta gracilirostris*). Other species of conservation concern listed in the East African Regional Red List of birds (Bennun and Njoroge, 1996),

supported by the wetland system include Northern Brown-throated Weaver (*Ploceus castanops*), White-winged black terns (*Chlidonias leucopterus*, CMS App. II) and Greater Cormorant (*Phalacrocorax carbo*). The Madagascar Squacco Heron (*Ardeola idea*) and Slender-billed Gull (*Larus genei*) are also present at the site, and are both on CMS Appendix II.

Other threatened species include the Sitatunga (*Tragelaphus spekii*) (CITES App. III), and African Spot-necked Otter (*Lutra maculicollis*) and the African clawless Otter (*Aonyx capensis*) (both in CITES App II).

Criterion 3: Lutembe Bay supports populations of plant and animal species important for maintaining the biological diversity of the region.
Lutembe Bay was noted for its high biodiversity values during the 1995/96 wetlands inventory. Because of its richness in biodiversity, the site was identified as one of the minimum critical sites that have to be protected if Uganda is to conserve its wetland biodiversity. The Bay is one of the wetlands with the highest scores of wetland dependent plants. The site was identified by the Wetlands Inventory Team in the Wetlands Inspection Division as being one of the sites that contribute most of the wetland macrophytic plant species, with 18 genera and 19 species. The bay has also been noted for its number of Dragonflies.

Regular waterfowl counts coordinated by ***Nature***Uganda and Wetland Inspection Division show a total of 108 water bird species are supported by the system of which 26 species are Palaearctic migrants, 15 species Afro-tropical migrants and other resident species. Over 100 species of butterflies have been recorded in the wetland system including three rare ones (*Acraea pharsalus, Belenois solilucis* and *Cacyreus virilis*), which have not been recorded in any other of the 30 Important Bird Areas for Uganda.

The system is also one of the areas around Lake Victoria that supports two endangered Cichlid fish species *Paralabidochromis plagiodon* and *Astatotilapia macrops*.

Criterion 4: Lutembe Bay regularly provides refuge to migrant birds during adverse conditions.
Regular waterfowl counts coordinated by ***Nature***Uganda and Wetland Inspection Division show that a total of 108 waterbird species are supported by Lutembe wetland system of which 26 species are Palaearctic migrants, 15 species Afro-tropical migrants and other resident species. It regularly supports migrant population of the Eastern Mediterranean flyway population of the Gull-billed Tern (*Gelochelidon nilotica)*. It is a roosting and feeding ground for both palaearctic and Afro-tropical migrants; and it supports appreciable numbers of Grey-headed Gull *Larus cirrocephalus* (which are known to breed here) and the White-winged Black tern *Chlidonias leucopterus*. Others include species such as Madagascar Squacco Heron (*Ardeola idae*), Slender-billed Gull (*Larus genei*) a mainly coastal species and the Black heron (*Egretta ardesiaca*) and large congregations of migrant waders, which are not normally recorded at many other sites in Uganda.

The above species, in addition to other congregatory species such as Greater Cormorants (*Phalacrocorax carbo*) and the Black-headed Gulls (*Larus ridibundus*), have been increasing in numbers at Lutembe Bay wetland system.

Criterion 5: Lutembe Bay regularly supports 20,000 or more water birds.
Regular waterfowl counts coordinated by ***Nature***Uganda and Wetland Inspection Division show that Lutembe Bay regularly supports over 20,000 roosting water birds. According to counts undertaken between 1999 and 2003, Lutembe Bay has supported an average of 1,429,829 wetland birds (Annex 4).

Congregatory species that roost at Lutembe Bay include the White-winged Black Terns (*Chlidonius leucoptera*), Greater Cormorants (*Phalacrocorax carbo*), Grey-headed Gulls (*Larus cirrocephalus*), and Black-headed Gulls (*Larus ridibundus*). Species of migratory waders and Slender-billed Gull (*Larus genei*), a mainly coastal species, have also been increasing in number at Lutembe since 1998.

Criterion 6: Lutembe bay regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.
From the waterfowl counts undertaken between 1999 and 2004 Lutembe Bay has supported over 1% (average of 1,048,602, i.e. 52.4%) of the population of the White-winged Black Terns (*Chlidonias leucopterus*) (Annex 4). Other important birds with substantial populations include Gull-billed Terns (*Sterna nilotica*), and Grey-headed Gull (*Larus cirrocephalus*).

