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IFAD - INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT

GEF PROJECT DOCUMENT

**MALI: BIODIVERSITY CONSERVATION AND PARTICIPATORY
SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES IN THE
INNER NIGER DELTA AND ITS TRANSITION AREAS, MOPTI
REGION**



GEF - GLOBAL ENVIRONMENT FACILITY

MALI
Biodiversity Conservation and Participatory Sustainable Management of Natural Resources
in the Inner Niger Delta and its Transition Areas, Mopti Region

GEF Project Document

IFAD – Western and Central Africa Division
Programme Management Department

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Project ID: GEF-P067052
Lending Instrument: IFAD Loan 488-ML and
GEF Grant (IFAD-GEF blended)

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Sectors: Agriculture, Land Management,
Environment
Themes: Biodiversity, wetland freshwater
ecosystems, with links to integrated ecosystem
management, agricultural biodiversity, sustainable
semi-arid land and natural resources management

Focal Area: Biodiversity

For Loans/Credits/Others:

Amount (US\$ 20 million):

Proposed Terms: Grant

Financing Plan (US\$ million):

	Total*
Government and Beneficiaries	2.31
IFAD Loan Financing	11.93
GEF (planned)	6.326
Total:	20.566

*This excludes IA fee of US\$ 0.747 million

Recipient: Ministry of Environment
Bamako
Republic of Mali

Responsible agency: Ministry of Environment

Disbursement of GEF Resources by Year

FY	2005	2006	2007	2008	2009	2010
Annual	1.1	1.2	1.5	1.0	0.7	0.5
Cumulative	1.1	2.3	3.8	4.8	5.5	6*

* excludes PDF B Grant of USD 326 000

Project implementation period: 2005–2010

Expected effectiveness date: January 2005 **Expected closing date:** January 2010

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ACRONYMS

ANICT	Agence Nationale d'Investissement des Collectivités Territoriales
CBD	United Nations Convention on Biological Diversity
CCD	United Nations Convention to Combat Desertification
CES/DRS	Conservation des eaux et des sols/Défense et restauration des sols
CSLP	Cadre stratégique de réduction de la pauvreté (Strategic Framework for Poverty Reduction)
DEIS	Delta Environmental Information System
DNACP	Direction nationale d'Assainissement et Contrôle des pollutions (National Directorate for Sanitation and Pollution Control)
DNCN	Direction nationale de la Conservation de la nature (National Directorate for Nature Conservation)
GEF	Global Environment Facility
GIS	Geographic Information System
GTZ	German Technical Cooperation
IEC	Information, Education and Communication
IER	Institut d'Economie Rurale (National Agricultural Research Institute)
IFAD	International Fund for Agricultural Development
IMP	Integrated Management Plan
IPGRI	International Plant Genetic Resources Institute
IRD	Institut de recherche-développement (ex-ORSTOM- France)
IUCN	World Nature Conservation Union
NEPAD	New Partnership for the Development of Africa
NRM	Natural Resources Management
ORM	Office Riz Mopti
OP	Operational Programme (GEF)
PAL	Plan d'Action Local PNAE/PAN-CID
OPM	Office Pêche Mopti (Mopti Fisheries Office)
PAR	Programmes d'Action Régionaux - PNAE/PAN-CID (Regional Action Programmes)
PCAE	Plans Communaux d'action environnementale (Community Environmental Action Plans)
PCU	Project Co-ordination Unit
PDC	Plans de Développement Communaux (Community Development Plans)
PNAE/PAN-CID	Plan National d'Action Environnementale (National Environmental Action Plan)/ Programmes d'Action Nationaux pour la mise en œuvre de la Convention des Nations Unies sur la Lutte Contre la Désertification (National Action Programme to Combat Desertification)
PPIV	Petits périmètres irrigués villageois (Village small-scale irrigation schemes)
PRODEC	Ten-year Education and Culture Programme
PRODESS	Ten-year Socio-Sanitary Programme
SADeF	Sahelian Area Development Fund (FODESA - Fonds de Développement en zone Sahélienne)
SDDR	Schéma Directeur du Développement Rural (Rural Development Master Plan)
SNLP	Stratégie Nationale de Lutte contre la Pauvreté (National Strategy for Poverty Reduction)
STP/CIGQE	Permanent Technical Secretariat of the Institutional Framework for the Management of Environmental Issues
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WAMU	West African Monetary Union

I. BACKGROUND AND CONTEXT

A. SADeF PROGRAMME AND GEF ALTERNATIVE

1. Background

The GEF funded project, "*Biodiversity Conservation and Participatory Sustainable Management of Natural Resources in the Inner Niger Delta and its Transition Areas - Mopti Region*", will be implemented within the framework of the "Sahelian Area Development Fund" (SADeF), Programme financed by IFAD. SADeF aims at creating a participatory sustainable rural development process in the Sahelian regions of Mali (Kayes, Koulikoro, Ségou and Mopti). Its ultimate goal is to reduce the incidence of poverty in rural households. This goal should be met by empowering communities at the village level (or their associations/groups) to identify their own priority needs and design micro-projects, in whose implementation they will contribute resources in cash or in kind. Activities designed to increase rural incomes, improve living conditions and household and village food security, increase access to support services and training such as primary health care and functional literacy training are being supported by this Programme. Particular attention is given to the needs of women.

