Department of Parks and Wildlife Management (DPWM)
The Gambia

Direction des Parcs Nationaux (DPN)
Sénégal

MANAGEMENT PLAN
NIUMI-SALOUM TRANSBOUNDARY COMPLEX
(THE GAMBIA - SENEGAL)
2011 - 2015

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Final Version

SUMMARY

LIST OF ACRONYMS AND ABBREVIATIONS

AEWA	African-Eurasian Migratory Waterbird Agreement
BfN	German Federal Agency for Nature Conservation
CADL	Centre d'appui au développement local
CARITAS	Catholic relief, development and social service NGO
CMS	Convention on Migratory Species
CMS:	Crédit Mutuel du Sénégal
CNCAS	Caisse Nationale de Crédit Agricole du Sénégal
RC	Rural Community
DPWM	Department of Parks and Wildlife Management
EGAT	Entente des Groupements Associés de Toubacouta
ENDA	Environmental Development Action in the Third World
CF	Classified Forest
FIBA	Fondation Internationale du Banc d'Arguin
GIE	Groupement d'Intérêt Economique
GIRMaC	Integrated Marine and Coastal Resource Management
GPF	Women's Production Group
JICA	Japanese International Cooperation Agency
NNP	Niumi National Park
ONFP	Office Nationale de la Formation Professionnelle
PAC3	Programme d'Appui à la Compétitivité
PGIES	Projet de Gestion Intégrée des Ecosystèmes du Sénégal
PNDS	Parc National du Delta du Saloum (Saloum Delta National Park)
PNOD	Parc National des Oiseaux du Djoudj
UNEP-GEF	United Nations Environment Program - Global Environment Fund
UNEP-WCMC	United Nations Environment Program - World Conservation Monitoring Centre
PRCM	West African Regional Marine and Coastal Conservation Program
PROCR	Programme Bassin Arachidier (PBA: ex PROCR) de Kaolack et Fatick
RBDS	Saloum Delta Biosphere Reserve
RSFG	Reserve Spéciale de Faune de Gueumbeul
RSFN	Reserve Spéciale de Faune de Ndiael
UGAN	Union des Groupements Associés du Niombato
IUCN	International Union for Conservation of Nature
UNOPS	United Nations Office for Project Support Services
WAAME	West African Association for Marine Environment
WIA	Wetlands International Africa
WOW	Wings Over Wetlands
WWF	World Wildlife Fund

PREAMBLE

The World Commission on Protected Areas defines a protected area as “an area of land and/or sea dedicated to the protection or conservation of biodiversity and its associated natural and cultural resources, managed through legal instruments or other appropriate means.”

The National Parks Congress, held in Durban in September 2003, having noted that most conservation efforts involve terrestrial ecosystems, has recommended that States focus on the protection of at least 5% of their coastal space and marine environment. Although below the recommended 5% level, Senegal and The Gambia already have marine and coastal protected areas in the network. In particular, the Saloum Delta National Park and Niumi National Park.

The Saloum Delta National Park was listed as a RAMSAR Site in 1984. The Convention’s Article 5 states “the measures taken by one country can sometimes be insufficient to protect wetlands crossing national forest formations; international cooperation is recommended”. The Gambia and Senegal signed transboundary agreement in 2001 called the Jinack Protocol and subsequently implemented several cross border management activities to conserve and protect this important wetlands. In 2008, the two states presented nomination under the framework of Wings Over Wetland to RAMSAR to created a transboundary RAMSAR site the first in Africa. Transboundary RAMSAR Sites are wetlands of international importance (ZHII) that cross international borders, which were listed on the RAMSAR list by at least two Contracting Parties in whose territories they are located.

Wetlands perform many functions: economic, cultural, social, ecological (coastal protection). They also contain significant biological diversity because of the distinct biotopes (containing a high level of organic matter). In West Africa, the Sudano-Sahelian zones are home to numerous migratory species which use it for their reproduction, feeding or resting.

In addition to terrestrial and marine biodiversity, the Niumi-Saloum Complex has a significant ecological and economic value. By proposing that this complex be designated a Transboundary Wetland, Senegal and The Gambia area are committed to:

1. The maintenance of their ecological character;
2. Promoting rational use of the resources within the wetlands and;
3. Establish participatory protected area management and governance systems.

The transboundary management plan will assist the two countries to harmonized management, development and conservation actions to secure in the long term transboundary protected area management system using. Partners to be involved in the Niumi-Saloum Complex include national

and international stakeholders such as the local communities, local authorities of both side of the border and the long terms partner organizations such as the **IUCN, FIBA, WETLANDS International, WWF, PRCM, GIRMAC** which, by means of various projects, are involved in the two protected areas for improving protected area management facilities, provide training, monitoring and develop management tools.

The **Wings Over Wetlands** (**WOW**) project is to act directly in building strong partnership within the complex. The WOW project is a collaborative effort between **UNEP-GEF, Wetlands International, BirdLife International, AEWA, BfN,** the **RAMSAR Convention** on Wetlands, **UNOPS, UNEP-WCMC,** other donors and local partners interested in the Africa-Eurasia flyways.

In accordance with the RAMSAR Convention's ethics and objectives, a transboundary management plan developed for the Niumi-Saloum Complex is based on the "New Guidelines" issued by the Convention office. In this framework, a five-year management plan for the Niumi-Saloum complex is produced. This document follows a framework of the "New guideline" of RAMSAR site management plan such as:

1. Site Description;
2. Assessment of Management Objectives;
3. and develop Action Plan.

It is worth noting that at the outset, the guidelines set out by the RAMSAR Convention office emphasized the need to achieve a "general agreement among the various owners, occupiers and other interested parties" of the site. The transboundary consultation team has given priority to meetings with the villages and communities and other relevant administrative authorities.

A. DIAGNOSIS

A.1. General Information

One of the twelve resolutions of the Yaoundé Declaration1 is dedicated to the creation of transboundary protected areas and improving management of existing protected areas. The focus is the conservation of the continuity of habitats and the preservation of migration corridors for certain species.

The Niumi-Saloum Complex, a transboundary RAMSAR site since 2008, is the outcome of the common will of the states of Senegal and The Gambia following a lengthy process that started in 1994. The international status of wetland recognized as single ecological entity with numerous environmental values vital for both countries has prompted the two state authorities to developing and implementing a common management approach for the joint conservation of the complex's shared resources. To this end, the two governments are committed to making sure their respective management strategies are harmonized.

A.1.1. General Description of the Niumi-Saloum Complex

The Niumi-Saloum transboundary complex is with an area of 83,758 ha. In the complex, we have:

- Parc National du Delta du Saloum (PNDS) in Senegal is located on latitude (13°35' - 13°55 N, 16°28' - 16°48 W). This site was gazetted by a Decree under the Senegalese law N°76 577 on 28 March 1976 and covers a total of 76,000 ha. In 1981, it was designated as MAB (Biosphere Reserve) by UNESCO and in 1984 it was declared a wetland of international importance under the RAMSAR convention.
- The Niumi National Park (NNP) in The Gambia is located on latitude (13°34' N – 16°30' W), a coastal strip of 7758 ha gazetted as a National Park in 1986 and a RAMSAR Site in October 2008. It is the natural southern extension of the Parc National du Delta du Saloum (PNDS).

The Niumi-Saloum transboundary complex provides greater opportunity to promote biodiversity conservation and sustainable use across borders of the two countries with different political regimes those shares natural and associated cultural resources that will be managed cooperatively through legal means for the benefit of the **two peoples and Nature**.

Ecologically, the complex is characterized by the presence of three distinct ecologies:

1. A continental area consisting mainly of woodland and dry woodland interspersed with gallery forests and mangrove vegetation that extend along the coast characterized by the presence

[1] Yaoundé Declaration: Summit of Heads of State of Central Africa on the conservation and sustainable management of tropical forests, 17 March 1999.

of *Rhizophora racemosa*, *Rhizophora mangle, Rhizophora harisonii*, *Laguncularia racemosa, Conocarpus erectus* and *Avicennia africana*. Mangroves are often separated from the forest by salt flats and vast sandy, muddy areas;

2. An amphibious domain made up of three main groups of islands surrounded by a dense network of water channels (generally known as bolongs); and
3. A maritime area composed of a series of islets and sandbars that are important breeding areas for birds.

The international character of the complex as a single vital ecological entity with incalculable environmental value to the region and its people prompted the governments of The Gambia and Senegal to recognize that the protection and management of this life support system and its resources are crucial for the overall long-term management of the region.

The site provides critical stop over for international migratory water birds. Located between the estuaries of the River Saloum in the North and The River Gambia in the south, this unique estuarine ecosystem, is the region least affected by the progressive degradation and exploitation of mangrove forests. This area is among the last untouched mangrove stands in the West African region.

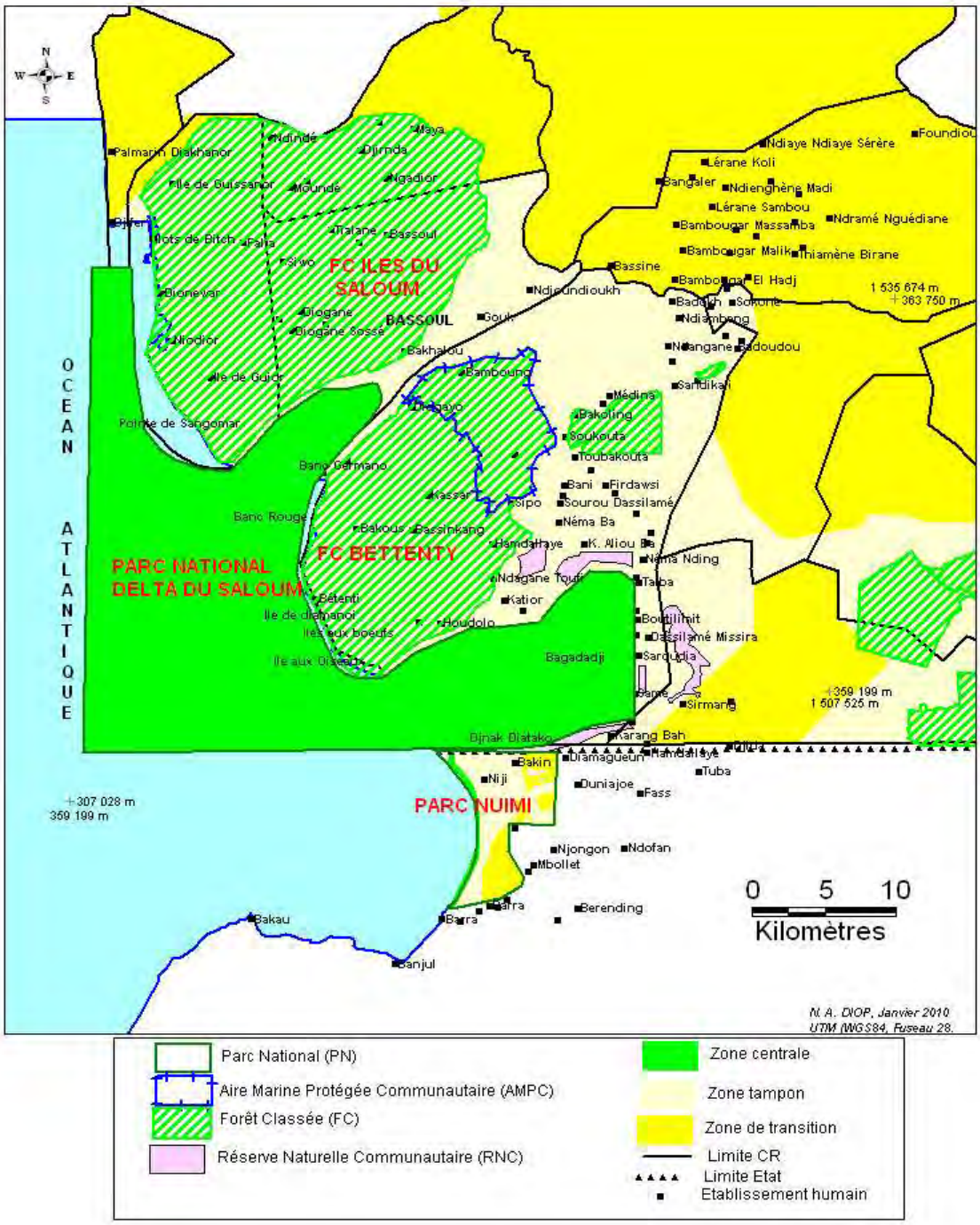

FIGURE 1 - OVERVIEW OF THE NIUMI-SALOUM COMPLEX

A.1.2. Administrative and technical management

The management framework of the complex refers to all the administrative and technical management instruments and bodies implemented by the States to manage all or individual sites. Although the objectives are the same, the systems and resources available are currently at significantly different levels.

A.1.2.1. Regulatory and legislative framework

These are all the legislative and regulatory means, established in order to restore, to develop and conserve the wetland and its environment. The instruments contain international measures relating to the management of the environment and the natural resources.

At the international Level Senegal and The Gambia are signatories of many international conventions and agreements (Table 1). The two countries are both members of the RAMSAR Convention.

Table 1: International conventions and agreements for the management of the Niumi-Saloum Complex

Title	Date (m-y)	Subject
London (England)	05-1954	Convention for the Prevention of Pollution of the Sea by Oil
Geneva (Switzerland)	04-1958	Convention on Fishing and Conservation of the Living Resources of the High Seas (United Nations)
Algiers (Algeria)	09-1968	African Convention on the Conservation of Nature and Natural Resources
Brussels (Belgium)	11-1969	International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties
RAMSAR (Iran)	02-1971	Convention on Wetlands of International Importance
Paris (France)	11-1972	Convention on the Protection of World Cultural and Natural Heritage (UNESCO)
Washington (USA)	03-1973	Convention on International Trade in Endangered Species of Wild Fauna and Flora
Bonn (Germany)	06-1979	Convention on the Conservation of Migratory Species of Wild Animals
Bern (Switzerland)	09-1979	Convention on the Conservation of European Wildlife and Natural Habitats in Europe
Abidjan (Ivory Coast)	03-1981	Convention for the Cooperation in the Protection of the Marine and Coastal Environment in the West and Central Africa Region
Montego Bay (Jamaica)	12-1982	Convention on the Law of the Sea (United Nations).

Title	Date (m-y)	Subject
Vienna	03-1985	Convention for the Protection of the Ozone Layer
Montreal (Canada)	09-1987	Protocol on Substances that Deplete the Ozone Layer
Basel (Switzerland)	03-1989	Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
Rio (Brazil)	05-1992	Convention on Biological Diversity
Rio (Brazil)	05-1992	Convention on Climate Change
Paris (France)	10-1994	Convention to Combat Desertification
Kyoto (Japan)	11-12-1997	Protocol on Climate Change
AEWA (The Hague)	1995	Agreement on the Conservation of African-Eurasian Migratory Water birds

At the national level, each country has since its independence, an arsenal of regulatory and legal instruments governing the conservation of the environment and the natural resources.

In Senegal, several legal instruments for the protection and conservation of protected areas are in place. These includes the following:

- Forest Code of 1998;
- Hunting and Wildlife Protection Code of 1986;
- Environmental Code of 2001;
- Fisheries Code;
- Water Code;
- Decrees of classification, which stipulate among other things, the boundaries and objectives for establishment; and
- Internal regulations of each protected area which take into account the unique local characteristics.

It must be noted, however, that most of these codes are being revised.

The PNDS is a legally protected area where, in principle, human activity is prohibited with the exception of tourism in accordance with Article D.39 of the Hunting and Wildlife Protection Code. The decree N^0 76577 of 28/05/1976 that classifies the PNDS is supplemented by the internal regulation No. 008127-13 JUIL.76/PM/DGT which, in Articles 3 and 5, reiterates the prohibitions set out in Article 4 of the Decree. It does, however, authorize small-scale fishing and certain other activities (Art. 6) not covered by the code.

On the Gambian side, natural resources (wildlife and fisheries resources) are governed by the Biodiversity and Wildlife Act of 2003 as it related to established protected area.

Thus, in 1986, the "*Legal Notice 23 of 1986*" in "*LRO 1 / 1990, Wildlife Conservation Cap. 62: 01, page 38*" is in place. This park was listed as a RAMSAR site in 13 October 2008 and it is the country's third RAMSAR site. Human activities are regulated by government agency responsible for the development, conservation, management and sustainable utilization of natural and biological resources within and outside established protected area systems. Hunting is banned in all park according to "*LRO 1 / 1990, Wildlife Conservation Cap. 62: 01, page 9*".

According to this law on biodiversity and wildlife management, communities should be directly involved in management process of existing Protected Areas. They are integrated into the process by means of establishing protected area Site Management Committee. Such committees are headed by members elected by the village to represent their community views in the management of the park. In this way, their rights accordingly are integrated in the planning and management processes, based on their assigned function in the park. Traditional and rights must, in principle, be maintained accordingly. Communities peripheral to parks are allowed to undertake activities that are compatible to nature conservation.

This procedure for establishing protected areas requires the commitment of the local community, but the law specifies the Secretary of State for Forestry and Environment (responsible for biodiversity and wildlife) as the only authorized authority to declare an area protected, following proposals from the various departments involved in environmental management. In any case, there is a real commitment to decentralizing the policies defining the conservation of protected areas, and The Gambia leads its neighbors in this respect. It has adopted a policy of conservation led by, and for the needs of people, letting Nature take its course.

Table 2 - Legal documents and planning on national level

Republic of Senegal	**The Republic of The Gambia**
- The National Action Plan for the Environment (NAPE) - The National Action Programme to Combat Desertification (NAP/LCD) - The Strategy and Action Plan for Biodiversity Conservation - The National Implementation Strategy for Climate Change - The National Strategy for Sustainable Development (NSSD)	- Niumi National Park Management Plan, RAMSAR wetland study, - The New Biodiversity / Wildlife Policy 2001 - The Gambia National Biodiversity Strategy and Action Plan (GNBSAP) - Waste Management Bill - *Fisheries Act2007*: National Environment Management Act (NEMA) - NAPAS: National Adaptation

Republic of Senegal	The Republic of The Gambia
- The Management Plan of the Saloum Delta National Park - Code for hunting and the protection of nature - Forest Code - Environmental Code - Law 64-46 on the National Domain - Law 96-05 and 96-06 code for local authorities and the transfer of powers - Water Code - Fisheries Code	Programme for climate Change - NAPE: National Action Plan for desertification control

A.1.2.2. Management organisation

The management of the Niumi-Saloum complex, which consists of two national parks separated by the border, is under the responsibility of park managers. These local authorities are directly attached to the Direction des Parcs Nationaux of Senegal in the one hand and to the Directorate of the Department of Parks and Wildlife Management of The Gambia in the other hand.

In The Gambia, park staffs are not trained as paramilitary. They do not carry arms on park duty and relatively small workforce compared to Senegal. Equipment for patrol and other park management functions are inadequate. The NNP has only park head quarters as the administrative base. The only means of transport for rangers on patrol is the vehicle bought under the Wings Over Wetland Project. There is a boat and an engine use for surveillance.

For Senegal, the management of PNDS is under the authority of a park warden assisted by a team of twenty officers with a paramilitary statute. The park has a control post, six guard posts and a medical centre. There is also a research station, which is used as reception area and for promoting scientific research. For logistics, it has two vehicles, two pirogues, three motorcycles, and a radio communication system as well. The park has also an annual operating budget. The staff of the two parks is helped by eco-guards/eco-guides from the surrounding communities.

A.1.2.2.1 Bilateral Management Initiatives

There are a number of joint management initiatives established between the two entities, with the support of various partners. In particular, these include:

- The Jinack Protocol signed on 2 June 2001 by the two Environment Ministers provides significant legal basis for transboundary management initiatives.
- The partnership agreement for the implementation of the WoW (Wings over Wetlands) Project, which is a demonstration project. The aim of the project were (i) the transboundary

cooperation in the management and monitoring in the Niumi-Saloum complex, (ii) the improving of the participatory approach to conservation and sustainable resources use in the complex and (iii) the awareness of the key groups on the importance of the transboundary cooperation for improved wetland management.

- In addition to creating a first Transboundary RAMSAR site in West Africa, the two countries are on the process of creating the complex as a Transboundary Biosphere Reserve.

Despite several initiatives aimed at establishing cooperation on the management of the complex, the two parks are still managed as separate entities with the exception of joint activities undertaken under the WOW project. There is no legal basis that can allow the two administrative agencies on either side of the border to implement policies. The partnership agreement for the implementation of the Demonstration Project highlights cooperation between a three party-partnership, with Wetlands International as the third party.

In other words, there is no formally established legal and regulatory basis for collaboration, particularly on the management of cross border activities such as the control of illegal activities or on the protection and sensitive species and habitats. If there is collaboration, it remains de facto motivated just by professional necessity and the obligation to cohabit for achieving environmentally satisfactory results.

A.1.2.2.2 Main partners in the transboundary management of the complex

Community based organizations (GIE, GPF, Committees)

There are many community groups in the Saloum area that work alongside the local authorities. These are social (often based on mutual support during family ceremonies and conflict resolution) and economic groups (providing service and initiating income generating activities) that serve as cadre for networking, discussion and training. They develop initiatives which, if recognized and supported, could set up development efforts in the area. The creation of these groups has been fuelled by persistent economic crisis which are often linked to social and economic dynamics.

- These organizations have historically existed as traditional groupings without any economic activity[2]. By the 1990s economic realities, taking a precedent over culture, led to the rise of a variety of organizations under various names according to their focus (GIE, GPF, etc.).
- There are about 1or 2 GIE or GPF per village around the PNDS, (see the table below). These GIE carry out the same activities which generally revolve around rice production, reforestation, bee keeping, petty trade and gardening. Most of these groups are created

[2]- E. Mbaye, 2006

when there is an opportunity to benefit from grants and loans by bigger support organizations.

Table on the number of GIE per Village

Villages	GIE	GPF
Haidara	1	
Santhie Aladji	1	
Samé	1	
Sirmang	1	
Saroudia	2	
Néma Nding	1	
Touba Nding	1	
Sabouya	2	
Dasilamé Sérère	2	
Taiba	2	
Boutoumit	1	
Daga Babou	15 GIE Transformation	
Firdaoussi	1	
Santamba	1	
Missira		1
Bakadadji	1	
Djimack Bara	2	
Nour mboudj	3	
Béttenty	2	
Toubacouta	4	
Némaba	1	
Sourou	1	
Bani	1	
Soucouta	3	

Management Committees

In the complex there are many NGOs, CBOs, etc. working with the park administration. This has lead to the establishment of participatory management system with active involvement of local people to promote sustainable use of resources.

Surveillance Committees

Surveillance committees and schemes were set up to assist conservation wardens in the protection of endangered species in the complex, and also to strengthen local community involvement and participation in co-management initiatives of the complex. This fruitful collaboration between local communities and conservation managers resulted in an increase in the apprehension and control clandestine natural resources exploitation.

Organizational Networks

There are few such organizations mainly operating as committees to support conservation strategies in the Niumi area. But there is a Site Management Committee, which assists the warden in management decision taking and activity implementation in the area. It is unfortunate that the capacity of the SMC is very weak in terms of communication, awareness and their impact on the management of the park is insignificant. There is need to inform, educate and integrate youth groups in order to maximize the gains.

