

## Information Sheet on Ramsar Wetlands

1. Date this sheet was completed/updated: 29 October 2001

2. Country: Guinea

3. Name of wetland: Niger-Niandan-Milo

4. Geographical coordinates:

10° 00' and 11° 00' North latitude  
09° 00' and 10° 00' West longitude

5. Altitude: 370 metres

6. Area: 1,046,400 hectares

7. Overview:

The site covers a good part of the prefectures of Kankan and Kouroussa. It begins at Diolibakoro Landing on both sides of the Niger, Milo and Niandan rivers, which give it its name. It is bordered on the north by the prefecture of Siguiri and is within the prefecture of Kankan at the limit of the districts of Fodékaria and its floodplains from near Mandiana up to the protected forest of Gouanankoura towards the prefecture of Kérouané. It extends through the area of Kouroussa up to the district of Diareguéla and then towards the south to the Kouya plain.

Its vegetation is Guinean savannah and wooded and dry forests. The protected forests of Baro, Djène, Koubamcourou, Kourani, Léfarani, Mafou and Olété are located here. The climate is dry with a temperatures ranging between 28° and 32° C and an average rainfall of 1300 to 2000 millimetres. There are two seasons: a rainy season from June to October and a dry season from November to May dominated by a hot and dry wind, the harmattan. Relief is flat and gives the site the appearance of a large alluvial plain in the middle of which many streams snake forming ponds and pseudo lakes (see list of streams in the annex). The floodplains are important for agriculture and fishing.

8. Wetland type: M, N, Tp, 3 and 4

Inland wetlands:

M: Permanent rivers/streams/creeks; includes waterfalls;

N: Seasonal/intermittent/irregular rivers/streams/creeks;

Tp: Permanent freshwater marshes/pools; ponds (fewer than eight hectares),

marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season;

Human-made wetlands:

3: Irrigated land; includes irrigation channels and rice fields;

4: Seasonally flooded agricultural land;

9. Ramsar criteria: 1, 2, 3 and 4

The criterion that best characterizes this wetland is criterion 3: Existence of important plant communities for maintenance of biological diversity. This criterion best characterizes the site because of the existence of dry primary forests, which exist only at this site and the Niger Mafou site. They have not been disturbed by man.

10. Map of site included? Please tick yes -or- no

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

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12. Justification of the criteria selected under point 9, on previous page:

Criterion 1: This site is part of the upstream area of the Niger River within a dense hydrographical network participating in supplying important rivers, including the Niger, Milo and Niandan. It is a link between the upstream and downstream parts of the Niger River basin. It plays a role in supplying and discharging the basin through several tributaries and minor tributaries and is representative of the important hydrological role networks of wetlands play in West Africa.

Criterion 2: An endemic endangered species of fish, the *Arius gigas*, is found at this site because of overfishing. This fish belongs to the Ariidae family of several genera of large Siluriformes in general. It is endemic to the Niger basin. This endemism dates from long ago because the other species, *Chrysichys furcatus* (*C. maurus*) and *Lates niloticus* dating from the Lower Holocene, were identified in the Central Delta of the Niger by Daget in 1961.

Criterion 3: At the site, there is a dry primary forest that has never been harmed by man despite man's deterioration of the general ecological system. There is a varied fish fauna. Recent studies estimate that there are currently 207 species in the Niger River, placing it in second position in Africa before the Nile with 127 species and far behind the Congo River with 690 species. In addition, this site is visited annually by

waterfowl of the following species: spur-winged goose (*oie de Gambie*) (*Plectropterus gambensis*), white-faced tree-duck (*dendrocygne veuf*) (*Dendrocygna viduata*), *héron garde-bœuf* (*Ardeola ibis*), *aigrette garzette* (*Egretta garzetta*) and jacana (*Actophilornis africana*).