SADeF is the first IFAD-financed project under the Flexible Lending Mechanism. Initiated in 1999, the project will be implemented over a 10-year period, divided into three phases of 3, 4 and 3 years, respectively; completion of one phase was subject to evaluation and confirmation that key benchmarks have been achieved before moving on to the next phase. During the first phase (1999-2002), SADeF focused its activities in the regions of Ségou and Koulikoro. The experience gained and lessons learnt during this first phase serve as a basis for its expansion to new zones (Kayes, Mopti, San/Ségou) during the second phase (2003-2006). The various achievements will then be consolidated during the last phase (2007-2010).

2. GEF – IFAD Cofinancing

GEF and IFAD are natural partners for the extension of SADeF activities into the Mopti region in the second phase. The Inner Delta of the Niger River, covering an expanse of 30 000 sq km., comprises four out of the eight "cercles" of the Mopti region (located in Sahelian areas and in the heart of Mali – see Map 1 in Appendix), and is one of the rare large inland deltas in the world. Characterised by diverse and complex ecosystems, it constitutes a unique refuge zone for a large number of paleo-arctic migratory birds and other wildlife, with several endemic and/or most often endangered species, such as manatees or hippopotami.

The Inner Niger Delta is also characterised by a rich historical and socio-cultural heritage; the town of Jenné, for example, is classified as one of UNESCO's World Cultural Heritage sites. The Delta's population of about 622,000 inhabitants is 90 percent rural and mostly dependent on natural resources for food and income. Major economic activities include livestock, fishing and agriculture, as well as logging, hunting and crafts. However, despite its natural potential, the area is considerably affected by rural poverty and inadequate access to primary village level infrastructure. The reasons for such are well known, which include degrading lands and soils, dwindling fisheries, unpredictable water resources flows, increased anthropogenic pressures and the threat of growing social and ecological vulnerability from climate change and loss of biodiversity. While these threats are global, their impacts are most severe in the Inner Niger Delta –among rural people and especially women living in poverty.

Recognising the socio-economic and environmental challenges and the unique character of the Delta's ecosystems, SADeF will target its activities in the Mopti region on sustainable natural resources management and biodiversity conservation. GEF and IFAD co-financing of SADeF interventions in Mopti will focus on the linkages between poverty and environmental degradation and adopt a holistic approach to addressing their underlying causes.

Through strengthening the capacities of the wide range of stakeholders at the local (organisations/groups, traditional authorities, communes, users of the resources), regional (decentralised public authorities) and national levels, the GEF/IFAD partnership will promote a local

development process centred on sustainable management of natural resources. The project will support development of community infrastructure, productive and environmental micro-projects; promote the development of community-based integrated management plans; develop and test pilot activities (technical, social and legal innovations) focused on NRM and biodiversity conservation; and identify, replicate and disseminate best practices. It will promote the removal of barriers to sustainable environmental management and support the development of a sound policy and regulatory environment by strengthening the government's decentralization process and promoting the implementation of existing environmental policies, strategies and actions plans (National Biodiversity Strategy and Action Plan, Pastoral Charter, among others) at the regional and local levels. The project will furthermore support the Government of Mali's efforts to develop a national wetlands policy and action plan. Through the experience gained and lessons learned in the Mopti region, SADeF will also be able to incorporate NRM into its other project zones. At the same time, other IFAD and donor projects will benefit from experiences and best practices for replication and upscaling. Overall, the project will contribute extensively to the generation of diffusion of key relevant knowledge for improved natural resources management.

GEF co-financing is therefore planned to last for six years, the duration of SADeF Phases II and III activities in the Mopti region.

3. Development Goal

The overall development goal of SADeF is to promote a community-based sustainable development process in the Sahelian regions of Mali (Koulikoro, Ségou, Kayes and Mopti) in order to: (i) reduce poverty and improve the living conditions among rural populations through sustainable management of natural resources; (ii) increase the incomes of the people, most particularly women and the poorest; and (iii) strengthen the capacity of farmer organisations and other stakeholders. The overall objective of the GEF resources is the restoration, conservation and sustainable management of the ecosystems and their biodiversity in the Inner Delta of the Niger River and its transition zones.