In the Saloum area, local communities are well organized through the following**:**

- **Entente des Groupements de l'Arrondissement de Toubacouta (EGAT**): Created in 1993 by a community development association of Arab scholars. The objective was to organize the people under a strong and united front for the ability to negotiate for better developmental interests of the population. EGAT is run by a board of directors which elects an executive board and a managerial team responsible for the projects feasibility study for funding, supervision and monitoring of the groups involved.
- **Union des Groupements Associés de Niombato (UGAN)**: Created on the aches of Caritas in 1993. Its objectives are to strengthen the unity of the villagers and encourage self-development of grassroots organizations. It is managed by an administrative team and it has a coordination team in charge of technical matters.

Organizations

A number of NGOs operate in the complex as a whole to support management effort or to concentrate their activity in one side or the other of the complex; let alone other projects in the Saloum part of the complex that provide technical support, training but investment as well to help improve conditions. Among these important partners, the following can be listed:

- **IUCN** is an international NGO that operates in several countries. It has no specific remit in terms of environmental management, which allows it to intervene in various fields through other institutions such FIBA or projects that are active in conservation and environment protection. It is an essential management tool in terms of cross border issues, considering its international presence and strength. It supports grassroots activities in conservation and restoration of biodiversity.
- **WETLANDS INTERNATIONAL** is a very important institution in the management of wetlands of international importance. It relies on international environmental law, including the RASAR Convention. It seeks to preserve sites that provide habitat for waterfowl, and that have a rich biodiversity, including fish, as the main food for waterfowl. However, its objective is not only to protect the sites but to ensure friendly coexistence between people and the environment. It supports projects implemented to fight environmental degradation by providing the actors the means to do so with conductive working conditions.

- **WOW** is a project with similar objectives to Wetlands International. It conducts environmental policy to ensure the sustainability of ecosystems in the Niumi-Saloum complex. It is in contact with various actors to carry out work accordingly.
- **WAAME AND WABSA** is an institution that has intervened in the management of the marine environment for many years. Its scope covers the Niumi-Saloum complex as a RAMSAR site. It aims to ensure conservation and protection of wetlands, water birds and mangroves from a cross-border ecosystem management perspective like WOW. It falls therefore within the objectives of Wetlands International. It also provides tools for the implementation of the RAMSAR Convention by training local people to become good stewards for the sustainable exploitation of the products of Nature. It is a very useful body in the Niumi-Saloum complex and its transboundary initiative must be given priority for joint actions to tackle environmental issues.

  At Jinack Bara in the Niumi part of the complex, WAAME intervened in the construction of latrines and in the reforestation of mangroves.
- **Institut Pasteur** is an international medical research centre and laboratory. It has been present in Toubacouta rural council (Saloum) for more than 90 years for its research program on malaria vaccine. It has an office located in Ndoumboudj, to help people in targeted villages to benefit freely on health care.
- **ENDA–SYSPRO** is a semi-autonomous program of the international NGO "ENDA Tiers Monde". It works on production systems in rural areas. It has been working in few villages in the area since 2000. Its objective is to strengthen the institutional and organizational capacities of people with the aim of promoting community dynamics.
- **M.D.S. (Médecine – Développement – Santé)** is an association supported by Franco-Belgian Cooperation missions for the promotion of north-south partnerships. MDS operates in several sectors such as health, water and education. Its actions are more bolded in the Saloum likewise ENDA–SYSPRO.
- **MDG Culture et développement MDGF 'Volet PNUD'** is run by the MEPN through the DEEC. Its satellite offices are in the Bassari 'country**'** and the Saloum Delta. It has played an important role in the unfolding of the registration process of the Saloum Delta on the world sites heritage list. It supports the park in its ecological monitoring activities through the strengthening of the capacity of the eco-guards and improvement the logistics.
- **Crédit Mutuel du Sénégal (CMS)** is a micro-finance organization, which funds community development work through micro credits, savings and loan systems. It is among the most popular financial institutions in the Saloum area.
- **The Councils Support Program (PAC 3)** works towards the improvement of basic infrastructure in rural communities: drinking water, health care centers, classrooms, youth centers, community centers / public buildings, bridges, roads, electrification in the Saloum area.
- **STAY GREEN FUNDATION** is a non governmental organization that is involved in environmental management with a broad mandate that exceeds protected area management. It acts in The Gambia to tackle the various causes of environmental

degradation, including desertification, climate change, and wildlife. It has very good community communication skills and facilities to bold different aspects in environment management issues. Much of its communication and training activities are carried out in local languages. About 23 villages in the Niumi area have benefited from awareness and training on climate change issues, desertification, bush fires, deforestation, pollution and even the management of animal resources within the context of environmental degradation.

- **BARINGTO Farm** is a local CBO that works on the sustainable and rational management of aquatic resources in the Niumi area. Its main role in the management of fish-ponds in the villages around the park which would help in reducing dependence on aquatic resources through poaching. However the lack of material and financial resources has stifled the progress of this important activity.

There are regulatory measures at the national level. However, routine awareness is needed for ensuring greater public participation. NGOs active in the area to increasingly educating and informing local people on the existing laws, polices and ongoing management techniques for environmental sustainability.

A.1.3 Classification under elements of international heritage

In its entirety, the Niumi-Saloum transboundary complex is the first transboundary RAMSAR site in West Africa because of its wealth and diversity of habitats, its significant colonies of Palaearctic and Afro-tropical birds (royal terns, Caspian terns, grey-headed gulls, waders, etc.) and its rich and varied marine and aquatic lives (turtles, manatees, dolphins, fish, etc.).

Apart from their common recognition, on a separate basis, the PNDS and NNP were made RAMSAR sites in 1984 and 2008, respectively. In addition, the PNDS has been Biosphere Reserve since 1981.

The Saloum Delta is also one of the most beautiful bays in the world and one of the UNESCO's World Heritage site since June 2011.

The dynamic effort to create a Transboundary Biosphere Reserve by the two countries is on progress. The process to declared NNP as a Biosphere Reserve supported by IUCN is at advance stage at UNESCO.

A.1.4 Historical and cultural evolution

From a historical perspective, a great diversity has been noted in the Saloum Delta. Diomboss separates the two traditionally opposed groups of villages, between which significant differences remain, in particular on a linguistic point of view:

- in the north, are the Niominka and Gandoun people, who are dependent on the Saloum.
- In the south, Madinka Islands (now called Bétenti Islands) are dependent on the Niombato.

The first inhabitants were mostly Mandinka, often from what is now The Gambia. Following their lead, other ethnic groups such as the Wolof, Diolas, Bassari, the Balanta, the Hal Pulaar, Serer, and even the Bambara came from distant lands, all attracted by the economic possibilities offered by the environment.

The presence of large shell midden sites in the Saloum Delta reflects the early human occupation and their productive lifestyle. The last survey conducted in 1996 estimated the number of shell midden at 218 in the Saloum islands (PRADINES, 1996). Twenty-eight of them had been turned into cemeteries and contain burial mounds.

Furthermore, identification of cultural sites is contributing to the assessment of the options offered by national parks since it allows traditional knowledge to be traced and reconciled with conservation of resources for economic and social development.

A.1.4.1 PNDS Cultural sites

Most of the cultural sites in villages currently located inside the complex were in existence before the creation of the parks, and these villages still retained their traditional sacred sites. This is the case of:

- Bagadagji: the only village in Senegal located inside the complex
- Koumbeng: former historical trading post.
- Mbar Kolong: A well used for observing prayer
- Minna in Fathala
- The pool of the Dragon
- Daga Malick on the Bagadadji Road

In the surrounding area of the complex, there are also other sacred sites preserved by the communities because they serve as places of pilgrimage, meditation and prayer:

- The Cheikh Omar Foutiyou Tall Stone (The Gambian side).
- Giant circular Ceiba at Missirah (Senegalese side)
- There are also cemeteries such as those at Mboundiour and Koumbeng.

Cultural practices such as "Kankourang", or traditional forms of wrestling, are also organised by villages.

Moreover, there are shell middens, most of which are either in use or already used. According to the survey conducted by C. Descamps and G. Thilmans in 1977, there were 96 surveyed shell midden sites in the Saloum Islands. Currently, the survey includes 218 sites or mounds (Ba et al, 1997) of which 28 contain eitchen midden. They contain highly important archaeological material. A study

conducted by E. MBAYE, A. DJIGO and I. BOUCAL in 2000 shows the importance of industry organised around these quarries, but also the need for their conservation.

A.1.4.2 Niumi National Park Cultural Sites

These sacred sites are important as they allow the conservation of endangered plant species, such as *Khaya senegalensis*, in the surrounding areas. Their presence can therefore help to restrict the destruction of the forest. These are mainly the following sites:

- Kintimbri, a site for observing ritual prayer for rain and for prevention against evil
- Mankafakasoto, place of prayer (Seto and Sito) in Diamaguène
- Worosso and Toubacounda Sito are places of prayer
- Manding Well in Jinack
- Kota Bolong
- Kounko, an ancient site in the west

Moreover, unlike central areas of the North of The Gambia, where many stone circles are found, archaeological remains may be found in the Park. However, until now, no study has been carried out on this subject. Recently, a number of broken terra cotta pots were found along one of the bolong near the Jinack Island. The remains were collected and taken to the National Museum in Banjul for dating. They were estimated at several hundred years old. The Community intends to encourage research and use the site as a tourist attraction.

A.2. Environment and Natural Heritage

A.2.1. Climate

The Niumi-Saloum transboundary complex is marked by a Sudano-Sahelian type climate characterized by a rainfall of between 400 and 800 mm or above, with an average temperature of 29° C. The rainfall is generally less in the northern part of the complex and greater in the Niumi region, while the Canary current coastal influence is much more prominent on the Senegalese section of the complex. The climate is characterized by two main seasons:

- A dry season (cold from November-March, hot from March to June), where the prevailing winds are maritime trade winds, fresh (in a north to north-west direction) and the dry continental winds (in an east to north-east direction, Harmattan);
- A hot, humid rainy season from July to October, dominated by monsoon winds (direction west and southwest).

Annual rainfall in the Saloum Delta has declined from a range of 600-900 mm for the period 1931-1960 to less than 400-600 mm today. There are a total of 50-60 days of rain per year, with maximum rainfall in August. Average annual temperatures vary between 26 and 31° C. Recently in Niumi there have been reports of increased annual average rainfall from 2000 to 2010 and this certainly might be the same at the whole complex level.

A.2.2 Types of soils

Pedology of the Niumi-Saloum complex is directly linked to morphoclimatic factors and concerns sand formations represented by sandbars and marine terraces. The soil cover consists of:

- Ferruginous tropical leached soils developed on the sandstone cover of the Continental Terminal and continental dunes;
- Acid sulphate soils from salt flats, barren and unsuitable for agriculture, which serve as a habitat for some birds such as grey-headed gulls and slender-billed gulls and some mammals such as the green monkey who is fond of sand fiddler crabs which colonise this type of soil;
- Undeveloped organic hydromorphic soil of the existing mudflats. These constitute foraging areas for migratory birds such as the whimbrel and the Eurasian curlew;
- Mineral soil and undeveloped soil on recent sandbars or accumulation of aeolian silts are favourite resting places for Laridae;
- Rendzina-type calcimorphic soils, rich in organic matter from the artificial shell midden sites.

From one site to another, the same typology is observed, with some insignificant distinguishing features. In the Gambian section, a detailed soil survey was also conducted in and around Kajata and Niji on the Jinack islands. The results of this study indicate high dune complexes and an area of low

flood plain. These dune complexes are made up of coarse-textured soils that are poor in nutrients and water availability. The low-altitude flood plain is low in sodium salts. The soils are moderately drained and contain a significant amount of nutrients. The problem of excess sodium could be overcome if the water is sufficient for leaching (RAMSAR Study, The Gambia, 1997).

A.2.3. Hydrology, geology and marine dynamics

The landforms of the area are strongly related to its geological history, directly associated with the marine dynamics. Indeed, the Saloum islands are made of silt sometimes mixed with sand of which the deposits date back to the Flandrian transgression.

The Nouakchottian marine transgression (5000 BP) brought about the sandy deposits forming terraces along the continental shelf (Marius, 1977), sometimes arranged in islands. Following this marine transgression, the northwest swell put successive beach ridges in place that, eventually, partially closed the gulf within which a silt deposit occurred. Following the subsequent marine regression, ancient dewatered mudflats were transformed into "salt flats", areas devoid of vegetation. This development has continued until the current period (Marius, 1977).

Therefore, the shell midden sites are the result of the accumulation of debris from the exploitation of molluscs and shellfish, traditionally exploited by communities. Consequently, a network of water channels (which is less stable and less dense in the northern part of the estuary) and an island environment (subject to the alterations of a network of channels, which opens directly onto the sea) have been formed.

The average altitude of the Niumi-Saloum complex is less than 5 m, with a maximum of about 15 m. The peaks occur mainly along the Masarinko Bolong where a sandy ridge emerges that was probably an ancient shoreline. The bolongs or inlets of Niumi National Park are subject to the daily rhythm of the tides, which have a maximum range of 2 meters. The input of freshwater into the Saniang Ker and the Sanchi Bolong is negligible during the dry season. During the rainy season from May/June to October/November, the salinity of bolongs decreases in the upper part. Groundwater levels on the island of Jinack fluctuate between 3 and 5 m depending on the season.

The hydrographic regime is Sahelian. The fluvial flow is directly influenced by the seasonal pattern of rainfall: high water corresponds to the rainy season and low water to the dry season. (Fig 2) It is nonetheless true that tidal flow is the main factor in estuarine hydrodynamics.

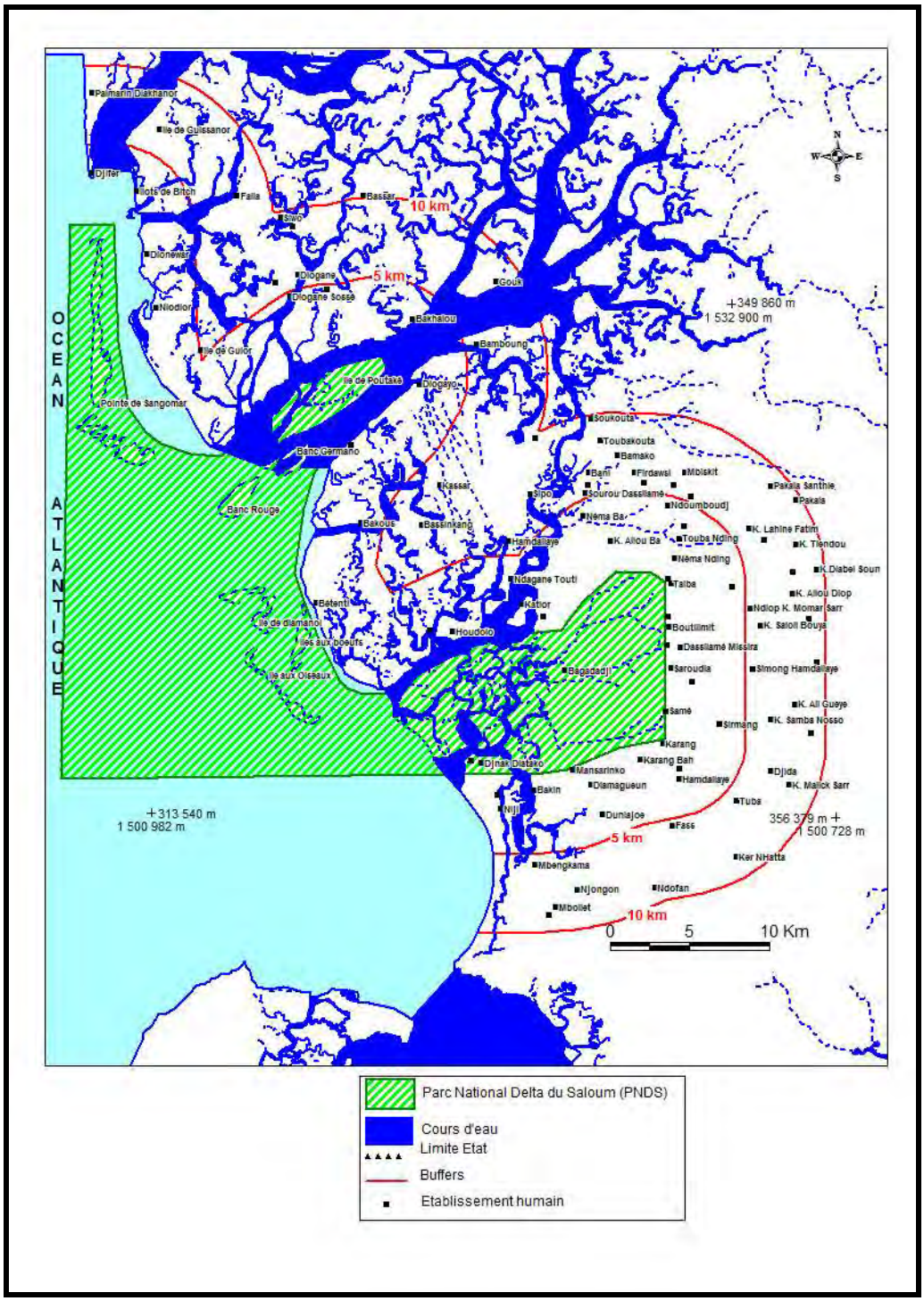

FIGURE 2 - HYDROGRAPHIC NETWORK OF THE SALOUM/NOUMI COMPLEX

The configuration of the estuary's network is derived from the three arms of sea: the Saloum in the north, the Bandiala in the south and the Diomboss in between the two. Through their interconnection they form a dense maze of tidal channels called bolongs. The Saloum, partially separated from the sea by the Sangomar spit, which has existed since the rupture of the latter in

1987 into two river mouths: one at Sangomar about 1800m wide and the other at Lagoba, a new opening about 5km wide.

The Saloum estuary opens to a tidal front with high energy swell. Two types of swell are observed; one from the North Atlantic (north-westerly direction), active throughout the dry season; the other from the South Atlantic (south-easterly direction) during the rainy season. The swell from the North has a more prominent role; it is responsible for a littoral drift which determines the dynamics of barrier beaches upstream. It covers the coast with an oblique incidence and, due to the deposits of sand, has led to the formation of sandbars and functioning of the lagoon estuary that has favored the development of the mangrove. Therefore, the silt and clay carried by the rivers settled, forming mudflats fixed by vegetation adapted to the salinity such as mangroves.

A.2.4. Salinity

The bolongs are marked by significant seasonal variations in salinity. As the dilution starts during the rainy season, the salinity gradually decreases. In addition, fluctuations in tides feed all branches of the hydrographic network that also works as an irrigation system in salt water, including brine. The combined effects of the weak slope length, extremely low flows from upstream, the retention of the mangrove and evaporation, result in a steep salinity gradient from downstream to upstream of the complex. This hydrodynamic movement is characteristic of an inverse-type estuary which characterizes the Saloum Delta.

A.3. Socio-economic context of the Saloum-Niumi Complex

A.3.1. Demographic and social context

There are eleven outlying villages including three located in Bakadadji within the boundaries of the PNDS, with an estimated population of 13,146 inhabitants, according to the 1993 national census. The economy of area is focused on the exploitation of natural resources in wetland zones and often runs along ethnic and gender lines. The Mandingos, Niominkas and Diolas are the main ethnic groups. A household survey conducted in the Kanuma, which coincided with the study on the Niumi-Saloum complex, revealed that there is a huge intermixing of ethnicity among the Sérère and Mandingo.

The geographical location of the complex, the currency in use, the availability of cheap labor, trade in food items, and fishing may explain the migratory flow and interrelation between these neighboring communities. However, there are people from other West African countries who are involved in trade and fishing in the area. Most villages around the PNDS are found in the Toubacouta district, essentially in the Toubacouta Rural Council and (a small) part in the Keur Samba Gueye Rural Council area (in Sirmang).

The Karang local council created by decree n° 2008 748 on 10 July 2008 is a recent addition. Karang is made up of two big villages (Karang Madinka and Karang Poste). Since it became a local council area of its own, it has been split into seven neighborhoods (Santhie Sady, Diamanguéne, Escale I and II, Kassoumaye, Karang Madinka).

According to the 2009 administrative census, there are between 700 and 2,200 inhabitants in the area, and between 100 and 6,000 inhabitants in the CR. There are more men (55.4%) than women (44.6%). Currently, the PNDS has one village located inside the park (Bagadagji). Consequently, these surrounding villages must be examples of sustainable development and conservation of natural resources according to the Protocols of the RAMSAR Convention. These villages, which are a sort of buffer zone for the RBDS, must follow ecologically viable development practices. But studies have shown that there is a high population density in these villages which explains the increased exploitation of pelagic resources. Statistics show that the population density in the RBDS is around 77 inhabitants per km², whereas the national average in Senegal is 35 inhabitants per km². The population growth rate in the Fatick Region is among the weakest in the country (1.6%) but the male to female ration is 97:100.

The population is extremely young (55% are under 30 years of age) and mobile. They often migrate to urban centers or major fishing centers because of the limited prospects for self improvement in

these protected areas. Poverty is felt in terms of people's living conditions and the quality of public service available to them. There is inadequate infrastructure and existing basic facilities. The majority of the population in the Saloum Delta Biosphere Reserve is Muslim. There is a great ethnic diversity; nonetheless the Madinka and the Sérères *Niominka* are the majority ethnic groups. The other groups are Toucouleurs, Wolofs and Bambaras.

TABLE - LIST OF VILLAGES INSIDE OR ON THE OUTSKIRTS OF THE PNDS

Village	Population			Position / PNDS		
	H	**F**	**T**	**Park**	**0-5km**	**5-10km**
CR of TOUBACOUTA						
Aïdara	144	213	361		SENEGAL	
Bakadadji	69	64	133	Within the park (SENEGAL)		
Bani	544	531	1.075			SENEGAL
Béttenty	3.615	2.104	5.719		SENEGAL	
Boutilimith	98	91	189		SENEGAL	
Daga babou	185	202	387			SENEGAL
Dassilamé sérere	272	187	459		SENEGAL	
Dassilamé Madinka	616	445	1.061		SENEGAL	
Jinack Bara	245	264	509		SENEGAL	
Firdawsi	161	123	284		SENEGAL	
Missirah	1.376	1.292	2.668		SENEGAL	
Ndoumboudji	473	397	870		SENEGAL	
Némabah	553	516	1.069		SENEGAL	
Némandjing	577	333	910		SENEGAL	
Sabouya	79	71	150		SENEGAL	
Samé	226	229	455		SENEGAL	
Santaba	212	195	407			
Santhie El Hadji	16	25	41		SENEGAL	
Saroudia	176	160	336		SENEGAL	
Soukouta	170	164	334			SENEGAL
Sourou	115	88	203			SENEGAL
Taïba	263	249	512		SENEGAL	
Toubacouta	1.154	1.168	2.322			SENEGAL
Toubanding	82	70	152		SENEGAL	
SUB-TOTAL1	11.421	9.181	20.606			
CR of KEUR SAMBA GUEYE						
Sirmang			481		SENEGAL	
SUB-TOTAL2			481			
COMMUNE DE KARANG						
Diamanguène			1.470		GAMBIE	
Santhie sady			2.200		SENEGAL	
Escale I			1.500		SENEGAL	
Escale II			2.000		SENEGAL	
Kassoumaye			1.200		SENEGAL	

Médine			2.100		SENEGAL	
Karang Madinka			700		GAMBIE	
SUB-TOTAL3			11.170			
TOTAL POPULATION OUTSKIRTS OF PNDS			32.257			

TABLE - LIST OF VILLAGES LOCATED INSIDE NIUMI NATIONAL PARK OR WITHIN 5KM RADIUS

Place	In the Park	0-5 Km
Bakindikoto	X	
Barra		X
Diamagueun		X
Jinack Kajata	X	
Jinack Niji	X	
Essau		X
Kanuma		X
Mayamba		X
Mbamkam		X
Mbollet		X
Medina kanouma		X

A.3.2. Socio-economics

The entire complex Niumi-Saloum Delta is a dynamic economical region with activities in agriculture, forestry, animal husbandry, fishing and tourism. However, economic livelihood has witness changes from land base cultivation to increased exploitation of natural and biological resource and sand mining.