Criterion 4: The site serves as a refuge under stressful climatic conditions for terrestrial and aquatic wildlife. From the point of view of wildlife resources, the site is part of the migration corridor of large mammals in Guinea (Côte d'Ivoire, Guinea, Mali and Senegal).

### 13. General location:

This site partially covers the prefectures of Kankan and Kouroussa, which are 83 kilometres from each other. Kankan is both the natural regional centre and the administrative centre of the regional government (gouvernorat). At the level of decentralized management, the site is under the responsibility of six *cantonnements forestiers* of the Kankan prefecture and five in the prefecture of Kouroussa. Kouroussa to Conakry is 580 kilometres, and Kankan to Conakry is 663 kilometres.

### 14. Physical features:

**Soils:** The site is located on poorly evolved entisols and fersiallitic, alluvial and hydromorphic soils.

**Hydrology:** The site has a dense network hydrographical based on the important Milo, Niandan and Niger rivers. It is a link between upriver and downriver parts of the Niger River basin. This is why it plays a role in supplying and discharging the watershed through several tributaries and sub-tributaries. Water quality is relatively good. Threats of pollution can occur over time with the increasing use of pesticides in the growing of cotton. Water depth varies from season to season. Silting is very heavy. This is why construction of the dam at Fomi, in addition to supplying electricity, plays a positive role in regulating the water regime, making possible navigation on the Niger River year round between Guinea and Mali.

### 15. Hydrological values:

It plays the role of regulating water downstream depending on the climatic conditions. Capturing of sediments leads to silting up of waterways and also by the accumulation of humus on the basin's floodplains. The water basin project has begun planting tree for protection, which are beginning to have positive effects on the basin because the overall water balance of the site is considered important during recent years. Also, the presence of gallery forests at several places contributes to protection of the banks.

### 16. Ecological features:

The main types of habitat are beds of rivers and streams, floodplains, permanent or seasonal pools formed by depressions in minor streambeds, backwaters that are *biefs* linking streambeds to floodplains, grottos, termite mounds (abandoned or active) and holes, ditches and underground passageways.

Types of vegetation: gallery forests, grasslands and grass and wooded savannah.

The dominant local plants are *Azelia africana*, *Danielia oliveri*, *Isobertinia doka*, *Khaya senegalensis*, *Pterocarpus erinaceus* and *Vitellaria paradoxa*. The exotic plants are *Acacia* spp., *Cassia siamea*, *Gmelia arborea*, *Gossypium* sp. and *Tectona grandis*.

The aquatic and semi-aquatic (riparian) plant associations are dominated by the Gramineae: *Andropogon*, *Pennisetum*, *Vitellaria*, on the banks and *Echinochloa* spp., *Oryza* and *Panicum*, in the area subject to flooding and in the ponds where Nymphaeaceae (*N. lotus* and *Nuphar* sp.) also dominates, *Hydrocharis* and *Ceratophyllum*. Some places, Cyperaceae or *Typha* dominates. The banks are often cleared and covered with grasses, various shrubs, *Mimosa* sp. (semi-aquatic) and sometimes reeds (*Phragmites*)

Invasive species: *Typha*. The water hyacinth and water lettuce have not yet been reported. Vegetation is almost identical to that of the surrounding areas.

#### 17. Noteworthy flora:

*Acacia albida* and the shea tree (*Vitellaria paradoxa*) are closely linked to this wetland. Among the actively exploited species, *Azelia africana*, frequently used in furniture making, is endangered.