4. Key Performance Indicators

The key performance indicators for SADeF Programme include: (i) increasing trend in the net income of participating households/communities relative to others in the project area; (ii) percentage of actors, disaggregated by gender, that have mobilized adequate co-financing for the micro-projects; (iii) number of community infrastructure micro-projects completed; (iv) percentage of local management committees that demonstrated sound financial and organizational management skills; (v) number of organisations/members involved in natural resource management and biodiversity conservation; (vi) number of households/communities (not directly participating in the project) that have spontaneously adopted improved practices.

Key indicators for monitoring GEF supported project are summarized in the Logical Framework, Annex 3. The baseline data is summarized in Chapter 1 C, Section 3. The Inner Niger Delta has been studied in great depth for over fifty years, largely under French government funding and more recently by Wetlands International and IUCN. Part of the baseline includes the data from key descriptive volumes such as Daget (1954) and Quensière (1994)¹ and surveys and census of Wetlands International and IUCN. Reprints of these documents and some other site-specific data would be validated and updated in Year 1. Project impact relate in particular to: (i) biodiversity in six priority sites and ecosystems having been identified, characterised, restored and protected by local communities; and (ii) the reduction of conflicts of land and natural resources use and a reduction in

¹ Daget, J. 1949. La pêche dans le Delta Central du Niger. *Journal des la Société des Africanistes*, 19(1):1-79.

Daget, J. 1954. *Les poissons du Niger supérieur*. Dakar: IFAN. Mémoire 36.

Daget, J. & J.R. Durand 1981. Poissons. In: *Flore et faune de l'Afrique sahélo-soudanienne*. J.R. Durand & C. Lévêque eds. Vol. 2. 687-771. Paris: ORSTOM.

Quensière, J. (ed.) 1994. *La pêche dans le Delta Central du Niger: approche pluridisciplinaire d'un système de production halieutique*. Paris: ORSTOM.

Quensière, J., Olivry, J.-C., Poncet, Y. & J. Wuillot 1994. Évolution de la composition des peuplements de poisson. In: *La pêche dans le Delta Central du Niger: approche pluridisciplinaire d'un système de production halieutique*. Quensière, J. (ed.) 29-80. Paris: ORSTOM.

Quensière, J., Bénech, V. & D.F. Dansoko 1994. Évolution de la composition des peuplements de poisson. In: *La pêche dans le Delta Central du Niger: approche pluridisciplinaire d'un système de production halieutique*. Quensière, J. (ed.) 105-121. Paris: ORSTOM.

the illegal capture for sale of protected species. Supervision missions will report on official cases in local courts of justice linked to community disagreements due to land use and natural resource management issues and illegal sale of protected species. Also, of direct interest to the project will be the monitoring of trends in numbers and distribution of 350 bird species (regular census made since 1970s and 103 water bird (crown crane, purple heron, cormorant) species (baseline data from regular surveys undertaken from 1998 to 2001), fish (tilapia, clarias), and mammals (manatee, hippopotami). The restoration / sustainable management of natural resources of the project will be measured from the number of hectares of flood plain forests (250 ha per annum) and bourgoutières (250 ha per annum) restored. Erosion control of about 750 ha and 250 ha of river banks protected with vetiver. A detailed participatory M&E plan is presented in Annex 4.

B. MALI'S STRATEGIC CONTEXT

1. IFAD Country Strategy Framework for Mali

a. IFAD's Development Strategy for Mali

IFAD's development strategy in Mali is to finance rural development initiatives likely to have the greatest impact on rural poverty reduction and acting as a catalyst for mobilising additional local and international resources for upscaling and replication. Its main objective is to support the Government of Mali in providing better living conditions for poor rural communities with greater attention given to the needs of women, by: (i) creating a participatory process for sustainable development involving grassroots communities or their organisations, especially through income-generating activities; (ii) raising rural household incomes by supporting the development of more productive economic activities; (iii) assuring food security for rural households as a basis for national food security; and (iv) promoting a more rational management of natural resources, taking into account Mali's fragile agro-ecological conditions. Moreover, IFAD's mandate in Mali gives priority to the poorest, most vulnerable communities who most often live in remote regions. To be successful, IFAD's strategy focuses on the most important links between poverty, the environment and sustainable development. To this end, attention is also given to policies and institutions which can bring major benefits on all these fronts. Therefore, IFAD's intervention is focused on the Sahelian and Saharan regions of the country. IFAD recognises the importance of partnerships. The strong collaboration which exists between IFAD, WB, BOAD, UNDP, FAO, WFP, GEF and others is an integral part of IFAD's strategy. SADeF and the related GEF co-financing support these IFAD priorities.

b. IFAD's Strategy on Natural Resources Management, Environmental Protection and Poverty Reduction

IFAD, which recognises the strong causal connections between poverty and environmental degradation, has centred its poverty reduction strategy on environmental protection, more particularly in the marginal endangered and/or low potential agro-ecological zones. The GEF/IFAD partnership in Mopti meets at least the following three requirements: (i) empowering the rural poor; (ii) equitable access to natural resources and technology; and (iii) access to financial services and markets.