Majority of local communities practice small scale subsistence and commercial fishing with women particularly involved in collecting oysters during low tides. Agriculture and agro-forestry are practiced in the islands and in the periphery of the park. Fruit farming is dominated by cashew (*Anacardium occidentalis*). Livestock production is extensive. Classified forests like Fathala, Sangako, Bettenty,Kanuma, Mbolletba are important grazing areas for livestock. Artisanal fishing production was estimated at 10,000 tons (Bousso, 1991). The catch in the estuary was estimated to be about 8,000 tons. It appears the estuarine resources are fully exploited in the Niumi-Saloum (Diouf et al. 1992).

The northern sector is more developed and has better fish production, management facilities and larger commercial fish landings than the southern sector.

The Saloum Delta is a very dynamic economic region. It focuses on various agricultural activities including forestry, animal husbandry, fisheries, tourism, etc. It has undergone significant economic changes that have resulted in, among other effects, increased consumption of natural resources like

construction, sand mining and exploitation of wetlands. Certain activities predominate according to ethnicity and gender.

On the Gambian side, the outlying communities of **Niumi National Park** are made up mostly of farmers and fishermen. Like the PNDS, the economic livelihood of the surrounding communities of Niumi is mainly the exploitation of natural resources, with little difference between males and women, tribe or ethnicity. These dependency has made local communities an important stakeholder in the management of natural resources.

A.3.2.1. Agriculture

In the Saloum Delta, a very large proportion of the local population practices agriculture. It is extensive and is dominated by the cultivation of groundnuts and millet. However, other crops such as cowpea, cassava, rice, corn, etc. are also cultivated in the region. The production system is based on annual rotation between cash crops and cereals in the plateau land, the cultivation of rice in the lowlands and the development of gardening in the valleys during the dry season.

Production can reach 119,000 tons (TARS, 1993). Millet ranks first in terms of the cultivated area, between 120,000 and 150,000 ha. For other cereals (sorghum, corn, rice), the crop areas are relatively smaller. Rice, formerly widely cultivated in the sector, has fallen sharply as a result of soil salinisation. Agricultural is in decline due to among other reasons increased salinisation,decrease in rainfall, overexploitation, and degradation of the ecosystem.

On the Gambian side, the main agricultural activity in wetlands is the cultivation of rice. On the terrestrial part, inhabitants cultivate cashew, maize, groundnuts, cassava and practice vegetable gardening. Various cultivation areas are frequently under cultivation, making these land exhausted with low fertility. These include in particular, Kajata, Sandiol, Nourouwoye, Thienikoumadi, Koukoudiag where groundnuts, millet and rice are being cultivated.

A.3.2.2. Animal husbandry

In the surrounding areas of the PNDS, farming is characterized by the integration of the activity in agricultural production systems. However, during the rainy season, a small-scale movement of livestock is observed to keep the animals away from the fields. Minor attempts at intensification have been recorded in the area. They are encouraged by the abundance of agricultural by-products (hay, peanut haulms, etc.).

Extensive livestock breeding is widespread. The reserved forests of Fathala, Sangako, Bettenty are important grazing areas for livestock. Due to the expansion of cropland allocated to agriculture,

conflicts over the use of space are sometimes observed with livestock like the straying of livestock into the Park. The area is subject to other issues :

- The tradition of extensive livestock breeding;
- The inadequate care of animals against endemic diseases;
- The weak purchasing power of farmers, limiting investment in the activity;
- Lack of processing facilities;
- The absence of a financing structure;
- Poor distribution of water points in relation to existing foraging potential;
- Insufficient budget allocation by CNCAS (National Agricultural Credit Bank of Senegal).

In the Gambian section, animal husbandry is practised on crop residues following harvest and along the beach. During the rainy season, cattle are herded to Dankoula; but frequent the park in all seasons. Small ruminants are usually taken near the villages or to nearby areas.

A.3.2.3 Fishing

Fishing is vital to the economies not only for the communities of Saloum Delta but the entire complex especially in the northern part where catches reach about 10,000 tons a year and represent the main source of protein for the rural population. Local people are the main actors in this sector, but there is an increasing numbers of fishermen from other regions of both the Gambia and Senegal who exploit the waters of the Saloum Delta. The area is reportedly better stocked with fish(source?)., The most important landing sites are Djiffere and Missirah in the north and Barra, jinacks Bakindiki-koto in the south due the proximity of the land sites for marine and estuarial fishermen on one hand, the landing infrastructure preservation and processing facilities on the other hand (SRAT, 1993).

Fishing is an important economic activity in the Saloum Delta. Tributaries of the Saloum Delta (Saloum, Diomboss and Bandiala) and the bolongs provide substantial fisheries resources..

Fishing in the Saloum Delta has outgrown the traditional methods and is increasingly becoming a semi-industrial activity. The equipment used are varied, most widely used are beach seines, purse seines, encircling gillnets, drifting gillnets, set gillnets, trawling nets, fixed nets and lines. The main target species are sardinella, bonga shad, mullet and shrimps. The traditional fish catch is estimated at 10,000 tons (Bousso, 1991). Catches made in the estuary and bolons are estimated around 8,000 tons of which 30% are bonga shad, 29% mullet, 15% tilapia and 26% others. It seems that the estuarine resources are fully exploited in the Saloum (Diouf et al. 1992). It is estimated that almost 40% of the catch is processed locally. This traditional activity employs mostly women. It is characterised by low investment (use of solar energy and local timber and cheap, unskilled labour) and low control of production parameters.

Productivity estimated regularly by the fishing centre at Missirah, has shown exponential increase from about 80 tons in 1990 to almost 400 tons in 1995. However, from that date, the centre has experienced problems generally related to the decline in catches on the Senegalese coast.

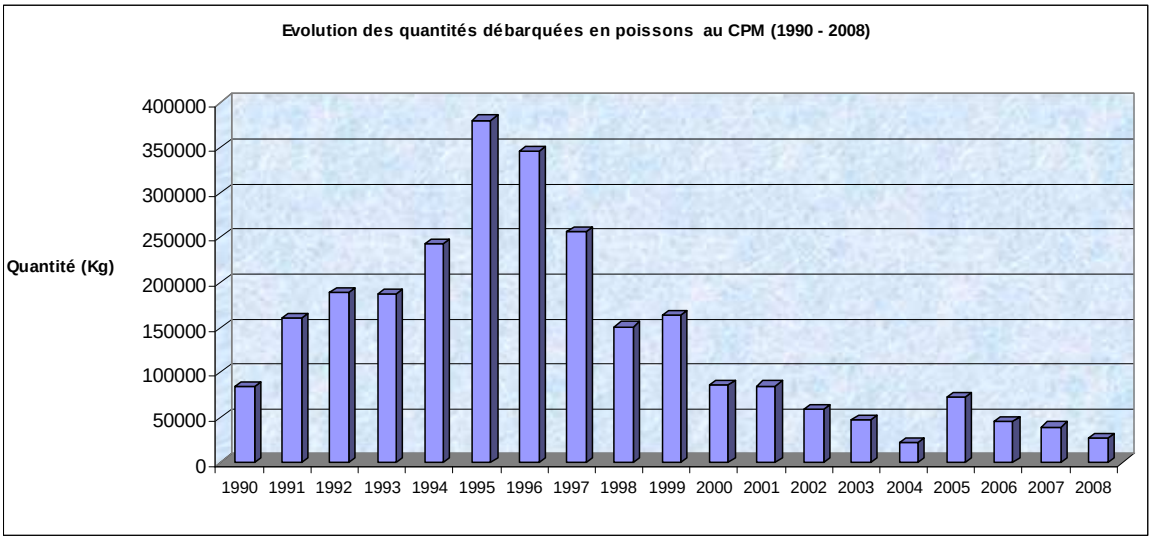

FIGURE 3 - GROWTH IN THE QUANTITY OF FISH LANDED IN CPM BETWEEN 1990 AND 2008

[Title = *As shown;* Y-axis = *Quantity (Kg)*]

In addition, the harvesting of oysters and shellfish is a key economic activity for women in the islands of the Saloum. It is difficult to quantify the annual production of this activity, primarily intended for consumption. However, the following constraints in the sector are to be noted:

- The decline in rainfall leading to changes such as the raising salinity of the water and the reduction in size of the mangrove which, in turn, affect the growth of oysters and shrimps;
- The unregulated exploitation of oyster stocks;
- The opening of the gap at the former mouth of Sangomar Point which has silted up the bottom of certain areas of the Saloum and bolons;
- Insufficient preservation facilities, and inadequate means of transportation;
- The lack of personal capital and credit facilities;
- The non-competitiveness of oyster farming produce on the local market;
- The remoteness and isolation of collection areas in the Saloum region;
- Inadequate training and supervision of the oyster collectors, etc.

In Niumi National Park, fishing activities are mainly for subsistence. Generally speaking, the catch is consumed or traded in the villages for other goods or services. Towards Jinack Island, the villages of Jinack Barra and Jinack Diatako are more commercially oriented as they can reach the markets of

large cities. There are three identified areas: Mbankam bolong in the park, Niji and Bakindickoto located outside the NNP.

TABLE 3 – MAIN TYPES OF FISH SPECIES THAT ARE CAUGHT BY FISHERMEN

Villages	Main pelagic species
Bara	Bonga shad, Sea Trout, Catfish, Barracuda, Sea Bream, Grouper Bonga shad: more common at sea Period: October November December September / after December reduction in growth Grouper - (Shark), but rare
Mbolet	Mullet, Tilapia
Dj Niji	Mullet, Tilapia
Dj Kadiata	Mullet
Diamaguène	Mullet, Tilapia
Mayamba	Mullet, Tilapia
M. Kanouma	Mullet, Tilapia
Kanouma	Mullet, Tilapia, Bonga shad Period: rainy season / Nov
Mbamkame	(see Bara)

Women are involved in the harvesting of oysters and ark clams in the Bolons of Mansarinko and Niji, Tenda Bari Sarr. However, the method and equipment used is rudimentary including knives, machetes, buckets, etc.

A.3.2.4 Logging

Residents of the Saloum Delta National Park derive from the forest timber products (fuelwood, timber) and non-timber forest products (fruits, leaves, roots, bark, etc.). These products are source for both income and food. The harvesting of wood for timber and fuel wood, is increasingly adding pressure on forests resources. Ssome species are overexploited (*Pterocarpus erinaceus, Cordyla pinnata, Bombax costatum, Daniella olivieri,* etc.) used for timber while non timber trees form large percentage of tree cover . Picking of wild fruit, mainly by women is an important economic activity. Fruit such as *Adansonia digitata, Ziziphus jujuba, Saba senegalences, Parinari,* coconut tree (*coco nucifera*), are mostly sold at the local markets.

TABLE 4: SOME SPECIES OF WILD FRUIT IN THE PNDS

Villages	Species	Area of collection
Soukouta	• *Adansonia* (Gouye) • *Ziziphus* (Sidem) • *Saba* (Mad)	Reserved forests, bush, fields
Bettenty	• *Detarium* (Ditakh) • *Adansonia* (Gouye) • *Parinari* (New) • *Cocos* (Coconut)	
Némabah	• *Ziziphus* (Sidem) • *Saba* (Mad) • *Detarium* (Ditakh)	
Sourou	• *Saba* (Mad) • *Parinari* (New) • *Detarium* (Ditakh)	
Toubacouta	• *Saba* (Mad) • *Parinari* (New) • *Detarium* (Ditakh)	

In Niumi, mangrove wood is valued for its resistance to insects. However, a reduction in the amount of wood available in the dry forest has been observed, which is due to overexploitation and excessive fire.

Palm wine is made by small ethnic groups around the NNP. Over-tapping for wine sometimes results in the death of the stands of palm. Gathering wild fruit, barks and roots, is widespread in the NNP and constitutes an important contribution to local food and income. Children often sell their harvest to buy school learning materials. Species harvested includes *Detarium senegalensis, Adansonia digitata, Acacia albida and Saba senegalensis,* etc.

A.3.2.5 Hunting

Hunting activity around the PNDS is mainly done by tourists in allocated areas. For local populations, francolins and guinea fowl are hunted in particular for family consumption. Poaching activities are also observed in the sector.

There are two main allocated areas (Palétuviers: 20,000 ha and Relais du Saloum 30,000 ha) near the park, along the Transgambian route, constituting a very significant feeding territory for small and medium game. The number of hunting permits issued each year in these areas is about one hundred. They are mainly for small-scale hunting.

One of the main constraints to hunting remains the scarcity of game resulting from the degradation of their habitat and the lack of water. The movement of wildlife between the two categories of areas (national park and hunting area) is almost daily. Therefore, communication synergy is essential in

order to determine hunting quotas, to count on the number of hunters per day per area, and to reinforce conservation measures in this complex.

In Niumi, hunting is practised as a means to provide bushmeat at household level. Hunters often sell part of the game to neighbours, to generate income. Species hunted includes warthogs, monkeys, hares, ducks, guinea fowl and francolins. Wild animals are also hunted to protect residents' crops and properties. This type of hunting is intended to remove those species considered as pests and destructive.

A.3.2.6 Tourism

Tourism plays a role in the economic fabric of the complex. Indeed, the existence of a pleasant climate, beaches and rivers, the many islands and the cosmopolitan character of the people, the vast variety of flora and fauna, the archaeological and cultural richness in addition to the existence of the National Park, such as Fathala Wildlife Reserve and the Marine Protected Area of Bamboung are huge tourism assets that contributed to tourism development in the SDBR.

In 1998 there were nine hotels, with a total capacity of 484 beds, to which must be added 22 tourist camps for approximately 250 beds. However, the average occupancy rate (15% in 1995) remains very low, even if we consider that the natural and cultural potential of the area could justify more tourist facilities and supplementary facilities.

The national policy, which is to maximise the diversification of the tourist areas, has resulted in the Fatick region and therefore the PRSP, becoming a favourite destination for international tourism.

On the Niumi side, tourism is also one of the main areas for economic development, and is undergoing rapid expansion. In Jinack Niji, there are currently four tourist camps, and one on Island of Jinack Bara regularly hosting visitors.

A.3.2.7 Beekeeping

This is a secondary activity practiced by farmers in the Saloum delta. The placement of hives usually takes place at the end of the rainy season (November to January) and is monitored by a beekeeper. There are two types of beekeeper: traditional and modern beekeepers. The main difference between the two is the materials they use in carrying out their activities. In addition to these two roles, there is the honey collector who, unlike the others, does not have hives. According to the reinforcement project of the mangrove beekeeping industry in the Saloum Delta, 221 beekeepers were identified in 2004 in the Saloum delta with 418 hives, 96 suits, 74 smokers, 63 pairs of gloves and 2670 knives in their possession.

Modern beekeeping is an option for the sustainable management of biodiversity, mainly introduced into the area in the context of Projects to combat the degradation of natural resources and by NGOs. It avoids the destruction of wildlife habitats (i.e. the exploitive cutting of honey collectors) and colonies of bees following harvest. However, this beekeeping technique is not well developed due to a lack of resources. The table below details some of the equipment used by beekeepers.

TABLE 5 - BEEKEEPING TECHNIQUES

Type of beekeeper	Equipment used
Traditional beekeepers	- traditional hives - knife and rope - bucket or bowl or calabash - axe and matches
"Harvesters"	- knife and rope - bucket or bowl or calabash - axe and matches
Modern beekeepers	- modern hives - protective clothing - boots and gloves - smoker - hive tool - uncapping knife - bee brush

Source: Study of the proposed reinforcement project for the mangrove beekeeping industry in the Saloum Delta in June 2006.

A.3.2.8. Mining Activities

Mining activities are limited to the exploitation of shellfish and salt extraction. They are very intensive on the Senegalese side.

The extraction of shell midden, which has increased since 1982, has resulted in some negative effects on the environment like reduction of physical protection of some small islands due to the degradation of vegetation, risk of increased sedimentation in tidal channels, and on degradation of sites acknowledged as being part of the cultural, historical and archaeological heritage. Studies that are underway aim to measure the actual impact of the extraction of shellfish on the sites by counting quarries in use, by identifying the operators and commercial sectors, by quantifying the income generated, and to come up with proposals for site conservation and development of the sector.

There is significant confusion surrounding the application of regulations in force. In theory, only natural deposits are the responsibility of the Department of Mines and Geology, while anthropogenic deposits are managed by the Ministry of Culture. Indeed, most of the quarries in the Saloum are anthropogenic sites and should therefore, in principle, be excluded from any form of mining.

Salt mining is well developed in the transition zone of the complex, where it constitutes a traditional activity usually undertaken by women. Men are only actively involved following years of drought, marked by a drop in income derived from the cultivation of groundnuts. The mining of salt is currently a source of substantial income in the dry season. However, it faces many constraints such as lack of resources for production and extraction, difficulties in product flow and low sale prices.

A.4 Values and Issues

A.4.1 The Value of the Natural Heritage of the Niumi-Saloum complex

The PNDS is the third site of ornithological importance in West Africa after Banc d'Arguin (Mauritania) and Djoudj (Senegal). It is characterised by the presence of three main ecological environments: a continental area rich in forests and restricted in its lower part by mangroves and salt flats; an amphibious area made up of three large groups of islands, bordered by a dense network of water channels surrounded by mangroves; and a maritime domain. These three environments have quite different functions and are highly interdependent in terms of their functions, dynamicism and development.

Like the PNDS, Niumi National Park is characterised by the presence of rich and varied ecosystems and occupies the coastal strip north of the River Gambia. The park has a variety of wildlife species associated with the various types of wetland habitat.

Vegetation in the continental section of the park, with its diversity of habitats, includes dry forests and savannas on a lateritic plateau. The latter is crossed by the Mansarinko Bolon which is lined with mangrove vegetation.

Niumi National Park includes Jinack Island, adjoining the Saloum Delta National Park in Senegal, which is separated from the mainland by the narrow Niji Bolon. The island is mainly characterised by areas of forests, coastal dunes, saltwater marshes dominated by tamarin species and mangroves lining the bolon. There is significant and diverse avifauna, with nearly 300 species of birds belonging to 63 families, most of which are Palaearctic and Ethiopian migratory species. The Niumi waterways are home to one of the few aquatic mammals in the region, the West African manatee (*Trichechus senegalensis)*. Other threatened species such as sea turtles and humpback dolphins are also found in the park.

A.4.2 Vegetation and flora

The complex Niumi-Saloum is characterized by three main vegetation types: mangroves, savannas and relics of gallery forests.

- The first type of vegetation is mainly represented by the mangroves along the water channels in the amphibious area. Among the six main species that make up this vegetation, *Rhizophora racemosa and R.harrisonii* are located along the mainly clay channels, followed towards the back by *R. mangle*. The latter, much more abundant than *R. harrisonii*, occupies the higher land, likely submerged during high tide, and forms the most extensive stands. In the upper section of the mudflats irregularly exposed to the tides, the *Avicennia africana* or

white mangrove grows. It represents the *Verbenaceae* family. *Laguncularia racemosa* and *Conocarpus erectus*, both *Combretaceae*, are locally associated with these species. This ecosystem is the most dominant landscape characteristic of the Park. The mangrove is highly degraded upstream of the Saloum river and is relatively well preserved in the delta area. Studies carried out on the ecology of the mangroves of the Saloum report its low productivity: 1.4 m^3/ha/year related to the high salinity of the water and nutrient deficiency.

- The second type of vegetation is a woodland shrub savannah, dominated by woody species similar to Sudanese species.
- The third type consists of gallery forests with a denser canopy and a plant composition similar to that of Guinea.

In total, 188 woody species (9% of the woody plant species of Senegal) divided into 50 families (30% of the families of higher plants of Senegal) were identified in the last two vegetation categories.

Besides these main types of vegetation, the presence of halophytic meadows colonising the upper limit of tidal influence, known as salt marshes, has also been observed. Characteristic species are: *Sesuvium portulacam* and *Philoxerus vermicularis*.

The formation of sandbars and marine terraces are dominated by *Elaeis guineensis, Cocos nucifera, Detarium senegalensis, Parinari macrohylla*.

Niumi National Park, like the Saloum Delta, is located in a transition zone between the Sudano-Guinean area to the south and the Sahelian-Sudanian area to the north. This area is home to vegetation which is strongly associated with geomorphology and soil types, occurring in two main types of environments; submersed and non-submersed areas.

The types of vegetation in the submersible areas are formed by mangrove vegetation. The distribution of species of mangroves depends on the conditions of tidal submersion and variations in salinity. Four species of mangroves can be distinguished: *Rhizophora racemosa, Rhizophora mangle, Rhizophora harrisonii* and *Avicennia africana* (located at the rear).

Rhizophora mangle is much more abundant and occupies the higher land that is likely to be submersed during high tides; it forms the largest stands (Marius, 1972).

Other species of Combretaceae, such as *Laguncularia racemosa and Conocarpus erectus* are also associated with the formation of mangroves. Mangroves occupy the edges of the bolons and extend to around 800 ha.

Halophytic grasslands are known as the "salt marshes" as opposed to the "bright salt flats" which are areas of heavy salinity, devoid of vegetation. On the salt marshes marking the upper limit of tidal

influence, species such as *Sesuvium portulacastrum, Philoxerus vermicularis, Sporobolus robustus, and Schizachyrium compressa* grow.

As regards vegetation communities in non-submersible areas, these occupy the coastal areas and geomorphic units of the "mainland".

The vegetation on the islands, is in general insignificant, and mainly consists of shrub species.

A.4.3 Fauna

A.4.3.1 TERRESTRIAL Mammals

The transboundary RAMSAR site fauna checklist is essentially composed of birds and mammals. Certain species are also semi-aquatic. In the outskirts of the complex, the Sangako forest hosts the highest population of colobus.

The deserted islands (such as Leba, Hyènes, Yassa and Toubacouta islands) are home to several threatened species. In further south, in the Niumi, the little fauna dominate the checklist, despite the great diversity of its inhabitants. Around 500 individuals of red colobus are present in Fathala forest (Diouck, 1995). In the area the following endangered species can be found: kob redunca (*Redunca arundinum*), Serval (*Felis serval*), Red colobus (*Colobus badius temmincki*), Sitatunga (*Tragelaphus spekei*), Bush duiker (*Sylvicapra grimmia*) and Red flanked duiker (*Cephalophus rufilatus*).

The loss of habitats in the complex has led to the migration of some animals that now seek refuge in the mangrove. These are: Warthog (*Phacochoerus africanus*), Bushbuck (*Tragelaphus scriptus*), Reedbuck (*Redunca arundinum*), Patas (*Erythrocebus patas*), Green Vervet (*Cercopithecus aethiops sabaeus*) and Red Colobus (*Colobus badius temmincki*).

Poaching and habitat degradation are the main factors responsible for the reduction of the fauna in the complex. Poaching on the avifauna wart hogs, antelopes and manatees is observed mainly in isolated areas and along the boundaries of the complex. Several mammal species of the PNDS are threatened in the Fathala forest with high rate of poaching activities according to reports from rangers and communities.

