

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.

1. Name and address of the compiler of this form:

Zambia Wildlife Authority

Private Bag 1

Chilanga, Zambia

Email: zawaorg@zamnet.zm

Tel: 260-01-278365 or 278335

Fax: 260-01-278299 or 278365

FOR OFFICE USE ONLY.

DD MM YY

--	--	--

Designation date

--	--	--	--	--	--

Site Reference Number

2. Date this sheet was completed/updated:

02 September 2005

3. Country:

Zambia

4. Name of the Ramsar site:

LUKANGA SWAMPS

5. Map of site included:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps.

a) **hard copy** (required for inclusion of site in the Ramsar List): *yes* -or- *no*

b) **digital (electronic) format** (optional): *yes* -or- *no*

6. Geographical coordinates (latitude/longitude):

14° 08' - 14° 40'S, 27° 10' - 28° 05'E

7. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

The Swamps are found in the Central Province, west of Kabwe town on the east bank of the Kafue River along the stretch between Machiya Ferry and Mswebi. The administrative region for the Lukanga Swamp is shared between Kapiri Mposhi and Chibombo districts. The site has no protected areas within it, but one can find the Lunga Luswishi Game Management Area to the north-west.

8. Elevation: (average and/or max. & min.)

1 100m

9. Area: (in hectares)

260 000ha

10. Overview:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Lukanga with its estimated 2600 km², is the largest permanent water body in the Kafue basin and is one of the key wetlands in Zambia. The swamps are generally shallow and allow light penetration up to the bottom, allowing for high photosynthetic activity and phytoplankton growth. They are a suitable or ideal habitat for birds and wildlife as well as breeding ground for fish.

11. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

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

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 2: " The site hosts a number of endangered species such as the Wattled Crane (*Grus carunculatus*) which the IUCN Red List classifies as vulnerable, the *Kobus leche* (Red Lechwe) (CITES Appendix II), *Crocodylus niloticus* (Nile crocodile) (CITES Appendix II), *Python sebae* (African python) (CITES Appendix II), *Lutra maculicollis* (spotted neck otter) (CITES Appendix II) and *Balearica regulorum* (Crowned/ Crested Crane) (CITES Appendix II). *Tragelaphus spekei* (sitatunga) is listed on CITES Appendix III"

Criterion 3: "The site supports animal species that are important for the conservation of the biological diversity of Southern Africa. These species include reptiles such as *Crocodylus niloticus* (Nile crocodile) and *Python sebae* (African python); and amphibians such as *Bufo lemairi* (yellow swamp frog), *Bufo regularis* (square marked toad), *Xenopus laevis* (clawed frog) and *Pyxicephalus adspersus* (African bullfrog).

Common mammals include *Tragelaphus spekei* (sitatunga), *Kobus leche* (Red Lechwe), *Redunca arundinum* (reedbuck), *Ourebia ourebi* (Oribi), *Felis caracal* (Caracal), *Felis serval* (Serval cat), *Lutra maculicollis* (spotted neck otter), *Aonyx congicus* (Clawless otter) and *Atilax paludinosus* (Marsh mongoose).

Among the bird species one can find *Grus carunculatus* (Wattled crane), *Balearica regulorum* (Crowned/ Crested Crane), *Anastomus lamelligerus* (Openbill stork), *Ephippiorhynchus senegalensis* (Saddle billed stork), *Leptoptilos crumeniferus* (Marabou

stork), *Dendrocygna bicolor* (Fulvous duck), *Dendrocygna viduata* (White-faced duck), *Pelecanus onocrotalus* (White pelicans), *Plectropterus gambensis* (Spur-winged goose), *Alopochen aegyptiacus* (Egyptian goose), *Pelecanus rufescens* (Pink Pelican), *Ardea cinerea* (Grey Heron), *Ardea melanocephala* (Black headed Heron), *Ardea goliath* (Goliath Heron), *Ardeola ralloides* (Squacco Heron), *Egretta intermedia* (Yellow billed egret), *Egretta garzetta* (little egret), *Bubulcus ibis* (Cattle egret), *Sagittarius serpentarius* (Secretary bird), *Torgos tracheliotus* (Lappet-faced vulture) and *Milvus migrans* (Black Kite).”

Criterion 8: “The swamps also have a vast potential for fishing as they provide a breeding ground for fish. The site has quite a variety of fish species which include the following: *Tilapia*, *Serranochromis*, Cichlids, *Mormyridae*, *Hydrocyon*, Citharinidae, Cyprinidae, Schilbeidae, Claridae and *Lates* etc.”