1. As to *empowering the rural poor* and their organisations, emphasis is placed in particular, on the one hand, on supporting local communities and strengthening of their organisational and technical capacity with a view to optimising the use of natural resources, and, on the other hand, on implementing a participatory approach so as to fully involve local populations and secure their rights to the management of resources on their own lands.
2. Concerning the *equitable access to natural resources*, IFAD seeks to ensure sustainable access to land and water and more particularly to: (i) promote rational cultural practices; (ii) encourage investments in improvement and conservation of resources by grassroots organisations. With respect to *access to technologies*, emphasis is placed on developing technologies requiring low external inputs, improved NRM techniques and diversification of economic activities, including through integration of livestock, agriculture and agroforestry.

3. With respect to *access to financial services and markets*, emphasis is placed on raising incomes of the rural poor so as to make possible sustainable improvements in NRM.

The GEF-IFAD partnership in Mopti is based on the willingness to integrate the major issues linked to land and natural resource degradation into development initiatives aimed at poverty reduction and productive activities. This co-financing should allow alleviation of the pressure on the Inner Niger Delta ecosystems. Moreover, IFAD will support GEF in consolidation of its portfolio for land degradation and strengthening of capacity necessary for protection of the global environment.

2. World Bank Country Assistance Strategy

The Bank's interventions in Mali are based on the country's Strategic framework for Poverty Reduction (Cadre stratégique de lutte contre la pauvreté - CSLP) which aims at creating the necessary conditions at national and local level to allow long term growth while ensuring that the poor take a lead role in the definition of their own development objectives and priorities. The Bank's interventions are focused on four main areas: (i) human development; (ii) rural development and water; (iii) infrastructure provision; and (iv) private sector promotion and institutional reforms.

Within the framework of human development, the Bank is providing support through five projects focused on education, health and social development. Relevant to the IFAD-GEF financed SADeF programme is the Poverty reduction and local level support programme (PAIB - projet d'appui aux initiatives de base dans la lutte contre la pauvreté) which is a poverty reduction programme aiming at improving the living conditions of the population, strengthening their capacities and the capacities of the institutions in charge of poverty reduction in a wide sense.

The Bank is also providing substantial support in the area of rural development and water through a series of projects and programmes: (i) National Agricultural Research Project (PNRA), (ii) Support to Agricultural Marketing Programme (PAVCOPA), (iii) Support to Agricultural Services and Farmers' Organisations (PASAOP). Two projects aim at developing water management capacities: (i) Private Irrigation Promotion (PIIP) and (ii) National Rural Infrastructure Programme (PNIR). In addition, the Bank is currently preparing the Rural Community Development Project (PDRC), which is designed along the lines of the CDD programmes. Its objective is to provide support to the decentralisation process, in particular to strengthen capacities of the local level decision makers, including the communities and elected members.

The Bank is also providing support to infrastructure development (urban development, transportation and energy provision) and intervenes in the area of private sector promotion and institutional reforms.

Highly relevant to the SADeF GEF component is the Arid Rangeland Biodiversity Conservation Project, a transnational GEF financed programme which will be implemented in the Gourma region and which will aim at providing support to communes and communities to better manage biodiversity.

3. Global Operational Strategy/Programme Objective addressed by project

Mali ratified the Convention on Biological Diversity (CBD) on 30 September 1992, the Convention to Combat Desertification (CCD) on 31 October 1995, and the Convention on Climate Change (FCCC) on 28 December 1994. The Ramsar Convention on Wetlands came into force in Mali on 25 September 1997. The project contributes to national efforts to implement the CBD in that it promotes capacity-building, conservation and sustainable use of natural resources through adaptive management of grassland landscapes, and supports the agricultural biodiversity work programme and the knowledge, innovations and practices of local and indigenous communities.