The mammalian fauna of the NNP was greatly depleted during the last century due to the destruction of its habitat. However, efforts are being made to conserve the existing stocks.

The main species of terrestrial mammals encountered are*: Ourebia ourébi, Redunca redunca, Tragelaphus scriptus , Cephalophus monticola / maxwellii Sylvicapra grimmia, Phacochoerus aethiopicus, Panthera pardus, Felis caracal), Felis serval, Felis Sylvesters, Sparus Profelis, Francolinus bicalcaratus, Pterocles quadricinctus, Crocuta crocuta, Herpestes paludinosus, H.ichneumon,*

H.sanguineus, Mungos mungo, M.gambianus obscurus Crossarchus, Colobus badius temmincki, Erythrocebus patas, Cercopithecus aethiops, Galago senegalensis, Lepus crawshayi, ; Erythropus euxerus, Gambiens heliosciurus, Thryonomys swinderianus, Capensis pedetes, Hystrix cristatailles, Erinaceus albiventris, Orycteropus afer, Gambianus epomophorus, Gambianus Nycterie.

As regards aquatic mammals, the presence of the African clawless otter *(Aonyx capensis*), dolphin (*Delphinus delphis*) and the manatee *(Trichechus senegalensis*),all threatened with extinction, has been reported.

A.4.3.2 Avifauna

This is the most important component in the natural environment of the complex and for that, the complex is considered a wintering ground for most of the migrating birds of the Western Palearctic. More than one hundred and twenty thousand (120,000) water birds are recorded annually between the Saloum and the Niumi and account for about one hundred (100) bird species of migratory waterfowls. The best example is the reproduction among most representatives of the family Laridae on the Saloum bird island, which is considered the first global site hosting the largest reproductive colony of royal terns (Sterna maxima) and Caspians (Sterna Caspia). The Delta du Saloum Biosphere Reserve area which encompasses the PNDS and adjacent areas constitutes the wintering and breeding site for the world biggest population of royal terns.

This considerable avifauna presence remains essentially concentrated in the following sites: Ile aux Oiseaux, Ilots de l'océan, the Joal / Fadiouth zone, tidal reservoirs on the east of Palmarin, reservoirs and sand dunes of the Diomboss and the Saloum estuaries, Fambine pass, Kaolack salt mines, the Saloum river affluent between Foundiougne and Kaolack. The Ile aux Oiseaux is a major nesting site hosting almost a quarter of the world population of royal terns, and other surrounding small islands are favorite site for egrets.

Other species such as lesser and pink flamingos (*Phoenicopterus minor, P. ruber*), goliath heron (*Ardea goliath*), and pink-backed pelicans (*Pelecanus rufescens)* are also found in the area in large numbers. Habitat degradation and egg collection are the most important threats for the breeding colonies of Laridea in the area.

TABLE - NNP WILDLIFE (SOURCE: NIUMI MANAGEMENT PLAN)

FAMILY	GaM	NNP	PM	Res	IAF	HABITAT
Procelaridae: storm- petrels	3	1	*			F
Pelicanidae: Pelicans	2	1		*	*	ADF
Sulidae Gannets	2	1	*			F
Phalacrocoracidae Comorants	2	2		*	*	ABDEF
Anhingidae: Darter	1	1		*		ADF
Ardeidae: Herons. Egrets Bitterns. Tiger Heon	18	13	*	*	*	ABCDEF

FAMILY	GaM	NNP	PM	Res	IAF	HABITAT
Scopidae: Hamerkop	1	1		*		ABCDEF
CICONIDAE:Storks	7	2		*		ABCDEF
Threskiornithidae: Ibises, spoonbills	5	2		*	*	ABCDEF
Anatidae: Ducks, Geese	14	3		*		ABCDEF
Accipitridae : Vultures Hawks Eagles	44	20	*	*	*	ABCDEF
Pandionidae: Osprey	1	1	*			ABF
FALCONIDAE: Falcons	9	6	*	*	*	ABCDEF
Phasiandae : Gamebirds	6	2		*		BCE
Rallidae: Rails	9	1		*		CDE
Jacanidae: Jacanas	1	1		*		CDE
Burhinidae: Stone-Curlews	2	1		*		ABCDEF
Upupidae : Hoopoe	1	1	*	*	*	BCE
Phoeniculidae: Wood Hoopoes	2	2		*	*	ABCE
Bucerotidae Hornibills	5	4		*	*	ABCDF
Capitonidae Barbets	4	3		*		ACE
Indicatoridae: Honeyguides	3	2		*		ABC
Picidae: Woodpeckers	7	6		*		ABC
Alaudidae: Larks	8	2		*	*	BE
Hirunididae: Swallows, Martins	15	8	*	*	*	ABCDEF
Motacillidae: Wagtails, Pipits	9	5	*	*		ABCDEF
Laniidae: Shrikes	11	9	*	*		BCDE
Oriolidae : Orioles	2	1		*	*	CE
Dicruridae: Drongos	2	1		*		BCE
Sturnidae: Glossy Starlings, Oxpeckers	10	7		*	*	ABCDEF
Pycnonotidae: Bulbuls	7	1		*		ABCDE
Corvidae: Crows	3	2		*		BCDE
Muscicapidae: Turdinae Chats Thrushes	17	8	*	*	*	ABCDE
Muscicapidae: Sylviinae warblers cisticolas	38	26	*	*		ABCDE
Muscicapidae, Muscicapinae flycatchers	6	3	*			ABCDE
Muscicapidae: Platysterinae wattle-eye, Batis	4	2		*		ACDE
Muscicapidae: Monarch Flycatchers	4	2		*		ACE
Paridae: Tits	1	1				CE
Remizidae: Penduline Tits	1	1				CE
Nectarinidae Sunbirds	9	6		*		ABCDE
Zossteropidae: White –eyes	1	1				CE
Fringillidae: Canaries	2	2		*		BCE
Plocedidae: Weavers, Sparrows Whydahs	23	19		*	*	ABCDE
Estrildidae: Waxbills	19	9		*		ABCDE

The NNP has a great diversity of resident bird species and is also an important site for Palearctic migratory species. A ringing programme launched in Jinack Island in 1994 has uncovered many new species which have been added to the list of birds in the park. A large variety of warblers (17 species) use the island as a stopover and feeding site. Warblers are small, colorful birds, playing an important role in the maintenance of forests. They feed on insects, mainly caterpillars that are harmful to forest areas.

Furthermore, the shallow waters off the coast offer excellent feeding conditions for terns, gulls and other fish-eating species. The mangrove vegetation is rich in waders, many of which are seasonal migrants, but some, such as the white-fronted plover, nest on the fringes of the dunes.

A total of 293 species belonging to 63 families (more than 1% of the total size of 21 water bird species), 88 of which are Palaearctic migrants have been recorded to date in Niumi National Park

TABLE 7: AVIFAUNA OF NNP

Families	Number of species
Procelaridae: storm- petrels	*1*
Pelicanidae: Pelicans	*1*
Sulidae Gannets	*1*
Phalacrocoracidae Comorants	*2*
Anhingidae: Darter	*1*
Ardeidae: Herons. Egrets Bitterns. Tiger Heron	*13*
Scopidae: Hamerkop	*1*
CICONIDAE:Storks	*2*
Threskiornithidae: Ibises , spoonbills	*2*
Anatidae: Ducks, Gees	*3*
Accipitridae : Vultures Hawks Eagles	*20*
Pandionidae: Ospery	*1*
FALCONIDAE: falcons	*6*
Phasiandae : Gamebirds	*2*
Rallidae: Rails	*1*
Jacanidae: Jacanas	*1*
Burhinidae: Stone-Curlews	*1*
Upupidae : Hoopoe	*1*
Phoeniculidae: Wood Hoopoes	*2*
Bucerotidae Hornibills	*4*
Capitonidae Barbets	*3*
Indicatoridae: Honeyguides	*2*
Picidae: Woodpeckers	*6*
Alaudidae: Larks	*2*
Hirunididae: Swallows. Martins	*8*
Motacillidae: Wagtails, Pipits	*5*
Laniidae: Shrikes	*9*
Oriolidae : Orioles	*1*
Dicruridae: Drongos	*1*
Sturnidae: Glossy Starlings, Oxpeckers	*7*
Pycnonotidae: Bulbuls	*1*
Corvidae: Crows	*2*
Muscicapidae: Turdinae Chats Thrushes	*8*
Muscicapidae: Sylviinae warblers cisticolas	*26*
Muscicapidae, Muscicapinae fiyeatchers	*3*
Muscicapidae: Platysterinae wattle-eye, Batis	*2*
Muscicapidae: Monarch Flycatchers	*2*
Paridae: Tits	*1*
Remizidae: Penduline Tits	*1*
Nectarinidae Sunbirds	*6*
Zossteropidae: White –eyes	*1*
Fringillidae: Canaries	*2*
Plocedidae: Weavers, Sparrows Whydahs	*19*
Estrildidae: Waxbills	*9*

A.4.3.3 Aquatic fauna

The estuarine fisheries resources of the complex are composed of fish, shellfish and mollusks. As of now, there are one hundred and fourteen (114) fish species belonging to fifty two (52) families recorded in the Saloum estuary. The most diversified families include Carangidea (11 species), Mugilidea (7 species), Haemulidea (6 species), Cichlidea and Clupeidea (*Sardinella maderensis, Ethmalosa fimbriata*) (4 species each) then, follow Arlidea, Cynoglossidea, Dasyatidea, Ephippidea, Polynemidea, Soleidea and Sparidea (Diouf, 1996). On the Gambian side, 13 families of fish have been currently identified (RAMSAR Wetland study The Gambia, 1997).

The Manatee

The Manatee (*Trichechus senegalensis*) is part of species classified as vulnerable by the IUCN. Three manatee species have been identified on the West African coast. The African manatee belongs to the Sirenia order. Its length can reach 2.5m, and its weight 450kg. It lives in African streams and rivers and more rarely in lagoons and brackish environments (Louis, 2003).

Manatees are exclusively herbivorous, non-ruminant, and graze on floating or immerged grasses. They eat young mangrove plants (Rhizophora), water hyacinth (*Eichornia crassipes*), antelope grass (*Echinochloa pyramidalis*), and graminae (*Paspalum vaginatum*). Although manatees are diurnal animals, they feed exclusively during the night. The plants often contain silica which causes abrasion of the teeth. This is compensated by the permanent replacement of the teeth.

Traditionally, there are manatee hunter families living in the complex. Hunting of the animal is done illegally and some hunting grounds are identified around the Mansarinko border zone. The shy sea mammals are seldom caught accidentally in nets by fishermen.

Dolphins (*Delphinus spp* and *Tursiops spp*)

The Dolphin is a sea mammal from the cetacea family that can be found along the coast. The most common species are *Sousa teuszi*, *Delphinus delphis* and *Delphinus capensis.* Unfortunately, the *S. teuszi* populations are endangered.

Turtles and Other reptiles

Also, the West African coastal area makes up feeding zones for the loggerhead population within the larger Cape-Verde population. Turtles have resting and feeding sites, as well as nesting sites throughout the complex. Some of the areas are Fata-Ngousse, Gnongolane and Telekoung sites. For nesting, one finds the site (used by *Chelonia mydas* and *Lepidochelys olivacea*), that of Sangomar, the Fandiong site (essentially used by *C. mydas* and *C. carreta*) and finally the île aux oiseaux site (*Dermochelys coriacea*, *L . olivacea* and *C. mydas*) [PGIES, Study 3].

Six of the seven world recorded species of sea turtles are found in the waters of Africa's Atlantic coast. Some species of turtles are endangered at the global level.

Female sea turtles visit the complex's coastline to lay eggs. They are seldomly observed offshore, in pelagic and benthic areas for feeding purposes along in the coastal waters of the area.

The number of turtles is decreasing due to poaching, accidental traps in fishing gear, and encroachment on nesting sites due to hotel industry expansion along the coastal stretch of many countries as well as sand mining and coastal erosion. Reptile studies have mainly concerned sea turtles. They revealed the presence of six (6) species in the park and its surrounding areas:

- The green turtle (*Chelonia mydas*) is the most common species and is present everywhere, M'Bodiéne to Bird Island, and within the bolons;
- The loggerhead sea turtle (*Caretta caretta*), frequent off Djifére and Bétenti;
- The leatherback turtle (*Dermochelys coriacea*) identified mainly in the southern area of the PNDS, at Pointe de Jackonsa, Bird Island;
- The hawksbill turtle (*Eretmochelys imbricata*), observed especially in the northern limit of the SDBR, from Palmarin-Ngallou to the island of Sangomar;
- The olive ridley (*Lepidochelys olivacea*), considered to frequent the area from Palmarin to Pointe de Jackonsa, and
- Kemp's ridley (*Lepidochelys kempii*), although rare in the park and its surrounding area, has been the subject of sporadic contacts off Bétenti.

In Niumi National Park unlike the PNDS, nearly 47 species of reptiles have been identified, the most characteristic of which are sea turtles *(Chelonia mydas, Lepidochelys olivacea, Caretta caretta*),

Main sea turtles species in the Niumi-Saloum complex

Green turtle	*Chelonia myda*s
Loggerhead turtle	*Caretta caretta*
Leatherback turtle	*Dermochelys coriacea*
Olive Ridley turtle	*Lepidochelys olivacea*
Hawksbill turtle	*Eretmochelys imbricata*
Kemp's Ridley turtle	*Lepidochelys kempii*

- In addition to turtles, reptiles in the complex are represented by the Nile monitor lizard and various species of snakes (*Naja nigricollis*, *N. melanoleucha*, *Typhlops punctatus, Bitis Aritens*, etc.).

- Three species of crocodiles historically inhabited in the Saloum/Noumi complex: the African Dwarf Crocodile (*Osteolaemus tetraspis*), and the Slender-snouted crocodile (*Mecistops cataphractus*) and Western Nile Crocodile. Recent decades have seen a marked increase in human population, which

accelerated rates of habitat loss, saltwater intrusion, and other environmental pressures that have negative impacts upon the native crocodile populations, particularly *O. tetraspis* and *M. cataphractus*

A.4.5.2.5 Insects

Of the 75 currently known species of Odonata (dragonflies and damselflies) recorded in The Gambia, at least 22 species have been listed in Niumi National Park. Similarly, 32 of the 160 species of butterflies (*Lepidoptera*) recorded in The Gambia, are present in the park.

A.4.5.2.6 Amphibians

The following five species have been identified: *Bufo regularis*, *B. xeros, Sliurana tropcana, Ptychadena sp. Phrnobatrachus sp*.

A.4.3.1 Fisheries Resources Within and Around the Complex

A.4.3.1.1 Fish

One hundred and fourteen (114) fish species belonging to fifty two (52) families were identified in the Sine-Saloum estuary. The most diverse families are:

- The *Carangidae* (11 species);
- The *Mugilidae* and *Sciaenidae* (7 species each);
- The *Haemulidae* (6 species);
- The *Cichlidae* and *Clupeidae* (4 species each)
- The *Ariidae*, the *Cynoglossidae*, the *Dasyatidae*, the *Ephippidae*, the *Polynemidae*, the *Soleidae* and the *Sparidae* (3 species each).

In the three main arms (Bandiala, Diomboss and Saloum), the stands are dominated in terms of both size and biomass, by a small number of species (4-5) belonging to the families *Clupeidae (Sardinella maderensis, Ethmalosa fimbriata), Pristigasteridae (Ilisha africana), Gerreidae (Gerres nigri), Carangidae (Chloroscombrus chrysurus)* and *Mulgilidae (Liza grandisquamis)*.

The number of species / number of families ratio in the estuaries is of particular interest. It gives an idea of the level of diversification within families (Whitfield, 1994). Studies have shown that the total number of breeding species found in the estuary is forty four (44) or 39% of the species. Therefore it seems that the ecological function of breeding area is always ensured in the estuary, despite the salinity levels being high.

Thirteen families of fish have been identified to date in NNP (RAMSAR Wetland study The Gambia, 1997). The most commonly known species are: tilapia (carpe), mullet (tambadiang), barracuda (seudeu), bonga shad (kobo), white grouper (thiof), catfish (kong) koudiali, oysters, ark clams.

The breeding area for 70 species of fish is located within the 800 ha of mangroves, a section of which extends into the Saloum Delta. (the whole of this paragraph in my view is a repetition of the previous above, can we bind them)

A.4.3.1.2 Crustaceans

The main shrimp species caught in the Sine-Saloum estuary is *Penaeus notialis*. The other species caught, *P. Kerathurus*, represents less than 1% of the catch. Crabs *(Callinectes spp. Cardiosoma armatum*), despite being numerous, are seldom caught.

A.4.3.1.3 Molluscs

Shellfish harvested in the Sine Saloum estuary include oysters (*Crassostrea gasar*), the Yeet *(Cymbium spp.)* Touffa (*Murex spp Thais spp.)* cuttlefish (*Sepia officinalis*) and ark clams (*Arca senilis*). According to fishery studies and statistics, the fishery potential of the estuary is estimated at between 8,000 and 12,000 tons per year (Diouf et al, 1996).

Given the size of the Sine-Saloum marine area (12% of the national area) and knowledge on the eco-biology of species and trophic enrichment phenomena, it can be assumed that the potential for fishing in the marine area of the Sine-Saloum region would be 10% of the potential of Senegal.

A.4.4. Current trends and population dynamics

The general observation is the degradation of resources through the reduction in the area and the loss of biodiversity (Diouck, 1995; Lykke, 1996; Galat-Luong et al., 1998b, Diouck, 1999). The plant potential is weakened by both natural (drought, salinisation, erosion) and anthropogenic (land clearing, illegal logging, bush fires, firewood and timber extraction and work) factors. The consumption of firewood in particular that of mangroves, is increased by the smoking of fish, although this practice has now disappeared in some areas.

Despite the fact that the mangroves of the Saloum Delta are, in general, relatively well preserved, the continental part of this ecosystem has been greatly affected by the degradation process. There are fears that changes in the structure of the botanical composition may occur where Sudanese species regenerate more readily than Guinean species.

The mortality of mangrove species observed in some areas could be explained on the one hand by natural factors such as increased salinity associated with lower rainfall and high evaporation, or disruptions associated with the rupture of the Sangomar spit in the late 80s; on the other hand, it

could be explained by anthropogenic factors, such as timber harvesting and destruction associated with the collection of oysters.

The following data illustrate the phenomenon across various plant communities of the PNDS.

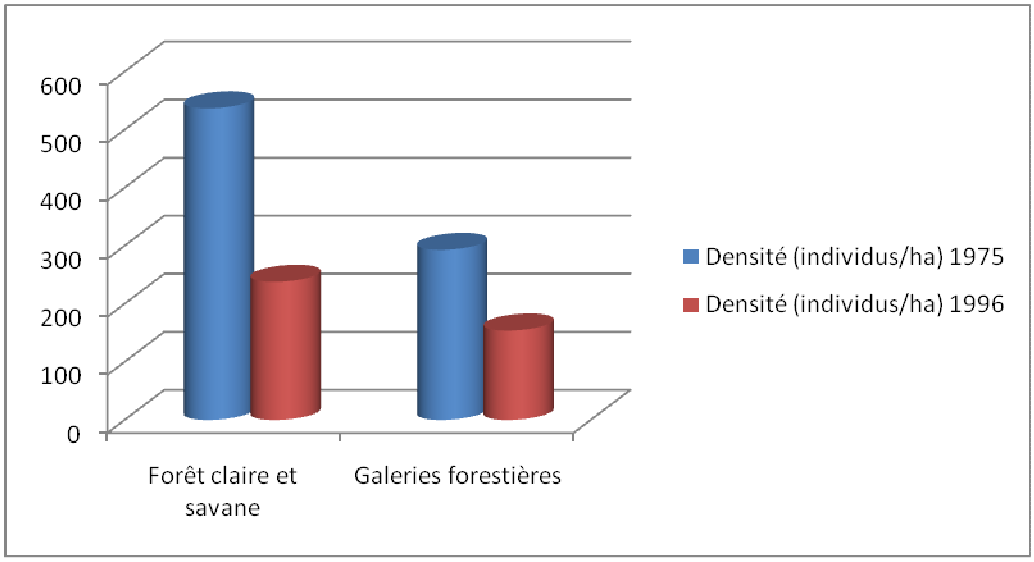

FIGURE 4 - EVOLUTION OF THE DENSITY OF PLANT COMMUNITY BETWEEN 1975 AND 1996

[KEY to Fig. 4: Woodland and savannah; Forest Galleries – Density (individual specimens/ha)]

Source: (Galat-Luong et al. 1998b)

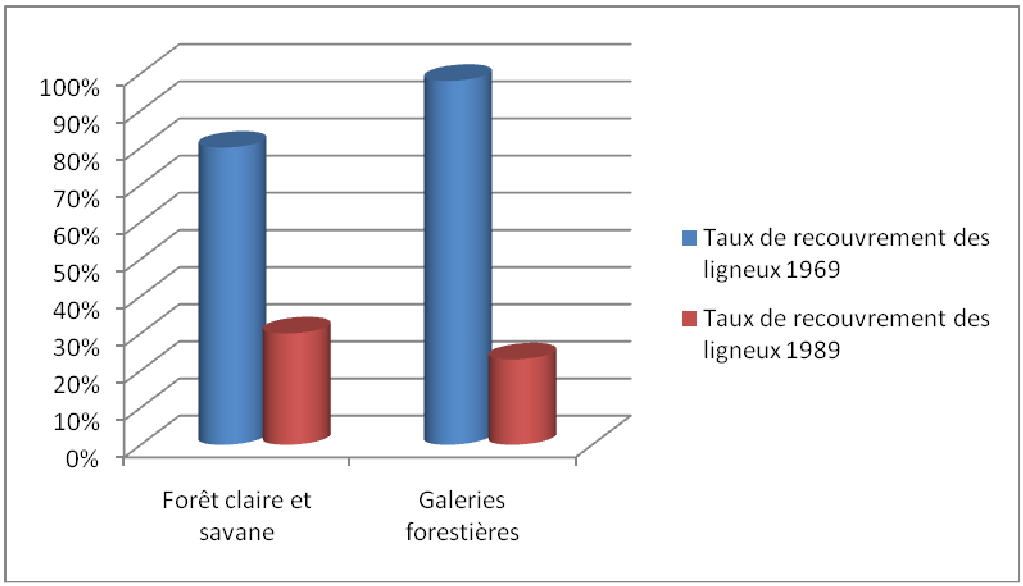

FIGURE 5 - EVOLUTION OF THE RATE OF COVER OF PLANT COMMUNITY BETWEEN 1969 AND 1989

[KEY to Fig. 5: Woodland and savannah; Forest Galleries – Rate of cover of woody species]

Source: (Galat-Luong et al. 1998b).

Table 6 - Indices of variation of diversity

	X^2	Relative Diversity			Simpson's Dominance I		
		1972	1992	V	1972	1992	V
Woodland	1899***	079	057	-22 %	015	031	+ 16
Forest Gallery	1976***	090	068	-22%	011	021	+ 10

Source: (Galat-Luong et al. 1998b).

In terms of large fauna, these species are very dependent on their habitat and their evolution has been studied for the richest site, Fathala forest, an integral part of the Saloum Delta National Park. It shows a clear degradation of habitats.

Despite the downward trend due to natural and anthropogenic changes to the environment, some species such as the green monkey and the red colobus have evolved behavioural adaptations.

As for Delta, the general observations relate the depletion of resources and loss of biodiversity. The main causes being:

- Natural decrease in rainfall of 25 to 30% annual average over the 1950 to 1990 period (DPWM, 1997); salinisation which resulted in the reduction of mangrove areas and the extension of salt flats forming encroachments
- Anthropogenic expansion of agricultural boundaries, overgrazing, removal of mangrove products, etc.