#### 18. Outstanding fauna

Wildlife is rich and varied. There are mammals, insects, reptiles, amphibians, birds and molluscs. An endemic is the fish *Arius gigas*. Under its conservation programme, the Parc National du Haut Niger, in cooperation with the Université de Kankan and the Onchocerciasis Project at Kankan, began a research programme on fish populations of the Upper Niger and this species was captured in the Niger River near the protected forest of Mafou. This fish belongs to the Aridae family, in which are included large Siluriformes in general. It is endemic to the Niger basin. This endemism goes far back because remains of that species, *Chrysichys furcatus* (*C. maurus*) and *Lates niloticus* dating from the lower Holocene were identified in the present Central Niger Delta by Daget in 1961. Contrary to many other species in the genus of *Arius* living in the sea or brackish water, *A. gigas* is strictly a freshwater fish. Earlier, *A. gigas* was relatively abundant in the Niger. Because of the rapid growth of river fishing and the economic importance of the species, stocks have very quickly dropped to the point that *A. gigas* was threatened with extinction. Its large adult size (about 1400 millimetres long and weighing up to 40 kilos) makes it an especially vulnerable species.

According to the literature, this species exists only in the Niger basin. The last time it was caught was in the Mafou River, one of the major tributaries of the Niger by a team of scientists of the onchocerciasis project and the Université de Kankan under an agreement for studying fish linked to the Parc du Haut Niger. It has also been reported in several other tributaries of the Niger River.

#### 19. Social and cultural values:

Agricultural production: At the site, agriculture is the main activity (see figures 4a and 4b in the annex)

Grazing: (see annex figure 4c).

Water production: Water is both surface and underground water.

Fisheries: According to Dr. H. Matthès, the production of Guinean freshwaters (excluding brackish estuarine water) is between 8,000 and 10,000 tons per year, of which 6,000 to 8,000 tons for just the Niger River basin. Despite the lack of specific data for the site, there is good reason to state that fishing is an important activity in the wetland.

Apiculture is an activity that is becoming important at the site.

In general, all these activities are carried out extensively, which does not contribute to sustainable exploitation of resources. However, management of the ponds by families for the benefit of all the communities is a form of sustainable exploitation. Legend has maintained the myth concerning the forest of Mafou, which is considered to be a place of pilgrimage for animals. According to the legend, any wounded animal is automatically cured as soon as it enters the forest. If an imprudent hunter enters the forest tracking a wounded animal he will never come out. Until creation of the Parc du Haut Niger, this myth was always respected. This has contributed to maintenance at the site of a relatively important wildlife population. The site is visited by waterfowl. According to the legend, the Baro pond, which belongs to the Camara family, is inhabited by a spirit that always comes to the aid of people in distress whenever they ask for a pardon. That's why many persons come here during the solemn fête to ask the spirit for either money or a child. If the wish of one of them is granted and a promise of a gift has been made, that person must return to the village and give the gift not directly to the Camara family, but to the Conde family, which manages the pond for the Camara family. This pond will celebrate its 708th anniversary in 2002.

## 20. Land tenure/ownership of:

At the wetland, the land tenure system is based on customary law. Ownership of land is gained through having first occupied it or inheriting it from parents who were the first inhabitants. The land can be loaned, given or given in guarantee, but is seldom sold. However, the government remains the potential owner of all land.

At the site, land tenure is based on custom, by simple occupation (theory of the first occupant), loan, gift, and inheritance or as the result of a guarantee. The lack of a rural land tenure code is a legal gap which should be remedied although conflicts over land are not yet frequent. However, the government remains the potential owner of all the land. The protected forests belong to the government and have a special status because they are sanctioned by an official act (presidential decree).

Among the approaches, the Direction Nationale des Eaux et Forêts began classifying forests for the benefit of associations called *groupement forestiers* at the site. In this

case, a certificate is provided. When the forest area reaches 100 hectares, the ministry in charge of the forests signs the certificate. Under 100 hectares, the certificate is signed by the Directeur National des Eaux et Forêts.

Land tenure at the site is identical with that of the surrounding areas. The initiative of the committee of river basins by the Direction Nationale of the management of the water resources in order to conserve the natural management of the water resources and protection of the natural resources (land, soil, vegetation).

#### 21. Current land use:

Land use at the site is essentially farming (see the areas occupied by agriculture in the annex figure 4b).