The most abundant group of fish is *Tilapia* of which *T. rendalli* is the predominant species. Other Cichlids such as *T. sparmani* are the second most abundant group of fish in the commercial catch. However, *Serranochromis Sp.*, Characidae and Claridae comprise the other common species.

The site supplies fish to 3 provinces namely Lusaka, Central and Copperbelt with a population of 6.1 million. In fact, fishing is the major economic activity of the swamps.

13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) **biogeographic region:** Kafue Freshwater Ecoregion

b) **biogeographic regionalisation scheme** (include reference citation): WWF Freshwater Ecoregion classification

14. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The Lukanga swamps are a third order landform located within a second order Degraded Plateau. The swamp is a shallow depression at 1090m a.s.l. that extends into the Kambwe, Chibombo, Kapirimposhi, and Mumbwa districts. The flooding of the swamps results in alluvial soils that are key for the approximately 60,000 residents of the area.

The Lukanga Swamps lie on a plateau with a gentle rolling depression. Most of the area is flat and permanently inundated. The wetland forms in the central basin of the depression. The swamp area averages 2,500km² at low water- 2,600km² at high flood level and is therefore saturated once a year by flooded rivers and dries out partly during the dry season. Water supply into the swamp comes from three main sources namely, direct rainfall into the swamp, inflow from the tributary streams and lastly spillover from the Kafue River. The hydrology of the Swamp is similar to that of the Kafue River in that the swamps are at the receiving end of the river's spillover at high tide.

The Lukanga Basin was probably formed during the up-warping in the west of Namwala, blocking the Kafue River and resulting in the ponding of the Kafue Flats and the Lukanga Swamps.

In general, the soils in the Lukanga area are acidic. There are seven soil types (UNFAO 1968a), Webster (1965), Branmer (1973) and Trapnell and Clothier (1996). These are as follows: -

- a) The swamp soils are inorganic with high contents of vegetative matter. They occur in permanently water-logged areas and are generally dark in color and range from a few centimeters to 30 centimeters in depth.
- b) Flood plain soils that are alluvial derived from siliceous rock material. They contain peat organic matter of variable thickness and occur particularly along the banks of the Kafue River and around the swamp margins.
- c) Sand veldt soils are the coarse-grained loamy sands that are mixed with clay. The soils are yellowish red to light yellowish brown or grayish-brown in poor draining areas. They are formed from underlying igneous or siliceous sedimentary rocks and are the most dominant in the mixed savanna and *Brachystegia* woodlands.
- d) The red-brown loams are in the well-drained areas. They are generally reddish-brown but tend to yellowish brown and grayish-brown in poorly drained areas. These soils are actually mixed sandy loams and are located in the southern part of the Lukanga in Mumbwa district.
- e) The leached sand veldts are soils that are yellowish-brown. They are light sand loams that are excessively leached by rain. They are found in the northern region of the swamps.
- f) Red clays appear dark red when well drained, but tend towards brown to dark gray when poorly drained. This type of soil occurs in small amounts in the eastern and southeastern parts of Kabwe and Chibombo.
- g) Lastly, the dambo soils range from sand to clay in texture although they at times are organic and dark gray in color. They are commonly found in the southern, eastern and northern parts of the swamp.

Chabwela (1998) observes that the inter-annual fluctuation in the swamp water level sometimes results in the drying up of large patches of the swamp and the consequent lowering of oxygen levels in other areas. The lowering of oxygen level in the dried up swamp is probably responsible for the dominance of the swamp habitat by species that are tolerant of low dissolved oxygen levels such as barbel fish and several species of *Tilapia*.

The Lukanga Swamp is not rich in species diversity probably due to their partial drying out during the dry season.

The area experiences three main types of season: wet, cool dry and hot dry seasons. The wet season is from October to March, ranging from 600mm to 1400, increasing towards the source. Average temperatures in the wet season range from 20 to 22.5 degrees Celsius, cold

dry is normally 15 degrees Celsius and the hot season ranges from 22.5 to 27.5 degrees Celsius.

15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Lukanga basin is 58, 909 square kilometers and covers an area stretching from the copperbelt of Zambia down to the Central province, where the Lukanga swamps are found. It is part of the upper catchment of the Kafue Basin excluding the Lunga river catchment which joins the river after Lukanga. Some of the major tributaries in the Lukanga catchment include the Luswishi, the Lufwanyama, and the Lukanga.