Criterion 8: Lutembe Bay is an important spawning ground, nursery on which fish stocks, within the wetland depend.
The marshes are breeding grounds for Lungfish and *Clarias*. The shoreline of Lutembe Bay is flat, indented and forested and provides water less than 30m deep where most fishing occurs. The wetlands are permanent and extensive, and provide ideal habitats for lungfish. Lungfish build burrowed nests in swamps where they spawn and raise the young. As there are streams passing through these wetlands, *Clarias* swim up these streams during the first rains for mass breeding after courtship. The tilapines also construct nests in the sandy beaches and mass-brood the eggs until the latter are capable of independent existence.

13. Biogeography:

Lutembe Bay Wetland System is situated in the Lake Victoria Regional mosaic biogeographic zone. The predominant vegetation type is the fire climax secondary grassland and cultivation, but the natural vegetation is wooded savanna (State of Environment Report, 2002). It falls in the Lakes Kivu, Edward, George and Victoria (and satellite lakes) Freshwater Ecoregion (from WWF's "Freshwater Ecoregions of Africa" classification).

14. Physical features of the site:

Climate: The Climate for Lutembe Bay wetland system is tropical in nature and locally falls in the Lake Victoria Climatic zone (State of environment report, 2002). The air currents such as the southeast and northeast monsoons passing over Lake Victoria influence the Climate of Lutembe Bay Wetland System. The system has two distinctive seasons – rainy and dry season. The

rainfall pattern is bimodal. The annual rainfall around Murchison Bay is lower than on the Ssese Islands and in Sango Bay and decreases inland. Lutembe Bay receives bi-modal high rainfall ranging between 2000 – 2500 mm (State of Environment Report, 1998). The mean minimum temperature is 17.4^{o}C and the maximum mean temperature is 26.7^{o}C. The area experiences an evapotranspiration ranging between 1450 – 1600 mm (State of Environment Report 1998).

Hydrology: Several swamps / streams / rivers/ channels drain into Murchison Bay of Lake Victoria and they include the following:

1) Nakivubo swamp (about 500 hectares), which lies in the valley between Bugolobi, Mpanga and Muyenga Hills. It is permanently water logged and the main river flowing through it and draining the Kampala city centre from Makerere Kivulu is Nakivubo Channel. The less waterlogged areas have been modified by cultivation of yams and sugarcane, especially around Namuwongo and Bugolobi.
2) Kansanga (area 954 hectares) situated in Makindye 5 km south east of Kampala.
3) Kinawataka (416 hectares) located in Nakivubo sub-county, approximately 6.5 km east of Kampala city centre. It is formed along Kinawataka River occupying a valley below Banda, Ntinda, Kireka, Mbuya and Mutungo hills and it drains into Lake Victoria.
4) Kawooya (52 hectares) is located in Nakawa Division with nearby villages including Banda, Kireka and Kamuli. It formed along Kawooya River and drains into Kinawataka swamp.
5) Kula (Mayindo, 13 hectares) drains into Kinawataka swamp.
6) Kyetinda (143 hectares) is located in Makindye division approximately 9 km south east of Kampala city centre. It formed along Kyetinda between Buziga and Gaba hills and drains into Lake Victoria.

The estimate of the total riparian population impacting Murchison Bay stands at almost 2 million in year 2000. These swamps and rivers drain directly into Murchison Bay whose backwaters influence the Lutembe Bay waters. The average pH of water flowing into the Murchison Bay is 6.92 (Murchison Bay Water Quality Project Report, 1998).

Geology and Soil types: Lutembe Bay Wetland System is underlain by the Pre-Cambrian rocks (Uganda Atlas, 1967). The rocks comprise of the Cenozoic – Pleistocene to recent series with partly granitized formations; and the pre-Cambrian Buganda – Toro system. Argillites predominate, but basal or near basal arenites are important features. Large tracts of the system are granitised; and low – grade phyllites also occur.

The above rocks give rise to ferrallitic soils, mainly sandy loams with a dominant yellow colour and sandy clay loams with a dominant red color. These soils predominate the system. The dominant yellow color soils are derived from the basement complex of gneisses and granite and these have a medium productivity rating. The vegetation on these soils is composed of *Papyrus*, *Miscanthus* and *Typha*. The dominant red color clay loams are derived from Buganda-Toro rock system mixed schists and these have a high productivity rating. The Vegetation pattern on these soils shows thickets, scrubs, woodlands and high forests.