GEF's intervention in the Inner Niger Delta (Mopti region) and its transition zones aims at restoring, conserving and managing in a sustainable manner the biological resources and complex ecosystems located both in aquatic (freshwater) and in arid/semi-arid zones. The Mopti region is divided into two great inter-dependent agro-ecological zones: an inundated area whose surface depends upon the rate of floods and recessions, and an exondated area consisting primarily of shrub and herbaceous savannah. The vegetative cover and soils in both the inundated and exondated areas are highly degraded. The areas are severely threatened by a number of climatic (drought) and anthropogenic factors which is reflected in many parts by an imbalance between carrying capacity and utilisation and a disruption in the reproductive cycle of species and ecosystems. The Inner Delta is unique because of

its enclosed position within an arid and semi-arid Sahelian zone. One of its characteristics is the significant seasonal and year-to-year variability of the flooded area. For a part of the year (January/February to July – the dry season), most of the inundated area is characterised by semi-arid ecosystems, outside the river branches, ponds and permanent lakes; in the flooded season (July/August to December/January), the flooded area can reach 30 000 sq km.

The GEF intervention furthers the objectives of the GEF focal area for **biodiversity conservation** and addresses the priorities of GEF Operational Programmes 1 (arid and semi-arid ecosystems) and 2 (coastal, marine and freshwater ecosystems). Regarding **conservation**, the proposed project follows strategic axes which prioritise both (i) semi-arid African ecosystems, severely threatened by growing population pressure and overexploitation of natural resources, drought and desertification, and (ii) threatened aquatic (freshwater) ecosystems. It aims, *inter alia*, to strengthen local, regional and national capacities in sustainable natural resource management and biodiversity conservation, supports the active involvement of local and indigenous communities in management decisions, and promotes the integration of biodiversity conservation and **sustainable use in land use planning and management**. The project combines productive and socio-economic goals and that of combating land degradation and conserving biological diversity.

The project will also contribute to the attainment of objectives of Operational Programme 12 (Integrated Ecosystems Management) and Programme 13 (Conservation and Sustainable Use of **Agricultural Biodiversity**), as well as to the achievement of the goals on the new GEF Operational Programme 15, aimed at **fighting land degradation through sustainable land management**. The GEF intervention in Mopti will, moreover, contribute to the objectives of other GEF focal areas: sustainable land management, international waters and climate change.

The project complies with the new GEF Strategic Priorities for the Focal Area of Biodiversity, especially **Priority II Mainstreaming Biodiversity in the Production Landscapes and Sectors**. The project specifically aims to promote the restoration and the long-term development of the significant agro-sylvo-pastoral and fisheries potential of the Delta and its transition zones and incorporate biodiversity and sustainable use considerations into these integrated production systems. In this respect, one of the main activities of the project will be to develop and implement demonstration activities with a high replication value.

The project also promotes the goals of **Strategic Priority 1 Catalyzing Sustainability of Protected Areas**. There are three Ramsar sites in the Inner Niger Delta, two of which are located in the Mopti region. The areas are largely owned by the State, but villages within the site boundary have customary rights of exploitation over certain areas. While human use varies from site to site, local villages generally depend on the wetlands for drinking water, fishing, seasonal agriculture and livestock rearing/grazing. Outside the Ramsar areas parts of the Delta are irrigated for rice cultivation.

A participatory approach, involving the wide range of stakeholders from national to local levels, would be adopted in designing the site-specific integrated management plans. These plans would encompass the multiple use of the wetlands and adjacent areas (including the exondated areas). The project's activities related to capacity building for long-term sustainability (see Component 1), catalyzing community and indigenous initiatives, and removing barriers support the objectives of Strategic Priority 1.

4. General Context

Mali is a vast landlocked country in the heart of West Africa. It has a total area of 1,241,138 sq km, 60 percent of which is located in the Sahelian-Saharan zone. It is divided into eight administrative regions, besides the Bamako District (Kayes, Koulikoro, Sikasso, Ségou, Mopti, Timbuktu, Gao and Kidal), subdivided into 42 “cercles,” 701 communes, of which 19 are urban. Its population, 80 percent rural, is estimated at over 11 million, with an average growth rate of 2.2 percent. Almost 90 percent of the population of Mali are concentrated on 30 percent of the territory, in the Kayes, Koulikoro, Sikasso, Ségou, Mopti regions and the Bamako District.

The economy is based essentially on the primary sector, which accounts for almost 50 percent of Malian GDP and over 60 percent of export earnings (mainly cotton, livestock and cereals). However, despite an annual growth estimated between five and six percent, the country is rated by UNDP among the most disadvantaged, with an average annual income per person of less than US\$250 and a human development index of 0.4. Poverty affects almost two thirds of the overall population, of which 21 percent are very poor (CSLP, 2002).

Macroeconomic performance in Mali in general, and in Mopti in particular has not managed to stem the incidence of poverty, which has continually worsened in the last 10 years. The situation is also characterised by spatial and gender gaps. Poverty is higher in rural settings than in urban areas (76 percent vs. 30 percent), higher in northern than in southern areas, higher among women than among men.