Geomorphologically the area is part of the first order unit called the Central African Plateau, the second order landform called the degraded plateau and the third order landform that includes the floodplains, lakes and dambos in the south and dissected plateau, hills ridges and minor escarpments in the northern side. Geologically the area is of late Precambrian to lower Paleozoic era and the northern side of the catchment comprises Lower roan with basal conglomerate, which is the main copper bearing unit. It also includes quartzites, conglomerates, argillites, arkose sand some dolomite (JICA 2005).

The main soils in the upper catchment are Acrisols and in the Lukanga we have the Lukanga swamps which have soils high in organic matter clays and silt.

Main land use in the basin includes small scale, medium scale and large scale (commercial) agriculture, others are protected forest areas and indeed the wetlands of the Lukanga where fishing is practiced (JICA 2005).

The area experiences three main types of season: wet, cool dry and hot dry seasons. The wet season is from October to March, ranging from 600mm to 1400, increasing towards the source. Average temperatures in the wet season range from 20 to 22.5 degrees Celsius, cold dry is normally 15 degrees Celsius and the hot season ranges from 22.5 to 27.5 degrees Celsius.

16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Lukanga is in some ways a spill over reservoir that has an identical inflow- outflow system. Excess floodwater is stored there and flows out during dry season with large amounts of inflow having been lost through evaporation.

The wetland acts as a sediment trap and indeed a trap for metals from the copperbelt of Zambia. It is vital in the stabilization of the water flow to the Itezhi-tezi dam and the Kafue Flats.

17. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar “Classification System for Wetland Type” present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

Tp-Ts-U-N

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The wetland has three characteristic types: Palustrine, Lacustrine and riverine. Palustrine wetland covers at least 95% of the Lukanga swamps and includes permanent swamp, termitaria grasslands, and dambos. Lacustrine wetland covers about 5 percent of the swamps and is permanently inundated. The riverine wetlands occur along the fringes of the Lukanga and Mushingashi rivers. These swamps are part of the Kafue Drainage basin.

The main habitat is of *Brachystegia* woodland, although mixed savanna vegetation types tend to increase in the lower areas of the slope followed by termitaria, reed marshes and open water bodies or lakes. Mammal species include Red Lechwe, Sitatunga, Waterbuck and Hippopotamus. Bird life includes Grey Heron (*Ardea cinerea*), Great White Egret (*Casmerodius albus*) and Yellow Billed Duck (*Anas undulata*).

The most abundant group of fish is *Tilapia*. Others are *Serranochromis* (*Stripped Robber) *Schilbe mystus*, *Marcusenius*, *Barbus*, Characidae and Claridae species. There is no clear indication of habitat preference by these species other than the migration for breeding purposes and for shelter against predators.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Phragmites spp.- covers much of the Lukanga Swamps

Nymphaea spp.- most prominent in the vegetated areas of the Lakes between 1-2 meters water depth.

Typha spp.- after Phragmites, Typha is the second most common community that dominates the deeper water of the swamp.

Vossia cuspidata- this is the third largest plant community in the Lukanga Swamp. The community occupies areas along the Kafue River (especially in lagoons) and along the Lukanga and Lupoposhi rivers. Abundance of this community is an indication of an unstable hydrological system and high amplitude of water level regime (Denry, 1985; Howard-Williams and Graudet, 1985).

Aeschynomene Swamp- this community is common at the Lukanga and Lupoposhi Rivers and also occupies the edge of the permanently flooded areas.

Cyperus papyrus- has been replaced by *Vossia cuspidata* in the shallow waters of the Lukanga and by *Typha* and *Phragmites* in the deeper waters. The community's disappearance in most parts of the swamp may be attributed to the seasonal fluctuation in water level, a factor that caused the decline of the same plant species in parts of the River Nile in Sudan and Egypt (Thomson, 1985).

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Crocodylus niloticus (Nile crocodile) - distributed throughout the Lukanga swamp, in areas of minimal human disturbance (abundant)

Python sebae (African python) - has wide distribution in the swamp (abundant)

The frogs and toads of the species: *Bufo lemairi* (yellow swamp frog), *Bufo regularis* (square marked toad), *Xenopus laevis* (clawed frog) and *Pyxicephalus adspersus* (African bullfrog) are amongst the most commonly occurring amphibians on the swamps (abundant).

Tragelaphus spekei (Sitatunga) - confined to the perennial swamps in the reed beds of *Phragmites spp.* and *Typha spp.* (exact population not known, but estimated at ~ 350 rare).