No information is available on water quality, Soil chemistry, Soil pH, Sediment characteristics and water depth fluctuations.

15. Physical Features of the catchment area:

Uganda forms part of the interior plateau of the Africa continent and is characterized by flat-topped hills in the central, western and eastern parts of the country (State of environment report, 2002). The Catchment is comprised of the Buganda surface (which dominates) and miscellaneous alluvial geomorphic units (Aniku, 1996). The geomorphic units make up many of the peculiarities of landscape and soil patterns in the catchment. The area around the site is hilly and the catchment's boundary is close to the lake. In the Kampala area, on the north-western side of the bay, the valleys are relatively narrow and long, while on the north-eastern side of the bay the valleys are wider. The features of the catchment's are relatively similar to those of the site (refer to section 14).

16. Hydrological values:

Lutembe Bay Wetlands System is a good buffer for Lake Victoria. The Murchison Bay swamps are regarded as a natural resource since their pollution-mitigating effect corresponds to that of a costly man-made treatment plant capable of removing nutrients in equal amounts, thus the swamps act as a natural filter by reducing the pollution load of the effluents reaching Murchison Bay and subsequently Lutembe Bay due to sedimentation and mineralization processes. The wetlands also act as flood control areas for surrounding shore areas. The marshes are breeding grounds for fish. The system plays an important hydrological role for the run-off waters entering Lake Victoria. During the dry season, the system maintains a steady discharge of water and supplements the water supply to Lake Victoria. Despite the fact that commercial flower farming and stone quarrying surround the wetland, these activities have not yet affected Lutembe wetland and Kakindu Bay in particular. The measurement on water around the Lutembe wetland shows that it is not yet laden with pollutants.

17. Wetland Type in order of importance:

Tp (permanent freshwater marshes); **P** – (Seasonally flooded plains), **O** (permanent freshwater); and **M** – (Riverine Swamps).

18. General ecological features:

The diversity of natural flora in the urban wetlands of Murchison – Lutembe bay is low, dominated by papyrus in unconverted areas and patches of *Papyrus*, *Phragmites* and *Vossia* in converted areas.

Extensive areas of fringing wetland in the Lake Victoria basin, dominated by papyrus *Cyperus* and *Miscanthidium violaceum*, permit remnant populations of some species to persist in the small lagoons, satellite Lakes, and tributaries separated by swampy divides from open water areas with Nile Perch. Thick macrophyte growth may inhibit the hunting efficiency and dispersal of the Nile perch. In addition, the extremely low levels of dissolved oxygen that characterize the dense

interior of papyrus and *Miscanthidium* swamps may also limit exploitation by Nile perch since this species has a low tolerance to hypoxia.

The dominant vegetation is a mosaic of papyrus on the open waterside, and *Miscanthus sp*. and *Vossia sp*. towards the dryland. The shallow bay extends into a *Miscanthus* swamp and merges with medium altitude moist semi-deciduous forest remnants to the north, and a recently cleared horticultural farm to the northwest on the landward side. The area is in the neighbourhood of post cultivation communities, *Cymbopogon-Imperata* and the dry *Combretum* savannahs, *Combretum- Hyparrhenia*.

The vegetation in the areas adjacent the wetland is Elephant grass with forest remnants.

The Water hyacinth, *Eichhornia crassipes*, three Tilapiine species (Nile Tilapia, *Oreochromis niloticus*, *Oreochromis leucosticus*, & *Tilapia zillii*) and Nile perch, *Lates niloticus* were introduced in Lake Victoria in 1950's and have led to the extinction of several hundred *haplochromine* species.

19. Noteworthy flora:

The Water hyacinth, *Eichhornia crassipes* an introduced invasive species is one such species that should be noted. The weed has changed the ecology of the waters in Lake Victoria. Other species which should be noted include:
Mosaic papyrus, *Miscanthus*, *Typha*, *Phragmites*, *Echinochloa sp*, *Afromomum*, *Alchornia sp*, *Cladium*, *Cymbopogon sp*, *Themeda sp*, *Vossia sp*, *Eichhornia sp*, *Laudetia sp*, *Phoenix reclinata*, *Sesbania sp*, *Acacia* mosaic, *Raphia* swamp, Rattan cane, *Piptadeniastrum*, *Albizia celtis sp*, *Chrysophyllum sp*, *Pennisetum sp*, Bulrush sorghum and *Marantocloa sp*.