Mali suffers from inadequate basic social infrastructure in education, health and access to drinking water. The country is thus faced with an imbalance between population dynamics and growth, and development of social infrastructure. Women are more affected by poverty than men since they experience a number of economic, social and legal biases which hinder development of their capacities. They receive less education (higher illiteracy rate, lower school attendance rates for girls), have difficult access to land tenure, to productive resources (agricultural equipment, credit) and to information.

The rate of health coverage in a 15 km radius is estimated at only 59 percent. Morbidity and mortality rates are very high. Also, a strong correlation exists between the high rate of child mortality (the infant mortality rate is 111 ‰ and maternal mortality 577 per 100 000 live births), and such factors as difficulty of access to drinking water, water-borne diseases or poor hygienic conditions. The most common diseases are malaria, respiratory infections, diarrheal diseases and cardio-vascular diseases. The incidence of AIDS is estimated at 3-4 percent. With respect to education, the rate of primary school attendance was estimated at 57.8 percent in 2000. On the other hand, despite rapidly expanding literacy centres, adult literacy rates remain very low - 29.1 percent in 2000 (48.3 percent for men vs. 12.1 percent for women).

Crossed by the Senegal River to the west for 900 km and by the Niger River from west to east for over 1 600 km, Mali has a rich and varied natural potential, unique ecosystems of global interest, important agro-sylvo-pastoral and fisheries resources and huge flood plains, particularly in the Sahelian and arid-semi-arid zones (Inner Delta, lake zone and Boucle du Niger in the Sahelian-Saharan zone). These resources, which constitute the productive base for the majority of rural populations, are all highly degraded due to a combination of climatic factors (recurrent droughts, irregular spatial and temporal rain patterns, climate aridification and isohyets displacement by 100 km to the South), and man-made factors related to increasing needs of the population and the persistence of extensive production systems (involving uncontrolled clearcutting for firewood and timber or cropland, lopping and overgrazing, bushfires, etc.).

All these factors have adversely affected the ecosystems, most particularly in the Sahelian and Sahelo-Saharan areas. In many parts, this results into a rupture between the resources and their exploitation/utilisation and is a major constraint to sustainable development of the agro-sylvo-pastoral and fisheries potential.

The **agricultural sector** is characterised by rainfed systems (millet/sorghum), with often low and irregular yields, particularly in the Sahelian zone, as well as by more intensive commercial systems (rice crops especially in the Office du Niger schemes, with yields around five T/ha; cotton crops in the southern Sudan belt (CMDT zone), with a production on the order of 500 000 tons in 1999; this sector is now undergoing a financial crisis due in particular to slumping world cotton prices).

Besides these more intensive production systems, most of the systems are extensive, relying little on mechanisation or agricultural inputs and highly dependent upon rainfall. The increase in production, outside irrigated perimeters, is mainly attributable to surface extension, increasingly taking place on marginal land at the expense of sylvo-pastoral resources. The loss of vegetative cover, which exacerbates the effects of wind and water erosion, and destructive cultural practices have caused an

important loss of soil fertility and a loss of arable land (including a decrease of flooded areas estimated from 30 to 50 percent over three decades). Moreover, one of the constraints for agricultural development is the isolation of many production zones.

It should also be noted that worrying signs of soil degradation can be observed in the intensive farming areas, including in the Office du Niger perimeters: alcalinization/salinisation, groundwater level rise by several meters, pollution by fertilisers and pesticides; and in the CMDT zone: severe decline in soil fertility, significant degradation of vegetative cover, uncontrolled use of fertilisers and pesticides, etc.

Mali's livestock population was gradually reconstituted after the great droughts. In 2001, it was estimated at over 6 000 000 cattle, 13 000 000 goat /sheep and 300 000 camels. The livestock systems, for the most part extensive, vary according to the regions of the country, with transhumants breeding to the north and a better integration of livestock-crop systems in the south. In many parts, the degradation of pastures and plant cover, as well as reduced water sources, have led breeders and their herds to stay increasingly long periods of time around the semi-permanent or permanent water sources, resulting in considerable damage to natural resources (overgrazing, trimming etc.). This situation and the disappearance of many corridors, as well as hydro-agricultural management initiatives, have led to numerous conflicts between farmers and livestock producers.

Forestry resources, which differ widely from the Sudanese to the Sahelian-Saharan zones, are mainly harvested for fuelwood (including charcoal) and timber, crafts or collecting. The forests are all degraded, most particularly in the Sahelian zone, due to overlogging to meet domestic energy needs and to their uncontrolled and often illegal **harvesting** (agricultural encroachment, lopping, bushfires to regenerate grasslands, etc.), and also due to mortality stemming from climate aridification and droughts. Estimates are that at least 100 000 ha of forests are destroyed every year.