In The Gambia, the degradation of vegetation cover is a serious concern, significantly affecting the wildlife; although great strides are being done to preservation and regeneration.

A.4.7 Issues

Niumi National Park and the Saloum Delta are part of the marine ecoregion of West Africa and meet the many criteria for being a Wetland of International Importance.

The entity that forms the complex is a combination of territories belonging to the same biome. The complex joins together three different biotopes: uncovered continental, amphibious and fluvio-marine.

Therefore, in 2008 the complex became the first transboundary RAMSAR site in Africa. The diversity of landscapes and unique ecosystems of this complex constitutes a fundamental issue for the conservation of this natural, cultural and historical site, which is exceptional because of the its importance to the region and its people. In the complex, the trends are marked by a significant loss of biodiversity and threats to the survival of many species.

A.4.7.1 Assets

Senegal and The Gambia are committed to preserving the ecological characteristics of the Saloum/Noumi Complex by designating it a "transboundary wetland". These areas are important environments for the preservation of shared resources and of the terrestrial ecosystem balance and first choice habitats for significant species of migratory waterbirds.

Ecosystem diversity also represents an asset in favour of resource conservation. The complex fulfills several functions, the most important of which are regulatory, ecological and economic.

The Saloum Delta National Park contains mudflats, breeding and feeding habitats for several species of birds using the islets as breeding sites. It is the third site of ornithological importance of West Africa after Banc d'Arguin (Mauritania) and Djoudj (Senegal). The PNDS annually receives a quarter of the world population of royal terns and is an important wintering area for Palearctic migratory birds. The park is surrounded by community nature reserves serving as buffer zone.

The diversity of birdlife is exceptional in Niumi National Park, with over 293 surveyed species of birds, 88 of which are Palaearctic migrants.

In the complex, over one hundred and twenty thousand (120,000) birds are recorded annually between the Saloum and Niumi; they represent several hundred species.

In addition, the mangrove forests of the complex play an important socio-economic role for the residents, and provide protection against coastal erosion.

The Saloum Delta, in which the PNDS is located, is the 6th estuary in the world for diverse fish fauna (114 species of fish). It also represents, together with Niumi, an important breeding and feeding site for sea turtles, manatee and the humpback dolphin. The population of the latter was estimated at about 100 specimens for the Saloum Delta (Maigret, 1980) and, based on personal observations of the Saloum/Noumi population since 1997, it seems very unlikely that their population could exceed a few hundred (Koen, 2004, 2007).

As regards archaeological sites, the Saloum Delta contains many tumuli and shell middens, which are evidence of human history. It is marked by a rich cultural heritage of the various ethnic groups who live there. This gives it an exceptional cultural value. The site has various assets combining cultural and natural values that may confer upon it the status of a joint World Heritage site by UNESCO (the nomination process is underway).

Finally, one of the complex's main assets is the strong involvement of local residents brought about by the existence of local agreements in which one of the main objectives is the sustainable management of natural resources.

A.4.7.2 Weaknesses

A.4.7.2.1 Anthropogenic and natural pressures

The diversity of landscapes and unique ecosystems in the Complex constitutes an important potential for the conservation of this exceptional natural site due to the different functions it performs. However, a downward trend is reported for all ecosystems and for the greatest number of plant and animal species. In fact, as regards the PNDS, tree cover has decreased by over 50% in 20 years. This decline is accompanied by loss of plant diversity by 22% and the fragmentation of ecosystems and the threat of habitat loss. The gallery forests are the most threatened species in the continental area.

Hypersalinisation of some water channels forms the basis of biodiversity loss in the mangrove ecosystem. The marine section is currently marked by erosion which, in places, endangers certain islets used for breeding by birds and sea turtles. The decrease in rainfall (Leborgne, 1988) is also a principal cause of the deterioration of wildlife habitats.

Over the last thirty years, rainfall has declined by more than 20% for the PNDS and 25% for the NNP. The changing climatic condition is one of the principal constraints to the conservation of biodiversity and sustainable management of the complex.

In addition, the absence of a buffer zone, especially in the SDBR exposes the the park to all forms of human pressures.

pressure for land for example and, poaching of wildlife including excessive cutting of forest trees of economic value such as (*Pterocarpus erinaceus, Khaya senegalensis, Cordyla pinnata*, etc.) seriously affect species diversity. Poverty is the underlining cause of biodiversity loss.

Furthermore, the uncontrolled use of bushfires in the surrounding areas of the Complex every year leads to the significant destruction of habitats and their dependent wildlife.

A.4.7.2.2 Lack of an adequate system for monitoring the status of natural resources and pressures

Faced with the changing trends that are emerging, ecological monitoring and periodic assessment currently offer few answers to adequately guide priority planning and management action. Indeed, in the complex, only bird species are monitored monthly and annually.

In addition, previous surveys undertaken on the large and small land animals are not regularly updated to reflect, on the one hand, the actual changes in populations of species and, on the other hand, the levels of threats that could affect them and their habitats. This situation translates into a lack of adequate protectionfor threatened species. The same information gap is also noted for marine mammals (dolphins, manatees for the status of endangered species is confirmed), ichthyofauna, key species of flora and state of plant cover as well.

A.4.7.2.3 inadequate monitoring system and equipment

In addition to the lack of an adequate system for monitoring natural resources, one of the limitations faced in the management of both parks lies in the poor surveillance of the resources base and the lack of equipment and operational infrastructure. Ssurveillance is affected by low staff capacity and insufficient mobility

Couple with this, existing radio communication does not cover NNP, nor does it cover the entire PNDS. This negatively affects cross border surveillance and monitoring program. ultimately, the complex is vulnerable to cross border poaching activities . The complex is home to fraudulent transit and trafficking of illegal goods and exposing the area to increase poaching.

Regarding infrastructure, the PNDS has a control post and six guard posts while the NNP has only one control post. However, these posts are currently facing real difficulties due to the basic and unappealing nature of the infrastructure, their dilapidated state and the low level of equipment and / or lack of access to electricity and drinking water.

A.4.7.2.4 Inadequate communication facilities

In addition to efforts that must be made in order to ensure proper environmental education and awareness, substantial research to find solutions is needed for better management of tourism. Indeed, it seems paradoxical that tourism in a complex such as Saloum/Noumi, whose tourism assets are beyond doubt, is so poorly organized. This situation stems from a failure to promote the destination and weak control of tourist flows.

A.4.7.3 Management Issues

Based on the diagnosis a number of issues that aroused during consultations on the management plan, the following are noted

- The need to set up an institutional framework for managing the ecological complex

- Requirement for both states to conserve and use resources rationally

- The need to control the pressures and restore areas of land

- Requirement to develop natural resources and promote ecotourism

A.4.7.3.1 Transboundary institutional framework for managing the ecological complex.

Managing a transboundary complex such as the Niumi-Saloum requires the establishment of an institutional framework, capable of responding adequately to the needs of biodiversity conservation and sustainable development of the surrounding area across the border. For this purpose, transnational management bodies (steering committee, scientific committee and management committee) must be set up in order to improve the effectiveness of the management of shared resources. The synergy between the various stakeholders (development partners and local stakeholders) and the reinforcement of technical and institutional capacity are necessary for management objectives to be achieved. In addition, to guarantee sustainable funding for conservation, fund-raising mechanisms should be developed with the support of partner NGOs.

A.4.7.3.2 National regulatory and enforcement agencies

Overall, with the combined effects of natural and anthropogenic activities, there is a significant loss of biodiversity in the complex. To reverse this trend, which is likely to have a long-term effect on the integrity of natural resources, conservation measures at respective national level should ensure rational use of shared resources through participatory approach. These must aim towards (i) a redefining boundaries of the Complex, (ii) Applying appropriate zoning schemes, (iii) reinforcing surveillance and monitoring of species and habitats, as well as conducting applied research, (iv) (v)

putting in place tight control and regulatory frameworks by means of a common policy couple with awareness raising and communication.

A.4.7.3.3 Managing pressures and restoration

From the diagnosis, it would seem that communities in the surrounding areas of the complex are still heavily dependent on natural resources base. This follows widespread degradation of resources in the surrounding local community lands. The complex represent an island, faced with multiplehuman pressures. Many of thecommunity's have very little understanding the of conservation. the increase demand for resources (land, water, fish) left local people to look up to protected areas as their only available sources of goods and services for their livelihood. to manage this conflicting interests, a better planning and coordination actions must be developed which must invlove (i) cross border awareness programmes, (ii) Restoration of degraded land outside the complex, and (iii) the reinforcement of management and organisational capacities.

A.4.7.3.4 Developing natural resources and promoting ecotourism

Despite the exceptional assets related to the richness and beauty of its landscapes, the complex still enjoys little development of its biological, archaeological and cultural potentials. The surrounding communities remains poor despite the potential offered by the Complex and indeed the many development projects that intervened at site levels. The outcome of those project interventions do not address the real needs of the communities. Changes must be made approaches of development interventions in order to address communities development aspirations. Therefore, development of an efficient intervention strategy to developing can meet the aspirations of the communities particularly in promoting eco-tourism and other income generating activities.

B. MANAGEMENT

The RAMSAR Convention on Wetlands encourages Contracting Parties to develop, adopt and use the necessary instruments and measures, relevant for conservation, rational use of wetlands and international cooperation as a means of achieving sustainable development. We must also ensure that the conservation and rational use of wetlands helps to reduce poverty, climate change mitigation and adaptation as well as the prevention of diseases and natural disasters.

As such, in Article 3 of the RAMSAR convention supports that "the Contracting Parties shall develop and implement their management plans so as to promote the conservation of wetlands included on the list and, as far as possible, the rational use of wetlands of their territory."

It also stipulates in Article 5 that "the Contracting Parties shall consult each other on the fulfillment of obligations under the Convention, especially in the case of a wetland extending across the territories of more than one Contracting Party or where a river basin is shared by several Contracting Parties. They strive together to coordinate and support their current and future policies and regulations relating to the conservation of wetlands and their flora and fauna."

The development of this management plan fits within the framework of the transboundary agreement and the implementation of the RAMSAR Strategic Plan 2009-2015. It contributes also to the implementation of Programme of Work on Protected Areas (P0WPA) under the Convention on Biological Diversity (CBD).

However, it must be borne in mind that the transboundary wetlands, on either side of the border, had each an existing management plan.

Moreover, this management plan seek to replace the existing site specific plans to enable The Gambia and Senegal to manage the shared natural resources base. It complements strategic actions of both countries in terms of the management of natural resources and the environment for sustainable development.

B.1 Overall objective of the management plan

The long-term objective of the management plan for the Saloum/Noumi transboundary RAMSAR site is to promote the conservation of shared natural and biological resources through participatory management approach for the benefit of the two countries and their people..

B.2 Specific objectives

The specific objectives of this management plan are as follows:

- Establish a functional institutional framework for the management of the ecological complex
- Conserve shared habitats and resources
- Control and minimize existing pressures and restore degraded areas of land in the surrounding areas of the Complex
- To contribute to a reduction of poverty through development of natural resources and promotion of ecotourism
- Develop a training and communication strategy
- Promote partnership and cooperation among all actors for effective management, conservation and maintenance of the sites ecological character

B.2.1 Specific Objective 1: Establish a functional institutional framework for the management of the ecological complex

The successful implementation of this plan necessarily involves, on the one hand, the establishment of effective and efficient transnational management body, as well as the mechanisms for mobilizing funds; on the other hand, the development of strategies to strengthen technical and institutional capacity.

B.2.1.1 Outcome 1.1: Management bodies are in place and functional

- **Establishment of a Transnational Steering Committee (TSC)** The TSC is the supreme decision making body with a mandate to provide broad policy guidelines of transboundary management of the RAMSAR site. It ensures the consistency of the initiatives of various stakeholders and compliance with management objectives. It validates and monitors the level and quality of implementation of planning documents proposed by the transboundary Management Committee. It also discusses sustainable financing mechanisms for the implementation of the management plan.
- **Establishment of a Transnational Scientific Committee (TScC)** The mandate of this committee is to provide scientific advice and motivation, and to validate scientific proposals submitted to the TSC. It clarifies and supports the Management Committee if necessary. Its members may be called upon by the TMC according to their skills, in the context of both the research and the assessment of the implementation of research protocols.
- **Establishment of a Transnational Management Committee (TMC)** The Transnational Management Committee of the Complex is the body that directly manages the implementation of the management plan. It is responsible for annual planning and activities to be conducted following the technical advice of the TScC and validation by the TSC. For each body, a protocol setting out the composition and duties and operating procedures will be drawn up and signed by two ministers in charge.

- **Establishment of a fund-raising strategy** Once established, the management bodies will prioritize the development of a fund-raising strategy with the support of NGOs in conservation of biodiversity, for ensuring sustainable financing for the implementation of the management plan.

B.2.1.2 Outcome 1.2: The response capacities of the various stakeholders involved in management are reinforced and synergy of actions is ensured.

- **Capacity building of the Transnational Management Committee** This relates to the reinforcement of capacity for planning, management, advocacy, negotiation, prevention and conflict management, etc.
- **Capacity building of technical staff** Joint training sessions are organized in areas such as surveillance, environmental monitoring, management, , co-management etc.
- **Strengthening of infrastructure and response capacities of technical staff** To ensure the integrity of shared natural resources and ensure proper ecological monitoring, strengthening capacity for surveillance and monitoring is necessary. This involves the acquisition of adequate logistical resources and the construction of new guard posts in Niumi and the refurbishment of those located in the Senegalese side.
- **Development of synergies between the various development partners** A framework for dialogue and cooperation will be established for the alignment of the response activities of the various development stakeholders in the Complex and its surrounding area.

B.2.2 Specific objective 2: to conserve habitats and shared resources

Conservation of the biological and cultural resources of the transboundary RAMSAR site is not possible without at priori ensuring the physical integrity of the two sites through boundary demarcation. Then it will be necessary to carry out participatory zoning of the functioning ecological units, restore degraded habitats, ensure ecological monitoring and promote scientific research. These actions should be accompanied by an information, awareness and communication strategy aimed at local residents.

B.2.2.1 Outcome 2.1: The integrity of the complex is maintained

- **Establishment Complex Boundary;** With increasing pressure both at sea (illegal fishing) and on land (encroachment), it is essential to proceed with the participatory establishment of complex boundary. These limits must be known and accepted by all stakeholders, especially those living in the surrounding area.
- **Zoning of the complex** Zoning is part of the management and conservation of ecosystems and resources; it allows the specific purposes of sites to be maintained and / or the uses of the various areas to be defined. Zoning should facilitate the technical management of the complex. Zoning must take account of several factors: (i) ecological potential of the areas, (ii) the functions of the various areas, and (iii) the Transboundary Biosphere Reserve Project of the Saloum/Noumi Complex. It requires certain fundamental principles to be respected: use patterns, expectations, local knowledge, etc. Zoning also allows different types of wetlands in

the complex to be identified and classified with a view to prioritising the adjustments necessary for the sustainable conservation of resources.

B.2.2.2 Outcome 2.2: maintenance of degraded ecologies

- **Restoration of degraded habitats** Climatic deterioration combined with human activities have led to a significant loss of biodiversity both within the complex and in the surrounding area. Restoration activities through reforestation in the surrounding area as well as controlling increased salinisation, coastal erosion and siltation.
- **Implementation of habitat and species management programs** In addition to maintaining essential ecological functions, the implementation of these adjustments will strengthen the surveillance system and therefore helps preserve the integrity of the complex. These developments concern the implementation of firebreaks, trails, signage, construction of landing sites, , etc. The use of early burning as a management tool and rehabilitation of watering points can be ideal.etc.

B.2.2.3 Outcome 2.3: Undertanding Speciesand habitats dynamics

- **Ecological monitoring ;** In the general context of the conservation of wetlands and its ecological characters, an ecological monitoring system (EMS) should allow the long-term analysis of the changes in various environmental parameters. This should provide continuous feedback of information and a scientific frame of reference for managers, to guide the necessary strategies and actions to be implemented to achieve the goals set in the complex.

  In the context of the ecological monitoring system (EMS), changes in habitat and species should be investigated theough research project to determine the causes. Parameters should be determined to monitore avifauna, terrestrial wildlife, vegetation, marine wildlife, water quality, etc.
- **Promotion of Scientific Research ;** National parks have always been a natural laboratory for scientific research. This role must be maintained and strengthened in partnership with research and training institutions of the two States. The Biological Station of the PNDS should therefore provide the minimum capacity necessary to carry out the research projects, thereby contributing to a knowledge on natural resources. the functions of the research stationmust therefore be enhanced by (i) improving research facilities, (, (ii) improving existing documentation and (iv) conductng research programme in partnership with universities and research institutions.

B.2.3 Specific objective 3: To control human pressures and restore degraded areas of land outside the Complex

Although there are many projects and programmes involved in the surrounding areas for a better management of natural resources, the Saloum-Niumi complex continues to be subject to increasing demand for its biological and natural resource base.The widespread degradation of resources that characterizes the lands outside the site is of concern. On the Senegalese side, the management of natural resources in the areas of land otside he park is transferred to local authorities in 1996. As

such, many projects are in the hands of the local authorities in creating community nature reserves around the PNDS. However, on the Gambian side, these efforts are still insignificant.

As expected this management plan will improved synergy between the various projects and NGOs for greater efficiency in the operations, and on the other hand, the promotion of land management by the community to strengthen the organisational dynamics in the surrounding area. These actions will be accompanied by a package of training / advice and communication in order to reduce pressure on the complex.

B.2.3.1 Outcome 3.1: The peripheral communities take on the responsibility for managing their own land

- **Strengthening the organisational dynamics in the surrounding area** This activity will consist in the identification of existing baseline community organisations and their revitalisation, as well the improvement of their level of integration.
- **Capacity building of community organisations and local authorities** The objective at this level is to provide both local authorities and BCOs with technical and managerial skills to make them more autonomous and much more efficient in the management / restoration of their lands.
- **Preparation and consolidation of local charters for natural resource management** Local charters are consensual community rules for the management of land resources. They constitute a legitimate basis accepted by all local stakeholders. It is therefore necessary to consolidate and galvanize existing ones and produce new ones in areas where they are not in force. This step will contribute on both the reduction of pressures and strengthening ownership for local people.

B.2.3.2 Outcome 3.2: Areas of degraded land are restored

- **Protection and restoration of soil and Reforestation** PRS and reforestation activities concern mangrove habitats and degraded outlying forests. This will involve conducting operations for retaining soil and reforestation of tree species of economic value. The promotion of natural regeneration assisted by the deferred grazing area should also be ensured.
- **The fight against bush fires** Late bush fires are one of the leading causes of deterioration and disruption of ecological environments. Their control involves the opening and maintenance of firebreaks and the establishment / revitalisation of village vigilance committees. These control activities could be reinforced by IEC sessions.
- **Creation of Community Natural Reserves** The participation of local authorities is more than necessary for the overall success of any intervention in the areas of land. Indeed, they form the gateway for all activities in the field of natural resource management. They must therefore be put forward in order to surround the complex with a network of functional CNRs, which could act as a buffer zone.

B.2.4 Specific Objective 4: To contribute to reducing poverty by means of the development of natural resources and the promotion of ecotourism

Today it is recognized that the conservation of biodiversity cannot be achieved without taking into account the fight against poverty. Moreover, CBD strongly encourages States parties to share the benefits from conservation in a fair and equitable way. In the context of the Saloum/Noumi Complex, achieving this goal will require both the reinforcement of existing activities generating sustainable benefits and identification of new opportunities for reconciling conservation activities with sustainable development.

Furthermore, despite the significance of the biological and cultural potential of the complex, ecotourism is poorly valued given that significant benefits could be derived from the diversification of eco-tourism in the complex to benefit local and national economies.

B.2.4.1 Outcome 4.1: Sustainable profits are derived from the development of natural resources to benefit local and national economies

- **Establishment of income generating activities** For improved local participation in the conservation of the complex, sustainable profit-generating activities such as beekeeping, oyster harvesting, fishing, poultry farming, market gardening, fattening, community forestry, development of non-timber products, etc. could be developed for the benefit of BCOs particularly for eco-guards. The management of these activities will be subject to periodic participatory assessment.

  Besides, a capitalization program and strengthening of the established facts from sustainable management of the mangrove could be developed based on assessment of the role fulfilled by the mangrove within the context of forests saving. Indeed, the mangrove is an important carbon sink for which the sequestration rate in the complex should be quantified. This assessment would allow local communities to benefit from financing for adaptations to climate change.

- **Promotion and development of eco-tourism** With ecotourism, the existing tourist circuits would be better developed through their updating and promotion, while new circuits that combine the cultural richness and ecological potential of the complex could be developed. Particular emphasis will be placed on promoting responsible tourism through a partnership with NGOs and other stakeholders in the sector. Moreover, tightening of the cooperation between the two countries has been proposed to facilitate the movement of tourists in the complex.

B.2.5 Specific Objective 5: Develop a training and communication strategy

The strategy to be developed is an integral part of the management plan. It will provide the framework for all information activities, education, communication, training and awareness related to the four previous goals. It will target all stakeholders in the management of the transboundary complex.

B.3 Factors influencing management

Achieving the various specific objectives may involve facing many physical, socioeconomic and institutional constraints, which, for their influence, will have some impact on the management of the complex.

B.3.1 Ecological Vulnerability

The general trend in the complex is the degradation of resources via the loss of biodiversity and decreasing populations. The vegetation cover is also influenced by constraints related to climatic deterioration. Therefore, the coastal zone of the complex as a whole is subject to heavy marine erosion and salinisation, which is underlined by a widespread rainfall deficit between 20 and 25% over the last thirty years. Also from an ecological point of view, vulnerability results mainly in the general fragility of the wetland complex (fauna, flora, biodiversity) and the fragmentation of some habitats critical for the survival of some species (bushbuck, sea turtle, terns, etc.).

B.3.2 Climate change effects

Niumi-Saloum Complex coastline located in the Senegambia is facing a lot of challenges due to climate change effects. This zone is not more than 5 meters above sea level and therefore considered as climate disaster prone area. The type of land use practices within the complex, particularly on the Jinack Islands is one responsible for such a change thus it is a primary concern. The vegetation buffering the shoreline is dwindling unprecedentedly due to coastal erosion. Sea level rise is an apparent reality which over floods the nesting sites of colonial birds of “Ile aux Oiseaux” which is an important breeding area for many sea birds such as terns and gulls and also the nesting place for turtles.

Mangrove dieback due to drought and subsequent hypersalinity is affecting the spawning and feeding sites of fisheries resulting to population reduction and species migration. Salt intrusion into potential rice growing zones is also very active in the area which is impacting the livelihoods of the local communities.

Protected areas are the cornerstone for building resilience for communities, habitats and species. UN-REDD and REDD+ recognize ecological restoration as means to enhance carbon sequestration. Nuimi-Saloum Complex requires replanting of the eroding shoreline and the maintenance of the existing ecosystems as a resilience building approach. The complex is an extremely rich entity with numerous species and population of wildlife such as manatee, dolphins, sea turtles, migratory waterbirds and fisheries resources that are susceptible to any major changes. As this complex

possesses one of the most densely shared mangrove stands, assessment of sequestrated carbon is ultimately required and could be sold through CDM, while paving avenues for future management and resilience building strategies

B.3.3 Anthropogenic pressures

One of the most significant constraints is the high population density around the complex with an average well above the national average. The complex is also undergoing a rapid growth in agricultural activity, which results in the destruction of natural areas to increase cultivable areas. This pressure is exacerbated by the residents' dependence on the resources of the Complex and by its transboundary position, which leaves the area susceptible to poaching, smuggling, etc.