Kobus leche (Red Lechwe) - first documented (Hanks, 1969) in the Itundu plain; the area of confluence of the Lukanga and Kafue Rivers. It is not clear whether the Lechwe occurs in other parts of the swamp, but local information indicates that there may be a few scattered in the north-east of the swamp in the Lubilo area (~300-400 animals) There is limited distribution of the lechwe in the Lukanga swamps-(endangered).

Redunca arundinum (reedbuck) - the species has been eliminated in the eastern side of the swamp, but there is at present a sizably small population between Chilwa Island and Kafue River in the tall termitaria habitat (severely threatened).

Ourebia ourebi (Oribi) - quite widely distributed in the Lukanga swamp in the short and tall termitaria zones where human disturbance is minimal (threatened).The above animals are commonly found throughout Zambia. But they are very rare in the Lukanga swamps-threatened by hunting.

Felis caracal (Caracal) - considered a pest in human settlements. It usually inhabits woodlands and bushland areas in the area (rare).

Felis serval (Serval Cat) - common in the swamp area along the short and tall termitaria zones, though numbers are relatively low.

Lutra maculicollis (spotted necked otter) - often seen in the swamp area (exact population not known).

Aonyx congicus (Clawless otter) - rare (exact population not known).

Atilax paludinosus (marsh mongoose) - common in many parts of the swamp, particularly in areas of minimal human disturbance (abundant).

At least 316 bird species have been recorded within the region (Brooke, 1996; Dorset, 1996; UNFAO, 1968).

Unlike the mammals, the birds may cover several areas within a day, thus the region in this context refers to the Kafue Flats, Kafue National Park, Busanga Plains, Lunga- Luwishi Game Management Area and the Lukanga Swamp itself. No data on the abundance and distribution of the birds was assessed.

1) CRANES:

Grus carunculatus (Wattled Crane) ~ 140 birds

Balearica regolarum (Crowned/ Crested Crane) - occurs in small numbers in suitable habitats particularly in the northeast of the swamp in the Mufukushi River area

2) STORKS:

Anastromis lamelligerus (Open billed stork), *Ephippiorhynchus senegalensis* (Saddle billed stork) and *Leptoptilos crumeniferus* (Marabou stork) are all common in the area. (Specific information on the storks of the Lukanga Swamps is limited, though general indications are that a number of species occur).

3) DUCKS AND GEESE:

Dendrocygna bicolor (Fulvous duck) - occurs in large numbers in the *Nymphaea* plant community, and at the edge of the *Typha* and *Phragmites* communities (uncommon).

Dendrocygna vidulata (White faced duck) - observed particularly in the Lagoons and marshes. Has extensive distribution and may breed within the swamp in the areas of fewer disturbances (abundant).

Plectropterus gambensis (Spur winged goose) - although rarely gregarious, it occurs in small flocks in the Lukanga Swamps. Though the possible nesting grounds could be between Chilwa Island and Kafue River, it is highly unlikely that the geese breed in the Swamp (abundant).

Alopochen aegyptiacus (Egyptian goose)- the species utilizes the areas along the Kafue River, upper Lukanga River and the delta of Mafukushi River and is therefore quite uncommon (abundance not known).

4) PELICANS:

Pelecanus onocrotalus (White pelican) - rare

Pelecanus rufescens (Pink Pelican) - rare

5) HERONS, EGRETS AND BITTERNs:

Ardea cinerea (Grey Heron), *Ardea melanocephala* (Black headed Heron), *Ardea goliath* (Goliath Heron) and *Ardeola ralloides* (Squacco Heron) - common

Egretta intermedia (Yellow billed egret), *Egretta garzetta* (Little Egret) and *Bubulcus ibis* (Cattle egret) - common

The little Bitterns are quite common in the *Typha* plant community and the reedbeds.

6) BIRDS OF PREY/ SCAVENGERS:

Most of the large birds inhabit the woodland and termitaria zones, especially the area between Chilwa Island and Kafue River. Among the birds of prey and/ scavengers frequently seen one finds *Haliaeetus* (African fish Eagle)- mostly occurring along the Kafue River, *Sagittarius serpentarius* (secretary bird), *Torgos tracheliotus* (Lappet faced Vulture) and *Milvus migrans* (Black Kite).

21. Social and cultural values:

e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

The Lukanga Swamps supply Kabwe, Lusaka, Central and Copperbelt provinces with fish and are therefore an important fishery in the region.