In Mali, **legally protected areas** extend over 6,115 sq. km, i.e. 3.8 percent of the national territory. They include:

- The Boucle du Baoulé Complex (3,500 sq. km), including four protected areas, i.e. the Boucle du Baoulé National Park (350,000 ha), which is Mali's only national park, and three adjacent reserves, the Fina Reserve (136,000 ha), the Badinko Reserve (193,000 ha) and the Kongosambougou Reserve (92,000 ha);
- The Douentza Elephant Reserve or Gourma Elephant Reserve (12,000 sq. km);
- The Giraffe Reserve also called Ansongo-Ménaka Reserve (17,500 sq. km);
- The Faya classified forest (800 sq. km); and
- Approximately one hundred other classified forests (7,160 sq. km).

There are also three sites designated as wetlands of international importance (Ramsar sites), with a surface area of 162,000 hectares. Located in the Inner Niger Delta, these are Lac Horo *18,900 ha), Séri, (40,000 ha) and Walado Debo/Lac Debo (103,100 ha). While human use varies from site to site, local villages generally depend on the wetlands for drinking water, fishing, seasonal agriculture and livestock rearing/grazing. Outside the Ramsar areas parts of the Delta are irrigated for rice cultivation. Drought and inadequate flooding are the principal threats to the wetlands, but the impact of dams and water diversion projects within the catchment area, overexploitation of the national resources (fish, water birds, firewood, overgrazing) is also significant.

As to **food security**, despite satisfactory coverage of food needs and national level of food security during good rainfall years, several major constraints remain, including vagaries of weather, considerable disparities among and within regions, poverty of a growing proportion of the rural population, low diversification and nutritional imbalance particularly noted among young children (chronic and acute malnutrition for 30 percent of children from 0 to five years of age).

5. Government Strategy/Key Environmental Policy Context

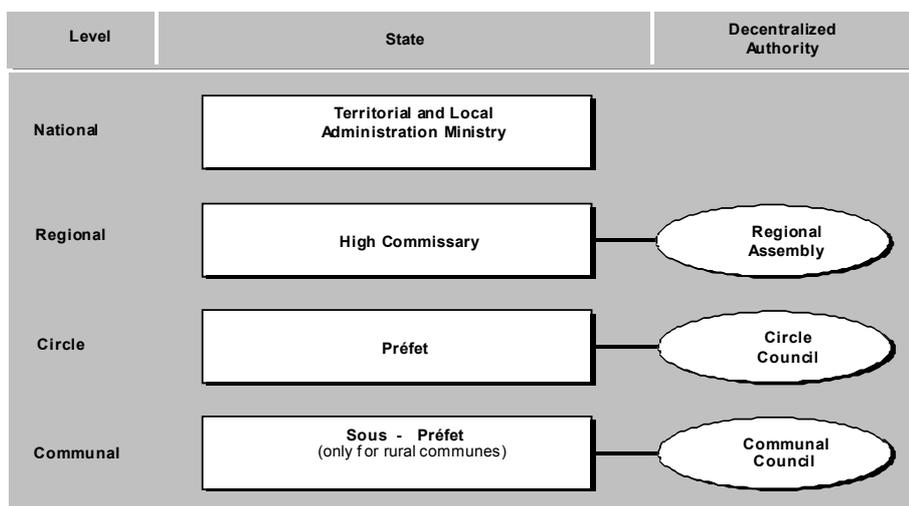
a. General Policy Framework

In 1998, Mali adopted the **National Strategy for Poverty Reduction (SNLP)**, followed by the **Strategic Framework for Poverty Reduction (CSLP)** in 2002. The latter includes the goals defined by the New Partnership for the Development of Africa (NEPAD). The Strategic Framework is aimed at the poorest and most vulnerable populations and serves as a common and unique reference framework for actions and programmes supported by development partners. It is based on the following strategic axes: (i) enhancement of the economic, political, legal, social and cultural environment for the benefit of the poor; (ii) promotion of income-generating activities and self-employment for the poor; (iii) improvement in access of the poor to financial services and other inputs of production; (iv) improvement in access of the poor to education and training, as well as to primary health care, nutrition, drinking water and sewerage.

CSLP's objectives draw upon the results of the exercise "Vision Mali 2025". In particular, the CSLP aims at reducing by about 15 percent the incidence of poverty by 2006, reaching a sustained annual economic growth rate of 6.7 percent and attaining food security and safeguarding the environment, through better production systems and sustainable NRM. It furthermore aims to reach a school attendance rate of 73 percent in 2004 (59 percent for girls), an adult literacy rate of 50 percent and the development of basic infrastructure by promoting access to health, communications and energy sectors, etc.

