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**SUSTAINABLE  
MANAGEMENT OF  
A HUGE UNSPOILT  
FLOODPLAIN IN MALI**

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# THE INNER DELTA OF THE NIGER RIVER

**Mali strongly supports the wise use and sustainable management of wetlands and their resources. The country is, for instance, a signatory to the final act of the Bonn Convention on the Conservation of Migratory Species of Wild Animals and the Ramsar Convention on the Conservation of Wetlands of International Importance as Waterfowl Habitats. As a part of the process of political decentralization, Mali is currently developing a Community Natural Resources Management Approach, which aims to improve the effectiveness of rural communities' management of land resources (soil, water and vegetation).**

The basic instruments needed for the sustainable management of the Inner Delta are a management plan, a programme for monitoring ecological changes and, most important of all, a local management organization with adequate know-how and skilled personnel. Wetlands International (formerly known as the International Waterfowl Research Bureau) has started a project to develop a sustainable management plan for the Inner Delta. The project is being funded by the Netherlands government under the Programme for International Nature Management 1996-2000 and is being run in close cooperation with the Ministère du Développement Rural et de l'Environnement (MDRE) and Institut d'Economie Rural (IER) in Mali. Its primary aims are: to build national capacity for wetland management and wetland research; to establish a programme for monitoring water birds as indicators of wetland changes; and to gather basic data on the wetland ecosystem of the Inner Delta. Under the umbrella of Wetlands International, the field work will be carried out by a Netherlands consulting firm, Altenburg & Wijmenga, and by the

Institute for Inland Water Management and Waste Water Treatment (RIZA), a division of the Netherlands Ministry of Transport, Public Works and Water Management.

## Close-up of the Niger Delta

The western part of tropical Africa is extremely humid. Yet large seasonal floodplains (open river-side areas which are inundated at times of high discharge) are found not in this humid heart of Africa, but rather in the semi-arid zone around it. There are three large floodplains in north-west Africa: the delta of the Senegal river in Senegal and Mauritania, Lake Chad and the Logone and Chari rivers in Cameroon, Nigeria and Chad, and the Inner Delta of the River Niger in Mali. These wetlands are all highly productive and attract extremely large numbers of water birds. However, they are also situated in drought-prone regions with a high rainfall variability, and are therefore sensitive to climatic fluctuations and human mismanagement.

The Niger rises in the Fouta Djallon mountains in Guinea, not far from the border with Sierra Leone, where

annual average rainfall amounts to 2000 mm. Although its source is not far from the sea, the river runs inland and makes a huge detour through the southern Sahara before flowing into the Gulf of Guinea in Nigeria. The Inner Niger Delta is the only large floodplain area along the river. It lies in central Mali between the towns of Djenné and Timbuktu, about 1000 km from the river catchment area. This part of Mali is dry. Annual rainfall is highly variable, but averages 500 mm near Djenné and 250 mm near Timbuktu. The rainy season is short, from July to September. The water level in the Inner Delta varies throughout the year, being low in May-July and reaching its maximum in December. The fluctuation has little to do with local rainfall, but depends on precipitation in Guinea, Ivory Coast, Sierra-Leone and the south-western part of Mali. In years where rainfall is heavy in the catchment area, the water level in the Inner Delta rises six metres between July and December and an area measuring 400 by 90 km is inundated. In some other years, however, the water rises only 3 metres and only a quarter of that area is flooded. The year-to-year variation in the discharge of the Niger is large, but dry years have become very common since 1970. The annual variation in rainfall in West Africa during the summer

appears to be related to the temperature of the sea surface in the tropical part of the Atlantic Ocean during the months preceding the rainy season.

### A green area

Mali is a large country (1,240,000 km<sup>2</sup>) inhabited by about 10 million people. The northern half of the country is arid. Almost the entire population live in the southern, semi-arid part. The exception is the 0.5 million people who depend on the natural resources of the Inner Delta, the only large wetland (36,000 km<sup>2</sup>) in Mali, situated along the southern edge of the Sahara desert. Its importance to local people can hardly be exaggerated.

The main economic activities in the Inner Delta are agriculture, cattle-breeding and fishing. The dominant ethnic groups are Fulani (herders), Marka and Sonrai (farmers) and Bozo and Somono (fishermen). Cattle-breeders and fishermen are nomadic or, where they practise mixed activities, semi-nomadic or almost settled. Most people are nomadic in order to maximize their economic opportunities in conditions where local floods and rainfall vary widely from one season or year to the next. This is a potential source of conflict between the various rural producers. To deal with this, the



Most of these birds species breed in Europe and Western Asia and spend the winter in the wetlands of the Sahel.



The most common birds are waders.



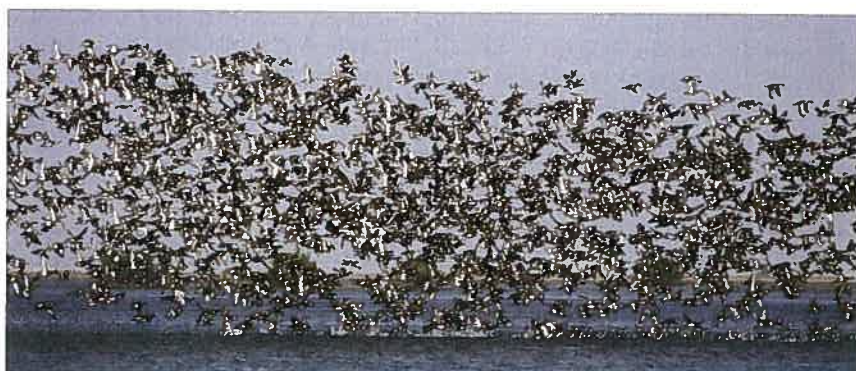
Little Egrets on a fyke.