20. Noteworthy fauna:

Two species of rodents *Otomys tropicalis* and *Dasmys incatus* are not common. Among the shrews, the *Crocidura maurisca*, *C. selina* and *Mylomys dybowskii*, are also not common.

Lutembe Bay contains three rare species of butterflies *Acraea pharsalus*, *Belenois solilucis*, and *Cacyreus virilis* not recorded in any other IBA of Uganda.

There are a total of 26 Palaearctic migrants. Most notable are the white winged black terns (*Chlidonias leucopterus*), Slender billed Gulls (*Larus genei*), Gull billed terns (*Gelochelidon nilotica*), Madagascar Squacco Heron (*Ardeola idae*), Black Heron (*Egretta ardesiaca*) and Greater Cormorants (*Phalacrocorax carbo*).

Other species of conservation concern found in this site include Northern Brown-throated Weaver *Ploceus castanops*, and white-winged black terns.

21. Social and cultural values:

The bay is a source of raw materials for local crafts, building materials, water for livestock and domestic use, and fish for food and as a source of income. Like in most parts of Buganda region, the Lutembe Bay wetlands are believed to be host to the traditional values as ancestral homes of the culture.

The catchments and wetlands provide agricultural land throughout the year and especially during droughts. The bays provide landing sites for fishermen fishing within Lake Victoria. Some of the famous landing sites include Lutembe and Gaba. The fish is supplied to Kampala city and the fish processing plants. The wetlands contain building and fencing poles. Several forest plantations (agro-forestry) and peri-urban forestry have been established within the wetland system.

The Bay provides 5 small landing sites, which are outlets for fisheries production in the surrounding Lake Victoria.

22. Land tenure / ownership:

a) Within the Ramsar Site:
According to the 1995 constitution, the government of Uganda holds wetlands in trust for the people. It is therefore imperative that government owns the Lutembe Bay wetlands System.

b) In the surrounding area:
In the surrounding areas land ownership is mainly by Mailo (a land tenure system where registered land is held in perpetuity) and customary (a system of land tenure regulated by customary rules which are limited in their operation to a particular description or class of people) ownership. Few land owners, mainly the large-scale farmers have land titles.

23. Current land (including water) use:

Land uses within the Ramsar Site

Crafts materials: Wetland plants from the area are used for crafts, a lucrative activity for the surrounding people especially those living in and around Lutembe Bay.

Agriculture: In the catchments around the wetland area, there is commercial intensive farming, mainly horticulture for export. There is also scattered small-scale subsistence farming within the area. Crops grown include coffee, bananas, sweet potato, coco yams, Cassava, papaya, Sugar cane, vegetables, beans, castor oil plants, livestock, agro-forestry, fruit orchards

Fisheries / game: Lutembe wetlands are mainly used for fishing. Fishing, fish processing and marketing, fish net manufacturing & braid, boat building, fish culture in ponds (Luzira & Bugolobi), hunting (Sitatunga for meat, Monitor lizard for skin) are some of the main activities.

Land uses within the surrounding / catchment areas

Mining: One other key commercial activity in the hills around Lutembe is stone quarrying and sand mining.

Recreation: The area is also used for recreation with some good sites e.g. Gaba Beach and Lutembe Paradise Beach.

Water supply: The Lutembe Bay Wetlands System is also used for both livestock and domestic water supply. Kampala City water supply depends on the quality of the raw water extracted at the Gaba water works located in the Inner Murchison Bay, which is associated to Lutembe Bay.

Forestry: Building / fencing poles, forest plantations (agro-forestry) and peri-urban forestry, charcoal burning, papyrus harvest (formats), fuel wood production, commercial wood sale; canoes, drums, poles.

Industry: Many service and processing industries exist notably breweries, soft drinks, tanneries, fish processing, motor garages, dairy processing, food processing, pharmaceutical, oil & soap; water works and sewage treatment, brick making, sand / clay / rock mining, building materials (nails, iron sheets, metal / timber doors, windows, glass), Plastic metal ware, depots and service stations, hotels, recreation and resort beaches.

24: Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Threats arising from within Ramsar Site

The conversion of urban wetlands through cutting of papyrus for sale to local markets, for fencing materials and crafts, and cultivation of crops to generate income and family food are threatening the wetlands.
The Water hyacinth, *Eichhornia crassipes*, an introduced submerged plant is affecting the ecology in the area. The introduced species of fish Nile Tilapia, *Oreochromis niloticus*, *Oreochromis leucosticus*, & *Tilapia zillii*; and Nile perch, *Lates niloticus* in Lake Victoria has led to the extinction of several *Haplochromine* species.