The area of the protected forests at the site is:

P.R Kouroussa 727 hectares  
FC. Baro 8,000 hectares A/1110/SE/F of 17/03/1943  
FC. Kouya 67,400 hectares (site of the Parc du Haut Niger created by decree D/97/011/PREG/SGG of 28 January 1997)  
Tamba Sud 1,250 hectares A/2408/SE/F of 22/09/1943  
Tamba Nord 12,390 hectares  
Kourani Oulété Djènè 59,000 hectares A/13/09/SE/F of 12/07/1954  
P.R Bérékéna 120 hectares 01/06/1942  
Koumban Kourou 4,000 hectares 17/03/1943  
Lèfarani 1,400 hectares

The area of the groupements forestiers is:

Groupement forestier Gbéléma Mara----- 25 hectares  
Groupement forestier Gbéléma Mara----- 25 hectares  
Groupement forestier Gbéléma Mara----- 25 hectares  
Groupement forestier Diédé-----information not available  
Groupement forestier Dembagnouma----- information not available  
Groupement forestier Kandarla-----information not available

Population: see annex

Water supply is surface and underground.

a) surrounding region/watershed: These are the same land uses as in the surrounding regions and watershed.

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

which are carried out extensively accompanied by excessive deforestation or the haphazard use of burning leading to soil denudation, acceleration of erosion, destruction of the vegetation and decrease of wildlife resources. Also, the growing of cotton, which earlier was not widespread has now become important and contributes

not only to deforestation but also with the progressive use of pesticides. The unfavourable factors are naturally linked to socio-economic activities of the local inhabitants, including among others agriculture, which in the long run could be a source of pollution of the water and as a result a danger for the whole trophic chain. Some practices of irresponsible fishing compromising preservation of the integrity of aquatic environments subsist almost everywhere, such as the use of procedures for large-scale of fish (use of dynamite, chemical or vegetable products). Avec la professionalization at the level of fishing these methods decrease from year to year.

Since creation of a Direction Nationale de la Pêche Continentale et de l'Aquaculture, there have been considerable effort to organize fishing. Some people are beginning to specialize in this activity.

Currently, there are three categories of fishermen in Guinea, in function above all of the degree of professionalization of the fishermen and the relations they have with the land: professional fishermen; traditional small-scale fishermen and non-traditional fishermen. To these three large categories can be added occasional fishermen, men or women.

The Onchocerciasis Project contributes to pollution of the site.

In the campaign against the vector of the disease, the project frequently treats the water since 1987 with selective insecticides. From the point of view of biology, the major trends are that the *Mormyridae* have tended to decrease in numbers in favour of the *Characidae* (*C. breuil*). According to the same author, this can also be because of prolonged droughts. Also, before construction of the bridge over the Niger at Irikiri, local fishing groups built dykes in the riverbed during the dry season in order to allow vehicles to cross (whenever the ferry cannot faire passer the large lorries because of silting). This interfered with migration of fish but also increased the deposit of sediments on the riverbed. Between 1987 and 1989, the Milo River was seriously polluted by the company AREDOR, a company exploiting diamonds located in Banankoro in the prefecture of Kérouané near the site.

### 23. Conservation measures taken:

In Guinea, the categories of protected areas recognized by the Wildlife Protection Code and Hunting Regulations are national parks, integrated nature reserves, managed nature reserves, special wildlife reserves or sanctuaries, potential hunting areas and hunting areas. Ramsar sites are included in the category of managed nature reserves. Here, all socio-economic activities are permitted but priority is given to the conservation objectives of the Ramsar Convention. Activities are permitted taking into account existing codes and regulations. For example: uncontrolled burning, the killing of animals during closure of the hunting season, the clearing of headwaters and growing of crops on a slope, fishing with explosives or any other method leading to indiscriminate killing of fish are prohibited (see Wildlife Protection Code and Hunting Regulations annexed by mail).