Fulani theocracy - which ruled the area from the early 19th century until the arrival of the French in 1893 - established a common property management system which was widely accepted by the several ethnic groups. Unfortunately, this system has been disintegrating over the last 30 years. The population has increased and more people have moved into the area from the dry lands. All these people depend on natural resources which have been diminished by the recent low flood levels. Following independence (1960), the government of Mali issued new rules for land tenure and land resource management. These do not recognize the existence of ethnic groups with different traditional occupations.

Consequently, conflict has increased both within and between rural communities and the quality of environmental management has been reduced. More recently, the political context has changed. Political power has been decentralized, with local communities being given the chance once again to make their own decisions and, for instance, to draw up their own land resource management plans.

### Natural values

The Inner Niger Delta plays a crucial role in the life cycle of many African bird species, acting either



Garganey ducks are among the seed-eating species attracted by the floating grasses and wild rice.



Fishermen share their hunting ground with various fish-eating species, such as the terns that dive down from the air.

## Wetlands Video

Under the authority of the Netherlands Ministry of Agriculture, Nature Management and Fisheries and the Ministry of Transport, Public Works and Water Management, a film called *Wetland Options* has been produced and will be released in the second half of January 1999. For more information, please contact:

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as a breeding area or as a foraging area during the non-breeding season. The area is also an important wintering area for many migratory bird species which breed in Europe and Asia. The majority of the many millions of birds found in the Inner Delta are waterfowl. There is a large range of species. The area attracts various fish-eating species, including the Purple Heron, Little Egret, White Pelican and Caspian Tern. In addition, the shallow inundated areas, covered by a vegetation of floating grasses and wild rice, offer food for seed-eating bird species. These include a million ducks, mainly Garganey and Pintail. Many birds also feed on the bare sandbanks exposed by falling water levels in January-March. The most common birds in these areas are waders, like the Ruff and Black-tailed Godwit, but there are also other species, such as the Glossy Ibis. Their food consists of small freshwater bivalves which colonize the area following the inundation of the floodplains. Later on, ducks and geese start to graze on the fresh grass which soon grows on the exposed banks.

Most of these bird species breed in Europe and western Asia and spend only the winter in the wetlands of the Sahel. For some, such as the Glossy Ibis, Purple Heron, Garganey and Ruff, the Inner Delta is the most important wintering area. These species are vulnerable, for the simple reason that such large proportions of their populations, drawn from huge breeding areas, are concentrated during the winter in a single wetland. This has been demonstrated with regard to Purple Herons breeding in the Netherlands. Annual fluctuations in the size of the Dutch breeding population have been shown to relate

to the discharge of the Niger in the previous six months. Fewer breeding birds arrive in the Netherlands after a dry winter season in the Sahel, apparently because many birds do not survive the winter, whereas the Netherlands breeding population increases after a year when water levels are high in the Inner Delta. If this natural variation has such a major impact on migratory birds, it is likely that man-made reservoirs or large-scale irrigation projects in the Sahel would have immediate adverse effects on bird populations which depend on the floodplains in winter, even if they breed many thousands of kilometres away. This prediction is confirmed by the dramatic decline in populations of water birds which occurred after barrages and dikes were built and large-scale irrigation plans completed in the Senegal delta.

## The Netherlands Programme for International Nature Management and West Africa

The Programme for International Nature Management 1996-2000 (PIN), sets out the Netherlands government's priorities in the field of international nature management policy for the period 1996-2000. The Programme was developed by the Ministry of Agriculture, Nature Management and Fisheries in close cooperation with four other departments: Foreign Affairs; Housing, Spatial Planning and the Environment; Transport, Public Works and Water Management; and Economic Affairs.

One of the priority areas it identifies is the direct ecological relationship between nature in the Netherlands and nature elsewhere in the world, and specifically the functioning of wetlands in West Africa. The ecological connection is that migratory birds depending on wetlands and meadows in the Netherlands during one part of the year, are concentrated in important wintering and stop-over sites on the coasts and floodplains of West Africa during other parts of the year. This means that the wise use and management of wetlands in West Africa is of common interest both to the countries in the region and to the Netherlands.

One of the financial facilities available under the Programme is earmarked for innovative wetland projects in West Africa. This facility, in operation since 1997, consists of additional project funding of over NLG

2 million a year (US\$ ±1 million). The projects are identified and supervised by the Nature Management Department of the Ministry of Agriculture, Nature Management and Fisheries, while their financial management is in the hands of the Ministry of Development Cooperation.

All projects are focused on the interface between sustainable development needs as identified by West African partners and the wise use and management of key wetlands for migratory birds (relating to the Netherlands). They are all linked to on-going local or regional initiatives and developments and are expected to trigger related follow-up activities. Finally, they all support the practical functioning of the Ramsar Convention (Wetland Convention), the Afro-Eurasian Waterfowl Agreement under the Bonn Convention and the Biodiversity Convention. During the implementation of the projects, the Netherlands will use its specific knowledge and experience of wetland ecology to help achieve its policy objectives.

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