Threats arising from the surroundings and catchment area

The nutrient load entering Murchison Bay comes from the Nakivubo Catchment area in which the centre and business district of the city of Kampala is located. The total load of nitrogen to swamps surrounding the bay is estimated at 958 kg/day of which 85% enters the lower Nakivubo swamp via the railway culvert. The total load of phosphorus is about 168 kg / day of which 86% come from the Nakivubo catchments area. Industrial waste discharge to inner Murchison bay is in the order of 25%. The largest contributors are Uganda Breweries which discharges directly to

the Bay, Dairy Corporation discharging to the NWSC sewer networks, century Bottling Company and Mukwano Industries.

Phoenix sp. and other tree species are being decimated for fencing and firewood / charcoal respectively; Unsustainable harvest of Papyrus and Sitatunga (*Tragelaphus spekii*) is rampant; encroachment by industrial and residential development; expansion of cultivation on wetland fringes, reclamation for agriculture; channelling of water, development of housing estates; industries around the swamp; direct industrial discharges through the swamp into the lake; siltation from surrounding agricultural and urban areas; overload with urban / industrial chemical waste and pollution; surrounding floriculture; sand excavations; invasion by water hyacinth; deforestation of surrounding areas; erosion from prison farms; brick making and open pits.

Other potential threats include the stone quarry, which has high concentrations of Magnesium and Calcium. Disposal of wastes from the recreational ground (Gaba Beach & Lutembe Paradise Beach) and the poor subsistence farming methods are likely to affect the water quality.

25. Conservation measures taken:

NatureUganda identified Lutembe Bay as an Important Bird Area (IBA) on the strength of bird species and populations of large congregations of white-winged Black Terns (*Chlidonias leucopterus*) and Gull-billed Terns (*Gelochelidon nilotica*) and records of two globally near-threatened and vulnerable species: papyrus Gonolek (*Laniarius mufumbiri*) and Shoebill (*Balaeniceps rex*) respectively.

There are sound legal and institutional frameworks within which proper management of water resources and wetlands. Policies like the National Environment Action Plan 1995, the Water Action Plan 1995, and the National Wetlands Policy 1995, together with the statutes that have been put in place are such frameworks that can lead to proper wetland management. If implemented, the policies are capable of providing a dependable foundation on which a sound water quality monitoring programme and initiatives to protect Lutembe Bay and Murchison bay swamps can be based.

A management plan was developed for Lutembe Bay wetland by the Wetland Inspection Division.

26. Conservation measures proposed but not yet implemented:

The Wakiso district administration recognizes the need to have Lutembe Bay as a conservation area in order to promote Ecotourism. The district administration has encouraged private developers to initiate ecotourism at Lutembe Bay wetland. Already one private developer - Nsuki Campsite is providing ecotourism services. Activities taking place at Nsuki Campsite include fishing, Birding and camping. Nsuki Campsite also educates the community and the population as a whole to appreciate nature and assist in conserving wildlife.

27. Current scientific research and facilities:

NatureUganda has a regular monitoring programme of water birds within Lutembe Bay. Makerere University Institute of Environment and Natural Resources (MUIENR) conducted a Biodiversity assessment considering major taxa in and around Lutembe bay including fish, plants, butterflies, and dragonflies. There is no field station in Lutembe. However, a number of research stations exist in the nearby Entebbe and Kampala.

28. Current conservation education activities related to communications, education and public awareness (CEPA) related to or benefiting the site:

A number of NGOs have been conducting conservation education activities in and around Lutembe. ***Nature***Uganda has carried out mobilization and sensitization activities around Lutembe bay right from the grass root to District levels. One of the significant education centers in Entebbe is Uganda Wildlife Education Center (UWEC), which is only about 5 km from Lutembe bay.

29. Current recreation and tourism:

Lutembe being near Entebbe International Airport is a popular spot for visitors. A local enterprise center called Lutembe Paradise Beach is popular recreational center. A group of local residents have established a bird guide association to conduct tour visits in and around Lutembe Bay.

30. Jurisdiction:

a) Territorial – Wakiso District Local Government and their lower councils.
b) Functional – National Environment Management Authority and Wetlands Inspection Division; District Environment and District Fisheries Officers for Wakiso District Local Government.