B.3.4 Insufficient resources and institutional constraints

In terms of the PNDS the budget is essentially aimed at operation and remains insufficient to cover investment needs. In Niumi, operating resources come from support provided by projects and programmes that have a limited lifespan. In addition to this, an inadequate budget and a staff deficit mean that the efficient surveillance of the integrity of the complex cannot be guaranteed, especially when the logistical means that could facilitate mobility and communication are lacking.

In addition, the Niumi staff, unlike the PNDS staff, does not have paramilitary status, which may be a major obstacle for proper surveillance of the complex.

It should be noted finally that the disparities between the laws and regulations of the two countries on the conservation of natural resources could be an obstacle to the effective coordination and synergies necessary for effective and efficient intervention in the Complex.

B.4 Implementation, Monitoring and Assessment

B.4.1 MP implementing Structures

The Saloum/Noumi Complex Management Plan will be carried out under the supervision of the Trans-National Steering Committee. It is implemented by the Trans-National Management Committee. These two bodies rely on the Trans-National Scientific Committee for all clarifications related to undertaking specific activities and some activities may have a lasting impact on the Complex.

The establishment of these bodies is a priority for the successful implementation of the Management Plan.

For each body, a protocol setting out their composition and duties and operating procedures will be produced and signed by the two ministers in charge by the first three months of the first year of implementation.

B.4.2 Monitoring, Evaluation and Reporting

Monitoring the implementation of the management plan is the responsibility of the TSC and the two Technical Directorates. Therefore, quarterly monitoring and assessment of the annual work plan are planned. The rules for implementing the monitoring and assessment will be defined in the protocol.

B.5 Action Plan for the Saloum-Niumi Complex Management Plan

Specific Objectives	Performance Indicators	Results	Activities	Schedule				
				Year 1	Year 2	Year 3	Year 4	Year 5
SO 1: To put in place a functional institutional framework for the management of the Complex	Existence of functional bilateral and transboundary governance bodies to improve planning, management, and conservation of the Complex	*Outcome 1.1: Governance bodies are in place and functional*	Establishment and operationalisation of a Steering Committee (SC)					
			Establishment and operationalisation of a Scientific Committee (ScC)					
			Establishment and operationalisation of a Transboundary Management Committee (TMC)					
			Put in place a fund-raising strategy					
		Outcome 1.2: The stakeholders' capacity are enhanced and strengthened	To build the capacity of the Transboundary Management Committee					
			To build the capacity of the technical staff					
			To improve the infrastructure and capacities of field technical staff					
			Establishing partnership between various stakeholders					

Specific Objectives	Performance Indicators	Results	Activities	Schedule				
				Year 1	Year 2	Year 3	Year 4	Year 5
SO 2: Conserve habitats and shared resources	Ecological entities' species status and habitats maintained and restored.	*Outcome 2.1: The ecological integrity of the complex is maintained*	Establishment of boundaries of the Complex					
			Zoning of the complex					
		Outcome 2.2: Necessary management infrastructures to maintain ecological functions are put in place	Restoration of degraded habitats					
			Put in place technical management infrastructures					
		Outcome 2.3: The status of habitats and species is better known	To conduct ecological monitoring and to establish database					
			Implementation of Manatee conservation action plan					
			To promote scientific research					
			Add des initiatives par rapport aux changements climatiques (genre insérer une ligne concernant spécifiquement ce point)rt					
SO 3: Reduce pressures and restore degraded areas surrounding the Complex	Pressures reduced and degraded areas restored around the complex	*Outcome 3.1: Peripheral communities active involvement in the management of the complex is achieved*	Strengthening the organisational structures in local communities					
			Capacity building of local community organisations and local authorities					
			Formulation and implementation of bi-laws for natural resource management					

		Outcome 3.2: Degraded areas are restored	Land reclamation and reforestation					
			Control bush fires					
			Establishment of community nature reserves					

Specific Objectives	Performance Indicators	Results	Activities	Schedule				
				Year 1	Year 2	Year 3	Year 4	Year 5
SO 4: To contribute to poverty reduction through communities development initiatives and promotion of ecotourism ventures	Level of poverty reduced and the attractiveness of the complex increased	*Outcome 4.1: Improved livelihoods of local communities through Sustainable management of natural resources*	To implement income generating activities					
			To promote community development initiatives and develop eco-tourism activities					
SO 5: Develop and implement training and communication plans	Capacity of stakeholders, local communities and technical staff enhanced	*Outcome 5.1: A training plan is developed and implemented*	Production and implementation of a training plan					
		Outcome 5.2: A communication plan is developed and implemented	Production and implementation of a communication plan					

B.6 Estimate Budget (€) of Management Plan

Specific Objectives	Results	Activities	Annual budget					TOTAL
			Year 1	Year 2	Year 3	Year 4	Year 5	
SO 1: To put in place a functional institutional framework for the management of the Complex	*Outcome 1.1: Governance bodies are in place and functional*	Establishment and operationalisation of a Steering Committee (SC)	22 867	12 196	12 196	12 196	12 196	**71 651**
		Establishment and operationalisation of a Scientific Committee (ScC)	15 245	9 147	9 147	9 147	9 147	**51 833**
		Establishment and operationalisation of a Transboundary Management Committee (TMC)	18 294	12 196	12 196	12 196	12 196	**67 078**
		Put in place a fund-raising strategy	15 245					**15 245**
	Outcome 1.2: The stakeholders' capacity are enhanced and strengthened	To build the capacity of the Transboundary Management Committee	22 867	15 245				**38 112**
		To build the capacity of the technical staff	30 490	9 147				**45 735**
		To improve the infrastructure and capacities of field technical staff	228 674	152 449	76 225			**457 347**
		Establishing partnership between various stakeholders	9 147	6 098	6 098	6 098	6 098	**33 539**
Sub-total for SO 1:			***€ 362 829***	***€ 222 576***	***€ 115 861***	***€ 39 637***	***€ 39 637***	***€ 780 539***

Specific Objectives	Results	Activities	Annual budget					TOTAL
			Year 1	Year 2	Year 3	Year 4	Year 5	
SO 2: Conserve habitats and shared resources	*Outcome 2.1: The ecological integrity of the complex is maintained*	Establishment of boundaries of the Complex	152 449	114 337	6 098	6 098	6 098	**285 080**
		Zoning of the complex	22 867	7 622				**30 490**
	Outcome 2.2: Necessary management infrastructures to maintain ecological functions are put in place	Restoration of degraded habitats		68 602	15 245	15 245	15 245	**114 337**
		Put in place technical management infrastructures		38 112	15 245	15 245	15 245	**83 847**
	Outcome 2.3: The status of habitats and species is better known	To conduct ecological monitoring and to establish database	91 469	91 469	91 469	91 469	91 469	**457 347**
		To implement Manatee action plan	€ 18 370	€ 24 468	€ 18 370	€ 24 087	€ 10 748	€ **96 043**
		Promotion of scientific research	30 490	30 490	30 490	30 490	30 490	**152 449**
		Development and implementation of the monitoring programme of habitats and species vunerables to climate change effects (mangroves, see grass, dolphins, sea turtles, clawless otter, etc)	30 490	30 490	30 490	30 490	30 490	**152 450**
Sub-total for SO2:			***346 136***	***405 591***	***207 407***	***213 124***	***199 785***	***1 372 041***
SO 3: Reduce pressures and restore degraded areas surrounding the Complex	*Outcome 3.1: Peripheral communities active involvement in the management of the complex is achieved*	Strengthening the organisational structures in local communities	30 490	30 490				**60 980**
		Capacity building of local community organisations and local authorities	76 225	76 225	76 225			**228 674**

		Formulation and implementation of bi-laws for natural resource management	15 245	15 245				**30 490**
	Outcome 3.2: Degraded areas are restored	Land reclamation and reforestation		76 225	76 225	76 225		**228 674**
		Control bush fires		22 867	7 622	7 622	7 622	**45 735**
		Establishment of community nature reserves		10 671	10 671	10 671	10 671	**42 686**
Sub-total for SO3			***€ 121 959***	***€ 231 723***	***€ 170 743***	***€ 94 518***	***€ 18 294***	***€ 637 237***

Specific Objectives	**Results**	**Activities**	**Annual budget**					**TOTAL**
			Year 1	Year 2	Year 3	Year 4	Year 5	
SO 4: To contribute to poverty reduction through communities development initiatives and promotion of ecotourism ventures	*Outcome 4.1: Improved livelihoods of local communities through Sustainable management of natural resources*	To implement income generating activities		152 449	114 337	76 225		**343 010**
		To promote community development initiatives and develop eco-tourism activities		114 337	114 337	114 337		**343 010**
Sub-total for SO4				***€ 266 786***	***€ 228 674***	***€ 190561***		***€ 686 021***
SO 5: Develop and implement training and communication plans	*Outcome 5.1: A training plan is developed and implemented*	Production and implementation of a training plan	15 245					**15 245**
	Outcome 5.2: A communication plan is developed and implemented	Production and implementation of a communication plan	15 245					**15 245**
Sub-total for SO5			***€ 30 490***					***€ 30 490***
TOTAL			**€ 861 413**	**€ 1 126 675**	**€ 722 685**	**€ 537 840**	**€ 257 716**	**€ 3 506 327**

CONCLUSION

To conserve the resources of the adjacent national parks, PNDS and NNP namely, the overall objective set by the various stakeholders is the common management of the ecological entity that they form, using a participatory and collaborative method. As such, the production of this transboundary management plan was participatory and iterative, including, at best, all stakeholders.

Based on the opinions supporting the proposed transboundary national park project, it was observed that the variety of damages suffered is primarily as a result of the transboundary position of the ecological complex.

Therefore, the management of the complex poses many problems related to the means and techniques of conservation already in place, the position of the surrounding areas which was raised by local communities and local authorities consulted during the drafting process.

The effectiveness of the management of the protected area is measured on the basis of various aspects; namely: human and financial resources, the existence of a management plan, a legislative framework and communication. Application of the Rapid Assessment and Prioritisation of Protected Areas Management tool (the RAPPAM) enabled to highlight some limitations.

Volunteering status, , cannot be a sustainable form of partnership for eco-guards and committees members as long as the low economic income to local residents remains a concern in the two protected areas.

Even if the pressures observed can be justified by the reasons outlined above, the fact remains that the efforts made for raising awareness and communication with local residents should be reinforced. These planned activities are a priority, but the deterioration of the resources in each of the protected areas should be borne in mind. Due to the dissimilar intervention approaches adopted by the projects, which, sometimes are characterised by a lack of synergy, large differences in needs were given room among the communities.

Thus, any intervention should require thematic studies or simply a linkage with the existing planning documents. Implementation of the management plan requires the establishment of an effective institutional framework, which upholds the requirements of the various objectives, taking into account the inter-state nature of the ecosystem.

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APPENDICES

1 Terms of reference of the consultation mission for the production of a transboundary management plan for the Saloum-Niumi Complex, Senegal / The Gambia

I. BACKGROUND

Saloum and Niumi belong to a single ecological entity, but the presence of the border between them, the different management procedures and the difference in languages has resulted in them being regarded as two separate entities.

Management plans for the park of Saloum and Niumi do not treat these protected sites as a single entity although they are closely linked. Therefore the conservation of biodiversity will be more effective if management systems are combined at all levels via a cooperative framework for management and resource monitoring. Joint procedures are needed, especially for the management and monitoring of migratory water birds, aquatic biodiversity, fisheries, agriculture, logging, oyster harvesting and tourism activities.

To remedy this state, the two countries have clearly expressed their willingness to cooperate in safeguarding the Saloum-Niumi complex and the well-being of its communities by signing of a Memorandum of Understanding in 2001 for the management of transboundary protected areas.

In the context of making this commitment a reality, Wetlands International and their national partners, the Department of Parks and Wildlife Management (The Gambia) together with the Direction of National Parks (Senegal) aim to develop a plan for community, participatory and transboundary management for the Saloum-Niumi complex, as part of their operations via the Wings Over Wetlands (WoW) demonstration project.

In this context the Tripartite Coordination (DPWM, WI and DNP) of the WOW demonstration project: Saloum-Niumi Complex plans to recruit a consultant to conduct the work that will result in the transboundary management plan, endorsed by all residents and local communities in and around the complex.

II. OVERALL OBJECTIVE

The purpose of the consultation is to produce a transboundary management plan for the Saloum-Niumi complex, following the framework and the principles of the RAMSAR Convention and with the active participation of local people and communities present in the Complex

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III. SPECIFIC GOALS AND TASKS EXPECTED OF THE CONSULTANT

- Draw up a detailed description of the key elements, both physical and biological, of the Saloum-Niumi complex.
- Present and conduct an analysis of the institutional, economic and socio-cultural environment that characterises the complex and the people living in its vicinity.
- Outline the immediate objectives (priorities) and future objectives, with respect to not only the protection and conservation of the natural environment and the biodiversity of the complex, but also in terms of the aspirations and economic and sociocultural changes of the residents of local communities.
- Outline and / or define strategies and management programmes followed by development programmes on the complex, taking into account the various objectives identified together with measurable clear indicators to monitor changes expected during and after the implementation of actions.

Therefore, under the supervision of the team coordinating the activities of the WOW demonstration project: Saloum-Niumi complex, the consultant will work in synergy with the field team of the project (in particular the conservationists of the two parks of the complex and the site coordinator) and will carry out the following tasks:

1. Collect, compile and review all relevant information available on the complex to describe its ecological characteristics, functions and values, including geographic, socio-economic and cultural aspects. Any gaps in relevant information must be flagged up and will be subject to alternative proposals for correction.

2. Meet and discuss with the various economic and socio-professional stakeholders living and / or active in and around the complex, in particular institutions, NGOs and other development organisations, but especially indigenous peoples and other local communities in order to encourage and enlist their active participation in the planning and validation process resulting in the management plan.

3. *Using existing documentation and followed by data collected during the discussions as a basis, draw up an inventory list and analysis of the overall environment, both in terms of the geographical, institutional, economic, social and cultural characteristics of the complex.*

4. *Study the existence and, if any, assess the degree of effectiveness of integrated management and monitoring which is the subject of the parks of the complex, based on the qualitative*

aspects of management such as governance, stakeholder participation, financial viability, the distribution of costs and profits, etc.

5. *Study and propose, in the event that this has not yet been created, an approach for integrated management of both parks in the complex with the support of bipartisan and transboundary mechanisms of collaborative management, taking into account the demands and key ecological, economic and sociocultural functions in the complex.*

6. *Propose an initial draft management plan with a short and medium term action plan for the whole complex, in accordance with the guidelines as defined in the management plans for transboundary RAMSAR sites.*

7. *Organise consultation and/or validation meetings/workshops for for the entire complex (Senegal and The Gambia) throughout the process of producing the management plan document.*

8. *Organise a number of validation workshops to ensure that the concerns of all stakeholders are taken into account in the management plan document. These meetings and workshops may be subject to combination with the training or awareness raising sessions currently underway in the complex.*

9. *Produce the final version of the management plan taking into account not only the objectives of protecting and conserving the natural environment and the biodiversity of the complex, but also the economic, social and cultural objectives and/or aspirations of all local communities living in or around the complex.*

10. *Particular attention should be paid to the integrated management of the Complex, the objectives and quantifiable, measurable results of the management plan and their integrated monitoring in action plans, budgeted for in the short to medium term.*

IV. EXPECTED OUTCOMES AND PRODUCTS

All related work and the actual drafting of the transboundary management plan should be carried out, subject to these terms of reference, within ***a maximum period of four (04) months***.

The main expected materials to be produced can be summarised as follows:

- *A descriptive, diagnostic analysis report on the overall conditions of the complex.* This will take into account all geographical and ecological aspects of the environment, the institutional, socio-economic and cultural characteristics of the environment and the groups of people living in and around the complex.

- *A report on the issue of joint and cooperative management (bipartisan and transboundary) of the entire complex.* Pragmatic proposals for the reinforcement or establishment of systems and/or management mechanisms to that effect. This relates to the final perspective of synergy in protection and monitoring activities for the sustainable use of natural resources throughout the entire complex.
- *The draft document of the transboundary management plan of the complex with all other data and supplementary information attached in the assembled databases.*
- *The final document of the transboundary management plan of the Saloum-Niumi complex, corrected and incorporating the comments and observations of the final validation workshop:*
- *Three (03) hard copies of the plan and its annexes*
- *Three (03) CD-ROMs containing the electronic version and all related databases (maps, socio-economic data, etc.) collected during the work.*

The translation of all documents produced as part of this work, mainly the draft document and the final management plan document will be the responsibility of the project. However, to enable all parties involved (in Senegal and The Gambia) to participate fully and effectively in the examination and technical assessment of outcomes throughout the consultation work, the consultant will submit such interim reports in French and English, wherever possible. Every time he/she is unable to produce his/her reports in both languages, the consultant will take the necessary measures to submit them on time (in French or English) taking into account the time margin necessary to allow the project to have the documents translated into one or other of the two languages by the required date.

V. CONSULTING CONTRACT

On the basis of a shortlist, the staff and individual consultants identified by the project coordination team; technical bids (description of the methodology and tools to be used, a schedule, CV(s) of the main consultant and his/her assistants etc.) and financial bids will be collected and analyzed.

Following the analysis of tenders and further discussions with the bidders, the selected consultant will sign a consulting contract with WIA under Senegalese law, defining the responsibilities of each party and the various technical and financial procedures that have been discussed with the consultant during a launch meeting for so that an efficient workflow is established.

The consultant will launch his/her activities upon the signing of the contract and in under obligation to present a detailed, up-to-date implementation timetable, within five (05) days after the launch, which takes into account updated any potential changes and arising during the launch meeting.

VI. CONSULTANT PROFILE

- Holds a degree in natural resource management.
- Proven professional experience in the field of management of sites or protected areas and development of management plans for parks and other protected sites.
- Proven experience in the implementation of projects for the management / conservation of natural resources, with particular emphasis on the management of biodiversity and protected areas.
- Ability to interact, establish and maintain effective way of good work relations.
- Capable of effective coordination of a multidisciplinary team.
- Aptitude for planning and organisation of multidisciplinary teamwork.
- Knowledge of the socio-economic (and cultural) environment of the Saloum (Senegal) and / or Niumi (The Gambia) would be an advantage.
- Bilingual (English-French); knowledge of at least one of the major languages spoken locally in the complexes (Wolof and Mandinka).

VII. EVALUATION OF THE CONSULTANT'S PERFORMANCE

A small team made up of representatives of the Department of National Parks - DPN (Senegal), the Department of Parks and Wildlife Management - DPWM (The Gambia) and Wetlands International Africa - WIA will be responsible for monitoring the implementation of the consulting contract.

The technical assessment and validation of the reports (interim and final) produced by the consultant will be carried out by the abovementioned small monitoring team, with the support of other technical and scientific partners, to be identified.

Particular attention will be made with respect to the strategic guidelines of the consulting work and the ongoing assessment of products carried out by the consultant in order to assess the achievement of technical objectives and deadlines of the consulting contract.

Assessments and monitoring the contract in its entirety will be carried out in several stages via the interim and final reports of the consultant.

VIII. ADDITIONAL INFORMATION

The issue of transboundary management of the Saloum-Niumi Complex is a long-standing concern expressed at the highest level of Gambian and Senegalese authorities. This dynamic has resulted in both states signing a Memorandum of Understanding in 2001 for the transboundary management of protected areas in order to consolidate their common will to combine efforts for better management of these sites and their biodiversity but also for the benefit of local residents and communities.

Several studies have been carried out under the guise of various projects in both parks of the complex and have resulted in the production of documents that are useful tools in the context of this work on the production of a transboundary management plan. We can mention among others:

- - The management plan of the Saloum Delta Biosphere Reserve produced with the support of IUCN
- - The management plan for Niumi Park recently updated and validated in January 2009 with the support of FIBA

We can also take account of the project for updating the Saloum Delta National Park management plan, which will begin shortly. A team of consultants is already contracted and is on site for this project as part of the GIRMaC Programme managed by the DPN.

Finally, the WOW demonstration project: Saloum-Niumi complex, whose activities have been underway in both parks since March 2008 has involved several activities in terms of awareness raising and training, both of park staff and local communities. Taking advantage of and capitalizing on these activities and processes already underway will be highly beneficial during the production of the plan.

2. Legal and administrative documents

The Republic of the Gambia
Department of State for
Fisheries, Natural Resources
and the Environment

République du Sénégal
Ministère de la Jeunesse
de l'Environnement et de
l'Hygiène Publique

PROTOCOL OF AGREEMENT BETWEEN THE REPUBLIC OF THE GAMBIA AND THE REPUBLIC OF SENEGAL FOR THE TRANSFRONTIER MANAGEMENT OF PROTECTED AREAS

PREAMBLE

Whereas the Republic of the Gambia and the Republic of Senegal share the same ecological and socio-economic entities

In consideration of the objectives of harmonisation of the national policies and strategies of the two countries regarding the conservation of their natural and cultural heritage to enhance the management of biological diversity for the benefit of their respective communities.

In consideration of the objectives of community management required for a better conservation of the protected areas in the framework of the decentralisation policies defined by both states

In consideration of the two countries' achievements in terms of establishment and management of protected areas;

In consideration of the two countries' subregional integration objectives and their international commitment to better manage global biological diversity;

Whereas the Parc National du Delta du Saloum in Senegal and the Niumi National Park in The Gambia share the same ecosystem.

Whereas both the Parc National du Delta du Saloum and the Baobolong Wetland Reserve enjoy international status as a Wetland of International Importance and a Biosphere Reserve for the former and a Wetland of International Importance for the latter

Conscious of the fact that the sustainable management strategy for biodiversity in either of the two National Parks must take into account the management objectives of the other;

And aware that joint activities undertaken by The Republic of The Gambia and The Republic of Senegal within the scope of this agreement shall respect the national sovereignty and the socio-ecological, political and economical uniqueness of each of the two countries;

The Government of The Republic of The Gambia and The Government of The Republic of Senegal, hereby agree on the following

ARTICLE 1:

The Republic of The Gambia and The Republic of Senegal commit themselves to join efforts and resources for a coherent and concerted management of the landscape and biological diversity in their respective national territories, particularly the transfrontier ecological entities of the two states;

ARTICLE 2:

The two parties, by this agreement and in accordance with the policies and strategies of each country, commit themselves to work on the harmonization of approaches and status for the management of Parc National du Delta du Saloum and the Niumi National Park. (e.g ecotourism, awareness raising, research etc).This harmonisation should take into account the decentralisation and community management policies defined by both parties.

ARTICLE 3:

The Gambian authorities, with support from their Senegalese counterparts, will submit to UNESCO, the necessary documents with a view to harmonizing the status of the parks as transfrontier Biosphere Reserve

ARTICLE 4:

The Senegalese authorities shall initiate the process of classifying their portion of baobolong as a wetland site for the purpose of granting the entire basin the status of Transfrontier Wetlands of International Importance

ARTICLE 5:

The two parties shall set up a consulting and co-ordinating framework for the identification, the implementation and the monitoring of common management plans in accordance with the principles and norms defined by relevant international conventions and agreements: Convention on Wetlands of International Importance, Seville Strategy and Statutory Framework of Biosphere Reserve and Convention on Biological Diversity.