At the site, there are protected forests (Kourani-Olété-Djènè: the protected forest of Kouya, the protected forest of Koumbakourou, the protected forest of Baro, the protected forest of Atamba, the protected forest of Nounou, the protected forest of

Léfarani, the ring of forestation of Kankan and the ring of forestation of Kouroussa) belonging to the government in which except for user rights (gathering of fallen wood, harvesting of mushrooms) the local inhabitants no other activity is permitted. But the principle of their management is compatible with the Ramsar Convention.

The Parc National du Haut Niger (67,400 hectares) is located within the site and has the status and a management plan under implementation. It can join the Ramsar Convention for management of wetlands within the park, such as the Wassaya pond with crocodiles and waterfowl.

During more than five years after its creation, there were no guards for the park. A traditional association of hunters assumed this function as volunteers. It is an example of collaboration with the local population that should be recognized and encouraged.

The forested area belongs to the groupements forestiers (more than 75 hectares) are located also within the site. Their activity can be supported by the Ramsar Convention.

There are a series of legislation that participate in reinforcement of the protection measures of natural resources. These include the Wildlife Protection Code and the Hunting Regulations.

#### 24. Conservation measures proposed but not yet implemented:

At the site, there are plans to build the Fomi hydroelectric dam for which all the feasibility studies have been completed in cooperation with Canada. The government of Guinea is seeking funds for carrying out the project, which would make transportation between Guinea and Mali and would increase agriculture along the Niger River. Once the dam is built, and the protection measures provided for can have positive effects on the fish resources.

Among implementation of the development plan for the forestry sector, it is planned to prepare a forestry plan for the prefectures. The prefectural plan has the same contents as the national forestry and regional plan except it takes into account the needs and conditions specific to the prefecture. This plan will fix objectives and include a description and the status of forest resources, an estimate of the needs for forest products, a programme of activities to be undertaken in order to ensure protection and development of the forests, an estimate of required investment and any other useful indications for execution of the prefectural forestry policy. Also, many regulations of the various codes have been prepared but are not yet applied.

#### 25. Current scientific research and facilities:

Currently the only scientific research in the field are linked to the activities of the Parc du Haut Niger on the fauna and flora and those of the Onchocerciasis Project, which has small airplanes for spraying selective insecticides and the Ghenis Project (hydroecology management of the Upper Niger) covering Mali and Guinea with hydrological monitoring of the overall basin.



There is a centre for rehabilitation of orphan chimpanzees in the park.

#### 26. Current conservation education:

The Basin Programme versant du Haut Niger has prepared school manuals for environmental education, such as «la grande découverte» and also the Centre de rehabilitation of chimpanzees has prepared educational sheets for the protection of primates. There is a visitors' centre for tourists visiting the Parc National du Haut Niger.

#### 27. Current recreation and tourism:

Recreation and tourism are focused on the fête des mares. There are several dozen ponds at the site for which the fête is organized annually. Among these ponds the best known is the Baro pond. This fête attracts tourists in May.

#### 28. Jurisdiction:

This wetland is under the territorial jurisdiction of the regional government of Gouvernorat de Kankan and under the functional jurisdiction of the Ministère de l'Agriculture et de l'Élevage.

#### 29. Management authority:

Direction Nationale des Eaux et Forêts  
BP 624, Conakry, Guinea  
Direction Préfectorale du Développement Rural et de l'Environnement of  
Kankan and Kouroussa.

Section Préfectorale des Eaux et Forêts of Kankan and Kouroussa

Cantonnements Forestiers (at the level of the sub-prefectures) of Kankan and Kouroussa located in the wetland.

Each management agency in accordance with its jurisdiction and competency participates actively in the protection and implementation of conservation programmes for the sites.

#### 30. References:

### The Wildlife Protection Code and Hunting Regulations

#### Chapter II: Conservation of wildlife and its habitats

Article 3: Wildlife constitutes a universal heritage. Its economic, alimentary and social interest is thus recognized, as well as its scientific, aesthetic, recreational and educational value.