The swamps are home to many initiation ceremonies for most of the ethnic groups - especially those of girls. In the past, amongst the Lenje and Tonga speaking people, the ceremonies used to be big community events. However, because of persistent food shortages in the area this is no longer the case. The girls that underwent such ceremonies were introduced to issues concerning sexual conduct and how to raise a family. Although it was clear from interviews conducted that most respondents were aware of HIV/ AIDS and how it is transmitted, the issue of the disease is still not a part of the 'syllabus' of these ceremonies.

22. Land tenure/ownership:

(a) within the Ramsar site:

(b) in the surrounding area:

The Lukanga swamp falls under the traditional system of proprietorship. For indigenous people (Lenje and Batwa), land acquisition is through inheritance, but for the migrants (non indigenous) settlers, land is acquired from the local Chief through the village headman. Until now there has been no requirement for title deeds- this has been changed since all land in Zambia is under the Office of the President.

23. Current land (including water) use:

(a) within the Ramsar site:

- a) Temporary settlements of fishing camps on the 'floating islands' (dominated by foreigners). The dugout canoes are used as a means of transportation between the 'islands' in the swamps. The swamps are an important source of reed material for basketry that the region is famous for.

(b) in the surroundings/catchment:

- b) Agriculture (livestock rearing and cultivation) in the highland areas where there are high yields, wildlife conservation and settlement. Forest products such as fruits, honey, mushrooms and insects are collected for food.

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

(a) within the Ramsar site: and (b) in the surrounding area:

- a) Over fishing and deforestation (due to charcoal burning and land clearing), agro-chemicals causing eutrophication of the water body.
- b) Poaching, agro-chemicals, erosion, and settlements (by its nature, the type of land tenure in the Lukanga swamp poses a lot of environmental problems as it does not provide incentives for proper control and accountability over land use).

25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Reasons are not clear why this wetland is less understood despite its high potential for fish and wildlife conservation. Management is non-existent at the moment and there are no plans of how to utilize this wetland.

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

Management of the swamp is a proposed plan.

To redress the environment and natural resources of the area and to address poverty issues, it is proposed to develop a local strategic management plan with full participation of the local communities. Based on the available information, it is recommended that the whole of the Lukanga swamp be considered as an ecological zone important for conservation.

It has also been proposed that the Government should consider treating the local community as equal partners in development and consider adopting community based resource management as a strategy for tapping indigenous knowledge systems in all future conservation programs.

It has been recommended that the Government liberalize the land tenure system to improve control and accountability in the utilization of land resources by the community.

Preliminary studies have been done on the Lukanga and this has led to even more detailed inventories on the site. The detailed studies include studies of the resources of the swamp, and the economical and social status of the people of the swamp. These studies have led to the proposal of the strategic plan and a national policy.

27. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

There is currently a forestry project by the African Development Bank under the Forestry Department.

Preliminary studies have been done on the Lukanga and this has led to detailed inventories on the site. The detailed studies include studies of the resources of the swamp, and the economical and social status of the people of the swamp.

28. Current conservation education:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

WWF/ZEP has played a major role to establish the Waya Community Fish Board: this is a community based program that carries out environmental education and sensitization programmes on fish conservation etc.

29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The Lukanga Swamps and its surrounding areas have poor infrastructure, including roads. Travel between islands within the swamps is by dugout canoes. This is suspected to be the reason why the area has not developed a constant tourist flow in spite of the natural beauty of the place.

30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Implementation of the Wetlands Policy housed under the Ministry of Tourism, Environment and Natural Resources (MTENR) and is executed by the Zambia Wildlife Authority

31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Zambia Wildlife Authority

Private Bag 1

Chilanga, Zambia

Email: zawaorg@zamnet.zm

Tel: 260-01-278365 or 278335

Fax: 260-01-278299 or 278335

No local authority responsible for the management of the site is present yet at site level.

32. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Chipungu P M (Denams Environmental Services): The Lukanga Swamps Inventory And Management Project; An Ecological and Socio-economic Evaluation Report.

Chabwela H N W et al (1994); Status Of Wetlands In Zambia: Management and Conservation Issues

Environmental Council Of Zambia (2000): STATE OF ENVIRONMENT REPORT 2000 – Norwegian Agency for Development Cooperation

Jachmann H (2000): Zambia's Wildlife Resources- A brief Ecology
Norwegian Agency for International Development Cooperation

The study on National Water Resources Master Plan in Zambia. Interim report. February 2005. Yachiyo Engineering Co. JICA.

Please return to: **Ramsar Convention Bureau, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • e-mail: ramsar@ramsar.org