31. Management authority:

According to the 1995 Constitution, the government holds wetlands in trust for the people. Functionally therefore, Lutembe Bay wetland system is in the hands of the Central Government. The 1997 Local Government Act devolved the wetland management to the District Local Governments.

Therefore, the management authority is:
Wakiso District Local Government
(Katabi and Ssisa sub-counties)

P. O Box 7218,
Wakiso,
UGANDA.

32. Bibliographical References:

Aniku, J. 1996. Wetland Soils of Uganda. A Report to National Wetlands Conservation and Management Programme.

Arinaitwe, J. 1997. *Some aspects of the distribution of waterbird communities along the northwestern shore of lake Victoria*. PhD Thesis, Makerere University, Kampala.

Balirwa, J.S. 1998. *Lake Victoria wetlands and the ecology of the Nile Tilapia*.

Bennun, L. & Njoroge, P. (eds.) 1996. Birds to watch in East Africa: A preliminary Red Data List. Research Reports of the Centre for Biodiversity, National Museums of Kenya: Ornithology 23.

Birdlife International (2002). *Important Bird Areas and Potential Ramsar Sites in Africa*. Cambridge, UK: BirdLife International.

Byaruhanga, A., Kasoma, P. and Pomeroy, D. 2001. *Important Bird Areas in Uganda*. East African Natural History Society, Kampala.

Byaruhanga, A. 2002. Information for listing Proposed Ramsar Wetland Sites in Uganda. Lutembe bay, Mabamba bay, Lake Bisina and Lake Opeta Wetlands. ***Nature***Uganda, The East Africa Natural History Society. Kampala.

Byaruhanga, A., Arinaitwe, J. and Williams, C. 2002. Large concentrations of White-winged Black Terns Chlidonias leucopterus at Lutembe Bay, Lake Victoria. *Bull ABC Vol. 9 No.1*.

Taylor, V. & Rose, P. 1994. *African Waterfowl census 1994*. IWRB, Slimbridge, UK. 184pp.

Rose, P.M. & Scott, D.A. 1997. *Waterfowl population estimates*. Wetlands International publication 44, Wageningen, the Netherlands.

Wilson, M. 2000. *Home from Home*. Birdwatch, March 2000, 25 – 27, 48.

Carswell, M. 1986. *Birds of Kampala area*. Scopus special publication No. 2 OS-C EANHS, nairobi.

Department of Lands and Survey, 1967. Atlas of Uganda.

Department of Lands and Survey, 1964. 2000-6/64.

Department of Lands and Survey, 1968. 70/4 Entebbe.

Hughes and Hughes, 1992. A directory of African Wetlands and Shallow Water.

Kansiime, F. and Mwesigye, P. 1999. *Impact of commercial flower farming and stone quarrying on the Ecology of Lutembe bay*.

Ministry of Natural Resources, national Water and Sewerage Corporation. Final Report March 1998, COWI in Association with VKI. Kampala Water Quality Monitoring Programme , Murchison Bay Water Quality Project.

NEMA, 1997d. District State of Environment Report, Mpigi.

NEMA, 1998. State of Environment Report for Uganda.

NEMA, 2002. State of Environment Report for Uganda.

Ogutu-Ohwayo, R. 1998. The Nile Perch fishery. In: *Proceedings of the Stakeholders workshop on: The fisheries of lake Victoria and Kyoga*. Towards sustainable development and management of the fisheries resources of Lakes Victoria and Kyoga (Rapporteur General, Dr. Ogutu-Ohwayo, Rapporteurs: Sekiranda, S., Wanda, F. & Muhoozi, L.). P. 31 – 32.

Okaronon, J.O. 1998. The fish stocks of Lake Victorai. In: *Proceedings of the stakeholders workshop on: The fisheries of lake Victoria and Kyoga*. Towards sustainable development and management of the fisheries resources of lakes Victoria and Kyoga (Rapporteur General, Dr. Ogutu-Ohwayo, Rapporteurs: Sekiranda, S., Wanda, F. & Muhoozi, L.). P. 29 - 31.

Rose, P.M. and Scott, D.A. 1987. *Waterfowl population estimates*. Wetlands International publication 44, Wegeningen, The Netherlands.

Wanda, F.M. 1997. The impact of water hyacinth, *Eichhornia crassipes* (mart).