It is everyone's duty to contribute to its maintenance and development. Preservation of wildlife is ensured by all appropriate means, including the protection of environments and plant species that are necessary for it.

Education of the whole population is also ensured, both through education in schools and by audiovisual means to promote national awareness of the need for that preservation.

Article 4: Wildlife is a renewable resource that must be protected by placing it in favourable environmental and management conditions. Each animal species is an integral part of the national heritage. For this reason, it should be protected. However, animal populations of a given species can be subjected to wise exploitation, especially hunting, whenever their level and productivity permits.

Article 5: The preservation, maintenance or reestablishment of sufficient diversity of environments and habitats indispensable for wildlife is also a national obligation. The environment in which wildlife lives is normally used for agricultural, grazing, forestry and aquatic or marine activities. Special protection measures of the biotopes can be applied to part of the national territory whenever the status of any species of animal justifies it.

### Chapter III: Wildlife management

Article 6: Management and wise use of wildlife consist of maintaining animal populations that compose each species at a satisfactory level. The animals thus can be used sustainably for the benefit of the local inhabitants and national well-being. To fulfil this objective, the whole country must participate. It should also participate in efforts made by other countries concerning preservation of migratory species and conservation of endangered species.

Article 7: The means, installation, modes or methods of capture or large-scale or non-selective killing are prohibited because of the danger they represent for the animal populations concerned.

### Chapter V: Protection of environments: parks, reserves and hunting areas

Article 10: In order to ensure conservation and management of wildlife, national parks, integrated nature reserves managed nature reserves, special wildlife reserves or sanctuaries, potential hunting areas and hunting areas can be created in Guinea.

Article 41: In the appropriate border areas of national territory, cross-border parks can be created, organized, improved and administered in agreement with governments of interested neighbouring countries. Cross-border parks are intended, based on a conventional basis and through institutional mechanisms of cross-border cooperation, to ensure preservation and exploitation of natural spaces located on both sides of national borders. These contiguous natural spaces should include biotopes or homogenous or complementary ecosystems and have, from the point of view of biology, ecology, culture, aesthetics, science or socio-economic considerations, outstanding characteristics or an exceptional interest that should be

protected, both for the benefit of each interested country and for the benefit of the sub-region concerned.

### Forestry Code

Article 71: The forest domain should be protected against any form of degradation or destruction caused by overexploitation, overgrazing, fires, abusive clearing of land, diseases, introduction of inappropriate species and destruction.

Article 72: Whenever necessary, the forestry administration can adopt protection measures to take in the forest lands where required in order to prevent erosion on slopes, protect land and installations against water or wind erosion, protect headwaters, combat desertification, protect a rare species or fragile biotope or preserve the natural environment in general.

### Water Code

(Law 2/94/005/CTRN of 14 February 1994)

#### Chapter XIV: International water

Article 55: In its relations with countries with which Guinea shares water resources, Guinea applies principles and regulations generally accepted by the international community for shared water, especially the provisions of existing conventions to which it has adhered.

### Environment Code

The environmental code stipulates the following concerning the land and underground

Article 15: The land, underground and resources that they contain are protected, as limited renewable resources or not, against any form of degradation and managed wisely.

### Inland waters

Article 27: Dumping, throwing out, direct or indirect deposits of any kind susceptible of causing or increasing pollution of Guinean inland waters are prohibited under the terms of Article 31.

### Fauna and flora

Article 48: The fauna and flora must be protected and renewed through wise management in order to preserve species and their genetic heritage and to ensure the ecological balance.

Article 49: Any activity capable of harming animal and plant species or their natural environments is prohibited or subject to prior authorization of the administration in accord with legislative dispositions and regulations.

Under the AGIR programme (support for the integrated management of natural resources) the creation of a cross-border protected area Guinea-Mali is being carried out. Participation of the local communities in the management of wetlands through promotion of awareness is also a conservation measure.