ARTICLE 6:

The two parties shall develop a common strategy for negotiations with development partners and/or keep each other informed of national initiatives in accordance with articles 3 and 4.

ARTICLE 7:

The current and planned programmes and action plans of the two Parks shall fit into the intended objectives of integration and harmonization specified in this agreement

ARTICLE 8:

The Management bodies of Parc National du Delta du Saloum and Nuimi National Park shall set up a consulting and coordinating framework for the harmonisation of monitoring strategies for ecosystem and species' dynamics

ARTICLE 9:

The two parties shall coordinate their research activities such as surveys, bird ringing, monitoring of turtle populations, marine mammals, migratory and resident avifauna etc.

ARTICLE 10:

The two parties shall provide mutual assistance in strengthening technical and managerial capacities, particularly in the field of training, information exchange and sharing of knowledge and experiences

ARTICLE11:

The two parties shall conduct common periodic inventories on flora and fauna, for the assessment and the promotion of their sustainable use for the benefit of local communities

ARTICLE 12:

The two parties shall submit a common proposal for the creation of a transfrontier biosphere reserve - Niumi-Delta du Saloum and a transfrontier reserve of wetlands of international importance – Baobolong Wetlands

ARTICLE: 13:

The two parties shall support each other in seeking assistance from international organisations for the implementation of the transfrontier biosphere reserve project and wetlands of international importance

ARTICLE 14:

The national authorities of the two parties will set up a steering committee to facilitate the implementation of this protocol/agreement.

3

ARTICLE 15 :

The concerting and cordinating principles for the management of the transfrontier areas will be defined in accordance with Article 3 of the present agreement. :

- The managing bodies of these protected areas will set up on a common agreement ;
- The managing committees ,along with an indication of the terms, the duration, and the entitlements ;
- The technical principles of the management of the tranfrontier areas ;
- The monitoring principles of this common management.

ARTICLE 16 :

Any conflict born of the interpretation or implementation of the present agreement will be solved through negotiation. In case of failure to reach a negotiated solution, both parties could resort to the services or mediation of a third party. This third party shall be designated on common agreement

ARTICLE 17 :

The present agreement has been concluded for an unspecified term.

It is, in each of the two states, a complement of the laws, regulations, and international conventions applicable to the management of protected areas across borders.

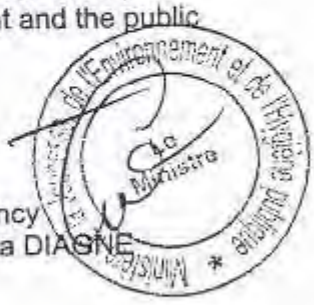
It will be published wherever necessary, in accordance with the laws and regulations of the two countries.

Djinack 02 JUIN 2001

For the Republic of the Gambia
The Secretary of State for
Fisheries, Natural Resources
and the Environment

Her Excellency
Susan WAFFA-OGOO

For the Republic of Senegal
The Ministry of Youth, the
Environment and the public
Hygiene



His Excellency
Modou Fada DIAGNE

BRIEF FOR THE SOS FOR FISHERIES, NATURAL RESOURCES AND THE ENVIRONMENT ON THE TRANSFRONTIER MANAGEMENT OF PROTECTED AREAS BETWEEN THE REPUBLIC OF THE GAMBIA AND THE REPUBLIC OF SENEGAL

Niumi National Park which is about 4940ha was gazetted in 1986. It is located in the Lower Niumi District in the North Bank Division of the Gambia and shares the same ecological entity with the Saloum Delta National Park and Biosphere reserve of the Republic of Senegal.

Recognizing that The Republic of The Gambia and The Republic of Senegal are sovereign states and share the same ecological and socio-economic entities, the two states have agreed to join efforts towards the achievement of the objectives of harmonising the national policies and strategies of our two countries for the sound management of our shared biological resources.

Both countries equally recognize the fact that sustainable management strategy for biodiversity in either of the two National Parks (Niumi and Saloum Delta Protected areas) must take into account the management objectives of the other and must involve local communities and that joint activities undertaken within the scope of this agreement shall respect the national sovereignty and socio-ecological, political and economical uniqueness of each of the two countries

The two countries have held several technical workshops/meetings involving their respective experts to finally agree on the text of the present protocol of agreement which is being considered by this August body.

The protocol of agreement contained 17 articles which touches on all aspects of transfrontier protected area management, ranging from harmonisation of policies where possible through the search for funding and the resolution of conflicts.

Aware of the benefits to be derived from regional cooperation and collaboration in the Management and Sustainable use of shared biological resources interms of donor support and transfer of relevant technology, the two Governments represented by their Ministers responsible for Natural Resources and the Environment met in Djinak (Republic of Senegal) on 2nd June 2001 to formally sign the protocol agreement before you for consideration. The National Assembly is urged to ratify the Protocol Agreement without reservations.

Department of Parks and Wildlife Management
The Gambia

Wetlands International Africa Office
Senegal

Direction des Parcs Nationaux
Senegal

COLLABORATION AGREEMENT FOR THE IMPLEMENTATION OF THE DEMONSTRATION PROJECT

GEF/AEWA (WOW) :

Trans-boundary cooperation and community participation in the Saloum-Nuimi Complex, Senegal / The Gambia.

Mars 2008

BETWEEN:

The Department of Parks and Wildlife Management, hereinafter referred to as **DPWM,** a public administrative institution located in Abuko Nature Reserve Banjul and represented by **Mr Alpha Omar JALLOW**, Acting Director.

The National Parks Division of Senegal, hereinafter referred to as **DPNS**, a public administrative institution, located in the Zoological Park of Hann ; PO BOX 5135, Republic of Senegal, represented by **Colonel Mame Balla GUEYE**, Director.

Wetlands International – Africa Office, hereinafter referred to as **WI,** a Non Governmental Organization, located in 407, Cite Djily Mbaye, Dakar-Yoff and represented by **Mr Ibrahima THIAM,** Programme Director.

In the framework of their partnership, DPWM, DPNS and WI, referred to as « the signatories» undertake to cooperate for the implementation of the project entitled **GEF/AEWA (WOW) – Trans-boundary cooperation and community participation in the Saloum-Nuimi Complex, Senegal/ The Gambia** under the terms and conditions of the present agreement.

The signatories show a common interest and willingness to work together, here by agree as follows:

1. GENERAL PROVISIONS

1.1. This agreement covers the period ranging from its signature until March 31st, 2010. However, this term may be extended, if needed, to cover the complete performance of the project activities.

1.2. The signatories undertake to comply with the requirements defined by this agreement and the Memorandum of Understanding appended as an integral part of the agreement.

1.3. The signatories accept to contribute to the achievement of the project objectives. They will spare no effort for the implementation of the planned activities according to the project document.

1.4. The signatories undertake to supervise jointly the coordination team to ensure the complete implementation of the project activities.

1.5. If needs be, the signatories can propose necessary adjustments, for the project implementation, as addendum.

1.6. The signatories undertake to establish a project Steering Committee, which Composition, Mandate and the Modus operandi is as follows:

The project Steering Committee

1.7. The Steering Committee is made up of a representative of DPWM, of DPNS, of WI, of IUCN, of WWF, of PRCM, of GEF focal points and of any other resource person designated by the signatories.

1.8. The Steering Committee provides guidance on the project strategy and validates the key steps of the activities implementation.

1.9. The Steering Committee is mandated to validate the programs proposals, the annual work plans, the associated budgets proposals and the activity reports from the coordination team on site.

1.10. The Steering Committee review and validate the financial monitoring reports of the project annually.

1.11. The Steering Committee will meet at least twice a year and exceptionally in case of need.

1.12. The Steering Committee meetings will be rotating and will take place alternately in Saloum Park and in Nuimi Park according to the plannings.

The minutes of meetings will be delivered by the coordinator who is the secretary of the committee.

Site coordination team

1.13. The site coordination team is made up of a Site coordinator and of the two head wardens of Saloum Park (Senegal) and of Nuimi Park (The Gambia). Their respective Terms of Reference are appended to the present agreement.

1.14. The site coordination team is responsible for the implementation and the management of the activities in the field. The team will initiate and will develop partnerships for a successful integration of the project.

1.15. The site coordination team will submit, for validation, to the steering committee the planning documents. It will produce all the technical and financial reports according to the project documents and will forward them to WI for finalization.

2. COMITTEMENTS OF DPNS

2.1. DPNS will appoint a focal point who will liaise between the project and the different sections at the department level.

The focal point for the project will support and facilitate the necessary contacts with other political and administrative structures of Senegal for the transmissions and relay information on the project. He will also support the advocacy and awareness activities at policy-makers level.

2.2. DPNS will support the implementation of the project alongside DPWM and WI. It will jointly ensure with them the monitoring of the activities as well as its technical implementation especially in the field.

2.3. DPNS will spare no effort in the exploration of necessary synergies with any other initiative and/or partner in the Saloum-Nuimi Complex.

2.4. DPNS will support the project in other additional fundraising initiatives and will facilitate as much as possible an incorporation of the project actions to any other initiative supporting the attainment of the project objectives.

2.5. DPNS will, as much as possible, make sure that people trained under the project would be used in the site for the sustainability of the project's achievements.

3. COMITTEMENTS OF DPWM

3.1. DPWM will appoint a focal point who will liaise between the project and the different sections at the department level.

The focal point for the project will support and facilitate the necessary contacts with other political and administrative structures of The Gambia for the transmissions and relay information on the project. He will also support the advocacy and awareness activities at policy-makers level.

3.2. DPWM will support the implementation of the project alongside DPNS and WI. It will jointly ensure with them the monitoring of the activities as well as its technical implementation especially in the field.

3.3. DPWM will spare no effort in the exploration of necessary synergies with any other initiative and/or partner in the Saloum-Nuimi Complex.

3.4. DPWM will support the project in other additional fundraising initiatives and will facilitate as much as possible an incorporation of the project actions to any other initiative supporting the attainment of the project objectives.

3.5. DPWM will, as much as possible, make sure that people trained under the project would be used in the site for the sustainability of the project's achievements.

4. COMITTEMENTS OF WETLANDS INTERNATIONAL

4.1. WI will support DPNS and DPWM with its skills and through its network of partners to facilitate the implementation of the project activities as well as their incorporation within the Regional Marine and Coastal Conservation Programme (PRCM).

4.2. WI will ensure the financial management of the project and will maintain in its office the accounts of the project, recording all the financial operations which will be performed. It will keep all the supporting documents related to them for purposes of audit and control.

It shall inform the other signatory parties and the Steering Committee about the project progress by making available the technical and financial reports. It will ensure that the signatory parties have full access to records and other documentation on the project if necessary.

4.3. WI shall ensure timely disbursement of project funds exclusively dedicated to the implementation of the work programme approved by the steering committee.

4.4. WI shall facilitate the access to any information necessary for the monitoring and evaluation of the project and will mention the participation of DPWM and DPNS in all the documents and publications related to the project.

4.5. Wetlands International undertakes the responsibility of timely submission of technical and financial reports to the Central Coordination Unit of the project based in Wageningen (Netherlands).

5. PAYMENTS

5.1. Any payments and instalments on the project will be made from the main account of Wetlands International, Africa Office.

5.2. The project coordinator will have at his disposal in the field, a bank account which will be co-signed at least with one of the two head wardens. The coordinator will fully be responsible for the management of this bank account and the cash advance.

Any funds replenishment for the bank account/cash advance will be made on the basis of justification accepted by WI of the use of the previous deposits.

6. FINAL PROVISIONS

6.1. Any modification in the terms of this agreement will be subject to a common addendum signed by all the parties.

6.2. In the event of failure by one of the parties to comply with its engagements and/or responsibilities, this case will be raised at the project Steering Committee for a decision to be taken in relation with to the Central Coordination Unit in Wageningen.

6.3. Signatories will attempt to settle amicably any case of controversy or claim arising from the agreement, where this is not possible, it will be settled by a commonly selected arbitrator.

On behalf of the Department of Parks and Wildlife Management (DPWM)

Mr Alpha Omar JALLOW
Acting Director

On: 25th / MARCH / 2008

On behalf of the National Parks Division of Senegal (DPNS)

Colonel Mame Balla GUEYE
Director

On: 10 AVR 2008

On behalf of Wetlands International – Africa Office (WI)

WETLANDS INTERNATIONAL
PROGRAMME AFRIQUE
407 Cité Djily MBAYE Dakar
Tél (221) 820.64.78 Fax 820.64.79
BP 8060 Dakar-Yoff (Sénégal)
E-mail wetlands@sentoo.sn

M. Ibrahima THIAM
Programmes Director

On: 21 / 04 / 2008

ANNEXES

TERMS OF REFERENCE

COORDINATOR OF WOW SALOUM-NUIMI COMPLEX DEMONSTRATION PROJECT (SENEGAL/THE GAMBIA)

CONTEXT

In the framework of its conservation and sustainable management of natural resources activities, Wetlands International, Africa Office in partnership with the Department of Parks and Wildlife Management (The Gambia) and Direction des Parcs Nationaux (Senegal) is implementing a demonstration project jointly in Nuimi National Parks (The Gambia) and in Parc National du Delta du Saloum (Senegal). Part of GEF / AEWA global joint initiative called WOW Project, the Saloum-Nuimi Complex demonstration project have as main objective the conservation and the sustainable use of wetlands and their biodiversity in the Saloum-Nuimi Complex.

On the basis of a transboundary cooperation and participation, an effective involvement of local communities who are living in and around the Complex, a common transboundary management plan will be elaborated for both parks. The designation of Nuimi National Park and the whole Complex as wetlands of International Importance through their inclusion on the RAMSAR list will be facilitated although the Parc National du Delta du Saloum is already designated since 1984. Capacity building and awareness activities for local communities, local government authorities and other decision-makers will also be conducted in both countries.

To ensure a good follow up and an adequate coordination of these various activities, a project site coordinator was hired to conduct and to oversee the activities at the project site level with support from the local team built of the both wardens of Nuimi and Saloum parks.

DUTIES AND RESPONSIBILITIES

The Site Coordinator is full-time employed throughout the project duration and will be under the supervision of the WOW project coordination unit based at the Wetlands International - Dakar Office (WI – Dakar). The coordinator will closely work with the « Department of Parks and Wildlife Management » (DPWM) and « Direction des Parcs Nationaux du Sénégal » (DPNS) through their respective project focal points at departments and site levels. The Coordinator will report to WI–Dakar with copy to DPWM, DPN) and the project steering committee.

The Coordinator will work under guidance from the Project Steering Committee, from the coordination unit based in WI-Dakar and from the Chief Technical Advisor at the Project Central Coordinator Unit in Wageningen (Netherlands).

The coordinator will be in charge of coordination and day to day management of the activities, the project financial management in the site and the partnerships development as well as the technical reporting required on the project implementation. He will be provided with support from Wetlands International and his partners (DPWM, DPNS) for any technical, administrative and financial issues and in the control of project activities.

In short, the coordinator will conduct and oversee step by step the process for developing the transboundary management plan for the Saloum Nuimi Complex and will facilitate the preparation and implementation of the training and awareness activities as well as any national and/or international specific mission within the Complex and related to the project actions. Amongst others, he will specifically have to:

- Lead the review and adjust all the different activities proposed in the original project document, define a base action plan to then develop detailed annual and semi-annual workplans;
- Prepare all the required documents in order to initiate the process of the transboundary management plan development;
- Actively contribute to the identification of consultants and/or resource persons for works that requires significant expertise;
- Develop and implement an awareness program for local communities, local and national decision-makers throughout the planning, the monitoring, and the facilitation of training and awareness sessions as well as any other capacity building activity in the site;
- Identify day-to-day constraints and adjust the project implementation in time according to them. Ensure efficient management of materials purchased during the entire project duration;
- Ensure the regular holding and monitoring of project Steering Committee meetings and serve as its secretariat during its working sessions;
- For rehearsals in the sub-region, define a strategy and then organize the information collection on all the critical and significant steps of the process of the management plan development. Document as widely as possible the relevant lessons inherent to this process in terms of community management of a site and its natural resources;
- Participate actively in the implementation of the overall communication strategy for the project by providing regular updated information for the project website, for newsletters and for any other information material about the project. Promote the flyways concept and principles in local medias as well as in any other significant forum;
- Establish and/or strengthen partnerships at national and regional level and, if necessary, represent the project in meetings, conferences, workshops and other local, national or international forums;
- Write (in English) for submission to the Steering Committee and Wetlands International, Africa Office the periodic financial and activities progress reports.

EXPECTED DELIVERABLES

- ✓ Official Inception Report: Start of assignment
- ✓ Detailed trainings program: Within six months after
- ✓ Progress Reports: Quarterly
- ✓ Extended Financial / Progress Reports: Semi-annually and annually
- ✓ Local Training and Communications Material: Intermittent
- ✓ Presentation Material: When Needed
- ✓ Workshop / Training Evaluation Reports: As requested
- ✓ Final Report: Cessation of Project

TERMS OF REFERENCE

COORDINATOR OF WOW SALOUM-NUIMI COMPLEX DEMONSTRATION PROJECT (SENEGAL/THE GAMBIA)

The site focal points for the project (warden of Niumi National Park – NNP (The Gambia) and warden of Parc National du Delta du Saloum – PNDS (Senegal) will work closely with the Project Coordinator with whom they together constitute the project local coordination team. They will actively contribute and participate in the planning of activities to be carried out as well as their full implementation in the field. This will mainly include:

- Active support to the project coordinator in the initial contacts and relations with local authorities, the local administration staff and any other local decision-makers for better integration of project activities

- Support to the project coordinator for the organisation of the different workshops, both at the local community and policy makers level, as defined in the project document and specified in the planned activities.

- Active contribution in the elaboration of work strategies, in the development of annual and semi annual project work plans as well as in the reporting of the project activities progress

- Participation in or facilitation for the good implementation of the different missions in the site related to the project.

- Ensure that as much as possible, the project coordinator benefits from logistical and human resources available in the parks for implementation of the project activities.

Note
on
Subsidiary Legislation

This Chapter contains no subsidiary legislation

(g) to establish a licensing system for all users and uses of water;

(h) to submit to the Council for decision, any questions which it has not been able to resolve.

(2) The Committee may initiate studies or enquiries concerned with the exploration, use and management of water resources and may recommend measures including expenditure of funds in support of such work to the Council.

Working group.

11. The Committee may set up working groups entrusted with specific duties with respect to the Committee's considerations and performance of its functions.

Establishment of Department of Water Resources.

12. (1) There is hereby established a Department of Water Resources which shall be responsible for carrying out the functions assigned to it by this Act and by the National Water Resources Council.

(2) The Department of Water Resources shall take over the functions and duties of the Department of Hydrometeorological Services.

Duties of the Department.

13. The duties of the Department of Water Resources shall include the following—

(a) to provide and train technical personnel for the water resources services of The Gambia;

(b) to prepare an inventory of water resources of the nation;

(c) to co-ordinate the planning of the technical requirements of the water resources services;

(d) to initiate a system of water rights administration and regulate the development and use of water resources;

(e) to monitor and safeguard the quality of water resources;

(f) to prepare plans for investigating the rational management, use, control and protection to water resources;

(g) to measure regularly and record, water levels and flow of streams;

(h) to collect other hydrological and hydrometeorological data;

(i) to explore the existence, location and behaviour of underground water, and to ascertain the quantity and quality of such underground water;

(2) The Permanent Secretary, Ministry of Agriculture shall appoint one of his officers to be the Secretary to the Committee.

Meetings of the Committee.

9. (1) The Committee shall meet at such times and places as it deems expedient for the transaction of its business.

(2) Special meetings of the Committee may be summoned—

(a) at the request of the Council;

(b) at the request of any five members of the Committee on any matter of urgency.

(3) The Secretary of the Committee shall, in consultation with the Chairman, prepare an agenda which shall be distributed to all members of the Committee at least seven days prior to each meeting.

(4) The Chairman of the Committee may invite any person to attend and participate in the discussions of the Committee if in his opinion that person possesses expert knowledge which could be useful to the Committee.

(5) The Committee shall submit a quarterly report of the activities to the Council.

Functions and powers of the Committee.

10. (1) The functions of the National Water Resources Committee shall be—

(a) to promote the centralized inventory and management of all water resources in the country;

(b) to co-ordinate and approve any project or scheme relating to the use, development and conservation of water resources both in regard to quantity and quality of water utilized;

(c) to appoint the responsible executing Ministry or agency for any water project or scheme;

(d) to promote the most rational use of available water resources including the abatement of its harmful effects such as flooding, soil erosion, siltation and salinization;

(e) to promote the consolidation of existing water legislation in view of preparing a national water act and any other required legislation;

(f) to promote the preparation of sectoral water plans, sub-basin plans, basin and master water plans to serve as terms of reference for allocating sectoral uses of water;

the event of an equality of votes, the Chairman shall have a casting vote.

(4) At every meeting of the Council three members shall constitute a quorum.

Annual Report.

6. The Council shall, at the beginning of every financial year, submit a full report of its activities during the previous year to the House of Representatives.

Functions of the Council.

7. The functions of the Council shall be—

(a) to formulate the overall water resources policy of the nation; and to serve as Government's high level policy making body in the field of water resources development and water utilization and conservation;

(b) to approve plans submitted to it by the National Water Resources Committee established under section 8 of this Act;

(c) to approve funds for executing such projects as are submitted to it by the Committee; and

(d) to do any other thing incidental to the development and utilization of water resources.

Establishment of Committee.

8. (1) There is hereby established a National Water Resources Committee, consisting of—

(a) the Permanent Secretary, Ministry of Agriculture, who shall be the Chairman;

(b) the Chief Physical Planning Officer;

(c) the Director of Health Services;

(d) the Director of the Department of Water Resources;

(e) the Director of Agricultural Services;

(f) the Director of Livestock Services;

(g) the Director of Fisheries;

(h) the Director of Planning, Ministry of Economic Planning and Industrial Development;

(i) the Managing Director of The Gambia Utilities Corporation or his representative; and

(j) the Managing Director, The Gambia Ports Authority or his representatives.

Interpretation.

2. In this Act, unless the context otherwise requires—

"Committee" means the National Water Resources Committee established under section 6 of this Act;

"Council" means the National Water Resources Council established under section 3 of this Act;

"Department" means the Department of Water Resources established under section 9 of this Act;

"Minister" means the Minister responsible for Agriculture;

"water" includes atmospheric, surface, underground and all other forms of water resources in The Gambia.

Establishment of the Council.

3. There is hereby established a National Water Resources Council.

Composition of the Council.

4. (1) The Council shall consist of the following persons:

(a) the Minister of Agriculture or his representative;

(b) the Minister of Local Government & Lands or his representative;

(c) the Minister of Health, Labour & Social Welfare or his representative;

(d) the Minister of Works and Communications or his representative;

(e) the Minister of Economic Planning & Industrial Development or his representative.

(2) The Chairman of the Council shall be the Minister of Agriculture.

(3) The Permanent Secretary, Ministry of Agriculture shall be the Secretary of the Council.

Meetings of the Council.

5. (1) The Council shall meet at least once every three months at such times and places as it deems expedient for the conduct of its business.

(2) The Chairman shall preside at all meetings of the Council and in his absence such member of the Council as the members present may appoint, shall preside.

(3) The decisions of the Council shall be by majority vote and, in

CHAPTER 66:02

NATIONAL WATER RESOURCES COUNCIL

Arrangement of Sections

Section

CHAPTER 66:02

NATIONAL WATER RESOURCES COUNCIL

An Act to establish a National Water Resources Council to formulate a water policy for the nation and for matters incidental thereto. 22 of 1979.

[22ND FEBRUARY, 1980.]

1. This Act may be cited as the National Water Resources Council Act, and shall come into force on such date as the Minister may, by Notice published in the *Gazette* appoint. Short title and commencement.

*This section incorporates what has hitherto been section 15 of the Act dealing with its commencement.

L.R.O.1/1990

Note
on
Subsidiary Legislation

This Chapter contains no subsidiary legislation

REPUBLIC OF THE GAMBIA
DEPARTMENT OF STATE for FISHERIES,
NATURAL RESOURCES and THE ENVIRONMENT

REPUBLIC OF SENEGAL
MINISTRY OF ENVIRONMENT and the
PROTECTION OF NATURE

Memorandum of Understanding between WAAME (Senegal) and WABSA (The Gambia) for the implementation of the project in the Niumi and Saloum protected transboundary areas, funded by means of the RAMSAR Convention small grants.

PREAMBLE

Given that the NGOs WAAME and WABSA are operational in Niumi (The Gambia) and Saloum (Senegal) protected transboundary areas that are located in the same ecological, historical, social, cultural and economic environments.

Considering the objectives to harmonise national policies and strategies of both countries in the context of the conservation of their natural and cultural heritage for better biodiversity management to benefit their respective communities.

Considering the objective of community management required for better conservation of the protected areas as part of the decentralisation of policy defined by both countries.

Considering the achievements of both countries in the context of the establishment and management of protected areas.

Considering the objectives of sub-regional integration of both countries and their international commitments to better manage biodiversity with the participation of local authoritiesand NGOs.

Given that WAAME and WABSA share the same vision in terms of the management of natural resource management and poverty reduction of communities living in the protected areas of the Saloum and Niumi.

Considering the objectives of local NGOs seeking to strengthen the efforts of local authorities and States for the sustainable management of natural resources and poverty reduction in the protected areas.

Considering the project known as "Project for the restoration and rehabilitation of the transboundary wetlands habitat and the mangrove ecosystem by means of awareness-

raising among local authorities on the issues of the sustainable use of wetlands", launched by both NGOs and approved by the two focal points of the Ministries of Environment of The Gambia and of Senegal, funded by means of the RAMSAR small grants for the financial year 2003-2004.

The NGOs WAAME and WABSA agree the following:

Article 1.

WAAME and WABSA accept to combine their efforts and resources for the consistent, concerted management and the implementation of the “Project for the restoration and rehabilitation of the transboundary wetlands habitat and the mangrove ecosystem by means of awareness-raising among local authorities on the issues of the sustainable use of wetlands” project, in collaboration with both ministries.

Article 2.

Both NGOs, via this agreement and in accordance with the project’s objectives and the SGF conditions, shall set up a project implementation committee.

This committee shall be made up by the following 7 representatives:

- 2 for the NGOs
- 2 representatives of the Ministries of the Environment and
- 2 for the local authority;

The chairmanship of the Committee shall be given to SGF.

The project implementation committee shall meet every three (3) months to discuss and approve the project activities plan submitted by the Management Committee.

Article 3.

The Management Committee shall be made up of two (2) persons, one from each NGO.

The meetings of the Management Committee shall be held once a month.

The Management Committee must plan project activities and obtain the approval of the project implementation committee prior to any activity being carried out.

The Management Committee shall be responsible for writing the reports.

Article 4.

WAAME agrees to share its expertise in the regeneration of mangroves with the stakeholders living in the project area.

Article 5.

Both NGOs must organise exchange visits of volunteers in the project area.

Article 6.

WAAME must provide training for 30 trainers on the techniques of mangrove regeneration in the project area.

Article 7.

WABSA must provide training for 30 trainers on the techniques of bird identification and shall participate in bird monitoring activities undertaken in the context of the project.

Article 8.

WAAME must restore 40 hectares (20 hectares on each side) of degraded mangroves in the project area.

Article 9.

Both NGOs must organize exchange visits between schools and baseline communities in the project area including policy makers, opinion leaders and local government.

Article 10.

Each NGO must keep the other informed on national activities related to the project.

The NGOs must coordinate their activities on birds and mangroves, especially in the field of training, information exchange and sharing of knowledge and experience.

Article 11.

The project's mangrove component shall be based in Foundiougne (Senegal) and the bird component in Mbankam (The Gambia).

Article 12.

The account number 0100131442000 is open under the name "WABSA – WAAME Transfrontier SGF Project" and is located in the Standard Chartered Bank of Banjul.

The account must have 3 signatures. The funds allocated to the activities in Senegal shall be transferred from the project bank account.

Article 13.

The anniversary of the signing of the 2nd June Jinack MoU on the Saloum-Niumi transboundary management shall be celebrated each year and the signing of the joint communiqué between both NGOs shall be part of this commemoration.

Article 14.

Both NGOs must collaborate with the two existing ministries to commemorate World Wetlands Day (2nd February)

Article 15.

Both NGOs agree to use the project resources on equal terms and conditions.

Article 16.

In the event that either party fails to honour this MoU or the project activities, future activities shall be suspended until the problem is resolved.

Madina Kanuma 7th February, 2004.

WAAME	WABSA
Executive Director	Executive Director
Mr. Abdoulaye Diamé	Mr. Lamin Jobarteh

THE MANATEE
A VULNERABLE SPECIES TO BE PROTECTED WITHIN THE FRAMEWORK OF THE TRANSBOUNDARY MANAGEMENT AND DEVELOPMENT PLAN OF THE *-NIUMI-SALOUM* COMPLEX

Document prepared by:

Momar SOW
PRCM program associate,
Program officer for manatee conservation

Table of Contents

I – Background and rationale

The West African manatee conservation project, phase II, in implementation by the Wetlands International is due to end in December 2011. Already during the first phase, surveys for occurrence of the species were undertaken in 21 countries where the species could be found (from Mauritania to Angola, all the way to Chad).

The Delta-Niumi **?]** area per say, was proved to be the place of origin of most hunters active in the deal in Senegal, Guinea Bissau through the Casamance region.

The management and development plan of the Delta-Niumi complex focuses only on the ecological monitoring of the species. Yet, considering the results already achieved in the implementation of this conservation project and also the vulnerable status of the species, more attention would be important for its conservation. Although in the complex, residents and local authorities had already identified key actions to mainstream this endeavor.

This present document aims to serve as a technical reference material for proper grading of the manatee species in the management plan of the Niumi National Park – Delta Saloum National Park transboundary complex.

In the following sections of the document, the main results on the species distribution, the main pressures on it, the proposed conservation actions with the associated budget are mentioned.

II – Distribution of Habitats

The manatee is an aquatic mammal well known by the populations of the Saloum Delta Biosphere Reserve. It lives in the mangroves of the Saloum Delta up to Foundiougne locality. It is a migratory species that can be seen all the year round at different sites such as the mudflats, near the mangroves or the fresh water sources.

During the rainy season, freshwater run-off mixing with seawater forms freshwater pockets (lenses) that serve as troughs for manatees. Fishermen of the Saloum Delta, from Joal to Mbour, on the *Petite Côte*, pledge their capacity to locate these freshwater pockets.

In Niumi, manatees can be found in the Mansarinko bolongs. According to the surveys, their number is likely on the rise due to a decrease in killings thanks to the surveillance of the park.

Some data confirm the trend in numbers:

- Over half of the persons interviewed have not seen the manatee after the 90s.
- About 20% claim to have seen the manatee in 2004 and 2005.
- The last observation dates back to September 21st, 2005 in the Saloum Delta mangroves.

- About 10% of the persons interviewed in the villages claim to have spotted a manatee during the survey months. These accounts suggest the Bandiala (Djinack and Sangako), the proximity to the coastline (Palmarin), or the entrance of Ndangane bolong, not far from the river's mouth.

III – Socio-economic value and ecological contribution of manatees

3.1. Socio-economic value

The manatee occupies an important place in the livelihoods of all communities neighboring the Delta-Niumi complex. It is used for consumption, medicine, as well as in occult practices.

3.1.1. The meat

The edible meat is very much appreciated by the populations. Based on the collected testimony, it is believed to be very nutritious let alone its therapeutic virtue although its sale is illegal. In the 80s, a kilogram of manatee meat was sold between 200 and 300 CFA Francs while the current price is estimated between 1,000 and 1,500 CFA and varies depending on the locality and the market demand.

The individuals that may be caught as by-catch are not declared to any authority such as the fisheries, national parks or water and forestry services but simply consumed**.**

3.1.2. Oil

The oil content is abundant, especially in the body upper parts of the mammal comprising the head and the fins. An adult individual can produce up to 5 liters of edible oil. Few drops applied in the ear relieve pain; used on the body, it is effective against aches and sprains.

3.1.3. The skin

The dorsal part of the skin is the only portion processed to make the well-known whip, "lemar" and weapons, When hung in a room, it is believed that they to protect against evil spells and spirits. The number of whips produced per animal depends on its size. They are sold illegally, between 500 and 2,000 FCFA Francs.

The tip of the tail, mixed with water, prevents and cures finger and eye aches.

3.1.4. The bones

The bones are used for their medicinal virtues. The sternum is used to produce purification bath for manatee hunters. The small bones of the ribs as well, are used to treat inter-costal pain.

3.1.5. Genital organs

According to the interviews that were conducted with the populations, the animal's genital organs serve as an excellent aphrodisiac; for that, they can be consumed or soaked in water, and the extract or solution absorbed.

3.2. Ecological contribution

The presence of manatee and its dependency on water sources is an indicator of wetlands ecosystem health. Due to the motion of their fins that tend to dig out the mangroves creeks, and their

nature of grass eater animals, manatees contribute to the practicability of these routes which in some areas are important alternatives to the terrestrial transport systems. In places like the Southern Senegalese region, (Casamance), the communities are aware of this service hence the strong protection put on manatees in this zone. Besides, manatee's droppings play and important role as organic manure very useful for the plankton growth.

IV – Migration routes of manatees in the Niumi-Saloum complex

Routes of the manatees

- Diombos from Fandiong moving up towards Falia
- Diombos towards Diogaye
- Saloum: moves up to the mouth then goes through the Ndangane mangrove
- Pata Ngoussé up to the freshwater source
- Facade Bétenti
- Bonssinkang
- Bassoul in the mangroves of Niombo, Diogaye, Bamboung, Koukou, Guiro, Badoudou, Poulke and Ndangane
- Bolong diameguene towards the Bakadaji park
- In Bandiala all the way to Toubacouta.
- In Niumi, using Bandalia to go towards Djinnak and then Mbankam

V – Main threats

5.1. Loss of habitat and associated disturbances.

Pollution risks, siltation, mangrove tree cutting and exploitation of arches as well as the drought aftermaths are clear examples of threats to habitat loss.

In terms of pollution, concern is put the likely increasing gasoline leakages risk from boats. Developmental undertakings such as buildings and tourism facilities tend to disturb water currents and as fact, the sedimentation dynamics in the wetland which may alter not only manatee habitat but also their drinking points by impeding on the access routes as a result of siltation process of some banks.

The huge noise of motor boats as a result of their frequent passages through certain channels participate more in the disturbance of both the habitat and migratory behavior of the manatees.

5.2. Accidental capture in fishing nets, and hunting.

Accidental capture in fishing nets is considered to be the second greatest threat to the species. For its hunting which is more of the past than a current reality, the bill is evermore still on its prohibition in the Saloum Delta. Discussions during the Forum have highlighted that even though kills are forbidden, manatee meat is well appreciated in the local communities. The accidentally caught two individuals in the delta [give date] illustrates a patent case of consumption of manatee meat in this area.

VI – Restoration actions in the Niumi-Delta complex

Field missions in the RDBS and the recorded testimonies from the local communities proved that manatees are still endangered within the zone. However, there is a growing awareness for the

precariousness of the species among the populations which needs more concentration for effective and well-targeted conservation measures of the species. Such an effort revolves around four activities:

6.1 – Awareness and environmental education

In this purpose, the strategy consists of programs and shows focused on the description of "staged" hunting using the mass-media such as the radios and the televisions.

The technical services involved in the conservation of the species and its habitat will be assigned the task to interfere at the community level to further raise their awareness. Educating the people on the threats posed by accidental capture in the fishing nets will be part and parcel of their role.

As the duty of these services involves a much of movements between places of interest and towards different communities, a vehicle is needed to carry out satisfactorily the tasks. Schools in the area and public places as well as sensitive sites will be targeted for a wide expansion of quality information.

6. 1.1 – Establishment of a "manatee" eco-museum

The establishment of a museum revealing the biology, [ethnology? Etiology? Ethologic?] and the threats to the manatee remains a viable project in an area like the Saloum Delta which is a place of choice for a quite good percentage of tourists coming to Senegal. This museum would show the important ecological link between the culture and the mythology related to the mammal.

Bassoul locality, where the communities were very involved in the art of hunting the manatee, could be selected as to the location of the museum. In this village, former fishermen continue to personify the memory of the manatee" and some others are still keeping their hunting equipment and trophies. This museum of Bassoul would enable a capitalization on the "culture of the manatee" and pass on this "community heritage" to younger generations, and tourists.

6.1.2. Environmental awareness for the "communities".

- To raise awareness on the mangrove's state of degradation, the ecological links between the arch, the mangrove and the manatee
- To raise awareness on the harmful effects of habitat loss due to silting
- To put up signs indicating the wells of the manatees
- To establish a network for rapid information in case of cadaver discovery or stranded individual.

6.1.3. Raise awareness for fishermen, boat owners and "consumers".

- To avoid fishing in locations used by the manatees
- To release the accidentally captured individuals
- To promote non consumption of manatee meat
- To inform and educate on the harmful effects of noise pollution
- To advise and enlighten on the legislation that bans hunting
- To create local protection committees of manatees
- To disseminate discernment knowledge on local species
- To exchange visits with other communities

6.1.4. Raise awareness for "developers"

- To raise awareness on the impacts of developmental infrastructure near shores
- To inform stakeholders in current legislation on the use of public, marine and river domains

6.1.5. Monitoring and protection of freshwater sources or drinking troughs.

Perimeters that are secured and prepared could include the food sites and freshwater sources where the manatees drink. This technique would help protect the species in the RBDS.

Aquatic plants that are used by manatees should be protected from fishing nets.

6.1.6 – Establishment of protected community areas

The establishment of marine protected community areas could be considered in some bolongs given that access is limited and controlled. Motorized boats, prone to nuisance will be denied access. These protected areas would enable a reasonable and regulated exploitation, as opposed to an access free environment (mangrove) where the exploitation is uncontrolled**.** Particular emphasis is put on the types of nets to be used and the way of use.

Several bolongs were proposed by the communities, mainly that of Mansarinko.

6.2 – Research and monitoring

The lack of scientific studies on the manatee in the RBDS thwarts conservation efforts of the species. Research on the ecology, biology and of the species is needed to assist in providing answers on the threats to the species in the RBDS.

A few themes have been identified. Some websites for research and monitoring of the species have been selected.

- To identify key sites for the animal's survival (for instance breeding sites) for map and protection purpose
- To identify plant species such as the *Lepisanthes senegalensis* (Kurjenjengo or Nguso in Mandinka) grazed by the animals
- To organize training courses for local communities on the monitoring of manatees

6.3. Enforcement of regulations and involvement of technical services

Technical services of water and forestry, national parks fishing services, the military police or customs could participate in research and monitoring of the species in the complex. Institutions (CILSS, CRODT, IRD, UCAD, UGB, ISE, University of Gambia), NGOs and development partners, consultants, CBOs, the population, and village committees, could still be involved in this scientific monitoring. Agricultural services should also be sensitized on the effects of irrigation infrastructures. Training on monitoring techniques (module development) would be needed.

6.3.1. Stress regulation.

- To organize the installation of nets to prevent the accidental capture of manatees, more notably on the coastline, the flood plains and mud flats
- To fight ghost fishing, harmful to all species
- To enforce the hunting and wildlife protection code by strengthening monitoring in the complex, especially during the rainy season, a time of migration that is very favorable for hunting
- To reduce the use of motorized boats on the routes of manatees: from Bandiala to Jinnak by the Mansariko bolong.

6.3.2. Conservation / restoration of habitats

The degradation of the manatee's habitat represents the main threat against the species in the RBDS. The conservation and restoration of habitats is the double priority of this action plan.

- To reforest and protect the mangrove for the conservation of the species and maintenance of the RBDS ecosystem
- To rehabilitate silting water upwelling: Sandicoly bolong, Felane bolong, Diandouffa mud flat, Medina Sangako bolong
- To protect and regulate access to some mud flats, Diandouffa, Diofando Fambine, manatee habitat

6.4. Support to communities in conservation

Income-generating activities should be of interest to communities in the conservation of the manatee. It is still important to build the capacities of local structures.

6.4.1. Income generating activities

This discussion revolves around two axes, the improvement of the communities' standard of living, and the conversion of hunters to other socio - economic activities.

- Improve the population's standard of living by producing arches, developing beekeeping and facilitating access to credit.

Sine Saloum offers an interesting tourism context, infrastructure and customer wise to develop a project, at the same time generating revenues and an awareness tool on the precariousness of the species' and its habitat.

This context has been instrumental in stirring the creation of an eco-museum, a scientific and cultural center focused on the manatee. The village of Bassoul, which is traditionally very active in the hunting of manatees, was selected. Twenty hunters can testify to that tradition and offer harpoons and trophies to the museum.

- Touristic excursions, centered on the routes of the manatees, could still be proposed.

6.4.2. Strengthen the organization.

Support to the communities may be reduced further, by strengthening the capacities of the village committees, women's groups, community based organizations, or sports and cultural associations of RBDS (CCC / RBDS). These organizations, if better trained and equipped in communication tools, could contribute to an awareness strategy.

Exchange visits with other communities, also exchange of experiences, would enable the acquisition of other business and conservation models.

VII – Budget

Spécific objectives	Results	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Total (€)
OS1- strengthen sensitization on manatee	2 « manatee » ecomuseum are created	Construction of and equipping an eco-museum in Djinak-Niumi		762.25				762.25
		Construction of and equipping an eco-museum in Missirah – Toubacouta		762.25				762.25
	Awareness for fishermen, boat owners and “consumers”is conducted	Sensitization for Raise awareness to abandon the consumption of manatee meat by informing on the regulation that bans hunting	1 524.5		1 524.5			3 049
		Create local committees for the protection of manatees at least in Missirah, Djinnak NiJi or ensure that ecoguards IGEs of the two parks play this role	762.25	762.25	762.25	762.25		3 049
	local knowledge on the manatee are disseminated	Produce documentaries			1 524.5		1 524.5	3 049
	Environnemental sensitization toward the communities	Specific awareness sessions on the status of the degradation of the mangroves by discussing the ecological links between the arch, the mangroves and the manatee.	304.9	304.9	304.9	304.9	304.9	1 524.5
		Inform and raise awareness on the harmful effects of habitat loss due to silting: radio discussion, local discussions.	152.45	152.45	152.45	152.45	152.45	762.25
	Exchange visits to other RBDS communities or Bao bolong or Tanbi are organized	3 exchange visits for sharing experience on manatee protection	2 744.08	2 286.74			2 286.74	7 317.56
Sub-total (€) OS1			**5 488.16**	**5 030.82**	**4 268.57**	**1 219.59**	**4 268.57**	**20 275.72**

Spécific objectives	Results	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Total (€)
OS 2 : Mettre en place un système d'alerte	A network of signalizations is in place	Put up signs indicating the wells of the manatees		2 286.74				2 286.74
	Regular alert system is functioning	Establish a network of alerts in case of the discovery of dead manatees (in case of stranding or killed manatees): provide mobile phones	304.9					304.9
Sub-total (€) OS2			**304.9**	**2 286.74**	**-**	**-**	**-**	**2 591.63**
OS3 : Mettre en place un système de surveillance	Surveillance and Protection of springs	Construction of wooden watchtowers in Bakous, Sipo, Bassoul, Djirnda, Mbankam		4 573.47	4 573.47	4 573.47		13 720.41
	Creation of community protected areas	Creation of 2 APC in Bolong, Bassoul-Djirnda on the non-protected area on Mansariko bolong that is managed by the communities	4 573.47	4 573.47	4 573.47	5 716.84	3 049	22 486.23
Sub-total (€) OS3			**4 573.47**	**9 146.94**	**9 146.94**	**10 290.31**	**3 049**	**36 206.64**
OS4 : Identifier des sites clés de protection spécifique	Key sites for the animal's survival (for instance breeding sites) are identified and mapped	Conduct permanent monitoring	381.12	381.12	381.12	381.12	381.12	1 905.61
	Plant species grazed on by the manatee identified	Build up an herbarium	1 524.5					1 524.5
	Training courses for local communities on the monitoring of manatees are organized with small equipment	Training courses on manatee monitoring	4 573.47	4 573.47		6 097.96		15 244.9
	a database on the manatee is built	Develop and feed a database			762.25		762.25	1 524.5
Sub-total (€) OS4			**6 479.08**	**4 954.59**	**1 143.37**	**6 479.08**	**1 143.37**	**20 199.49**

Spécific objectives	Results	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Total (€)
OS5 : Renforcer l'application de la règlementation	Regulation is emphasized	Organize meetings to update regulation for both park warden and communities	1 524.5			1 524.5		3 049
	Manatee habitats are restored	Dig channels to supply Mansariko		1 524.5		1 524.5		3 049
		Reforest at least 20ha of mangrove			1 524.5		1 524.5	3 049
Sub-total (€) OS5			**1 524.5**	**1 524.5**	**1 524.5**	**3 049**	**1 524.5**	**9 146.94**
OS6 : Appui aux revenus des populations	Income-generating activities are Develop income-generating activities for the communities	Two major income-generating activities are undertaken: ecotourism, market gardening, agro-forestry, community businesses, etc.		1 524.5		1 524.5		3 049
Sub-total (€) OS6			**-**	**1 524.5**	**-**	**1 524.5**	**-**	**3 049**
OS7 : Appuyer la formalisation des ocb de conservation	The environmental CBOs are strengthened	Training and support in organizational development: techniques in administrative and financial management			1 524.5	1 524.5		3 049
		Formal switch of ecoguard associations into NGOs			762.25		762.25	1 524.5
Sub-total (€) OS7			**-**	**-**	**2 286.74**	**1 524.5**	**762.25**	**4 573.47**
TOTAL (Euro)			**18 370.11**	**24 468.07**	**18 370.11**	**24 086.94**	**10 747.66**	**96 042.88**

Annexes

List of bolongs identified for manatee conservation

N°	**Villages**	**Bolongs**
1	Bétenti	Bantacoto
2		Diomiali
3		Kamaly
4	Bakadadji	Karenty
5		Banda
6	**Toubacouta**	Bolon cal mama diouma
7		Diorom bou mack
8	**Sandy Coly**	Plage de Sandy Coly
9	**Médina Sangako**	Bolon de médina sangako
10		Ndokane khatal,

List of watering sites or freshwater sources

Source	**Geographic data**		**Closest village**
	28 P	**UTM**	
Poutak	0332733	1525945	Diogane
Bamboug	0336944	1524988	Sipo
Ndangane Faly	0338659	1517478	
Bantancoto	0323877	1517573	Bakous
Soucouta	0339662	1525363	Soucouta
Oudiéring 1	0330918	1510268	Oudiéring
Oudiéring 2	0330786	1511368	
Oudiéring 3	0330425	1511420	
Kawaty	0325066	1509402	Backadadji
Diomyalé	0327724	1520633	Bakous
Mbankam			
Djinnak niji			