Decentralisation became effective in Mali with the creation of 703 communes throughout the country, 49 "cercle" councils, eight regional assemblies and one district assembly for Bamako, an association of municipalities and the establishment of support tools for implementation of the decentralisation policy. In particular, this includes "l'Agence Nationale d'Investissement des Collectivités Territoriales" (ANICT) and the Communal Councils. This should be accompanied by the transfer of a number of responsibilities (including NRM) and means of action from the State to local authorities (underway). This is aimed at empowering populations and decentralised authorities to manage their own socio-economic development. The institutions of decentralisation are shown in Figure 1 below (CSLP, 2002).

Figure 1. Decentralisation levels and bodies (CSLP, 2002)



As mentioned in the CSLP, despite the efforts made towards decentralisation, its impact on the living conditions of communities and their participation in the decision-making process is still imperceptible. One constraint is the inadequate institutional capacity of decentralisation structures, which does not allow them to play a role in terms of design, implementation and monitoring of coherent development programmes, the inadequate or slow transfer of authority and resources by the State is another constraint.

The update of the Rural Development Master Plan (Schéma directeur du développement rural - SDDR) - updated in 2001 and adopted in 2002 - takes into account national trends and ongoing policy

and program formulation and review processes, including decentralisation, subregional integration (WAMU) and interaction with other sub-sector policies, such as the Water Resources Master Plan, the ten-year socio-sanitary programme (PRODESS), the ten-year education and culture programme (PRODEC), as well as the requirements for improved natural resource management (NRM) on which most rural populations rely for productive activities.

b. Environmental and Natural Resource Management Policy

In 1998, Mali adopted the National Environmental Action Plan/National Action Programmes for implementation of the United Nations Convention to Combat Desertification (PNAE/PAN-CID), which were prepared jointly. The PNAE/PAN defines the national environmental policy and nine priority national programmes and constitutes the "guiding framework for planning and effective and sustainable management of all environmental issues". Its adoption was followed by a donor Round Table in May 1999, which emphasised, *inter alia*, desertification control and conservation of wetlands biodiversity, in particular in the Inner Niger Delta of the Niger River.

Furthermore, its participatory development process also resulted in the formulation of regional action programmes (PAR) and in the pilot formulation of local action programmes (PAL). The GEF intervention meets the major PAR goal in the Mopti region, i.e. to fight degradation of the agro-sylvo-pastoral areas through rational national resources management. To incorporate environmental issues into community development plans (PDC) and with support from the German Technical Cooperation (GTZ), the STP/CIGQE prepared a guide in 2002 for participatory development and adoption of community environmental action plans (PCAE). This guide is now in its pilot phase of implementation and is summarised in Annex 3.

Mali prepared a **National Strategy for Biological Diversity** (finalized in 2000) and related regional strategies, including the **Strategy for the Conservation of Biological Diversity in the Mopti Region** (1999). Specific objectives of this Strategy include:

- Improve knowledge of the priority ecosystems;
- Conserve the priority natural ecosystems and agrobiodiversity;
- Develop *in situ* conservation in the region;
- Strengthen institutional capacities in conservation of priority ecosystems and agrobiodiversity;
- Organise fishing activities and fish marketing;
- Organise hunting and protect water birds;
- Promote the Information, Education and Communication (IEC) Strategy;
- Create income-generating activities.

Agricultural biodiversity also plays an important role in Mali's policies to achieve food security for instance, by encouraging farmers to breed and maintain varieties *in situ* to manage risk (such as climate). The project will support these objectives by promoting the integration of biodiversity conservation and its sustainable use into natural resource management and land use plans developed by the communities.

The Government of Mali is in the initial stage of formulating a **National Wetlands Policy** which would consist of a strategy and a plan of action. With assistance from Wetlands International, the Ramsar Convention and the Netherlands government, a national workshop was held in June 2003 to bring the various ministries, institutions, regional and local authorities together to lay out the framework for its development. It is expected to be completed in late 2004 or early 2005.

Finally, as to **international treaties and conventions** on environmental and natural resource management to which Mali has ratified, the project will contribute, *inter alia*, to implementation of: (i) the RAMSAR Convention on Internationally Important Wetlands (three RAMSAR sites are located in the Inner Delta, two of which in the Mopti region); (ii) the Bonn Convention on the Conservation of Migratory Birds; (iii) the United Nations Convention on Biological Diversity (CBD); (iv) the United Nations Convention to Combat Desertification (CCD); and (v) the Agreement on the Conservation of Africa-Eurasia Migratory Waterbirds.

c. Environmental Legislation

Since the beginning of the 1990s, Mali has passed several important laws and regulations on environmental protection and participatory management of natural and forest resources. The State has also recognised the competence of decentralised authorities and of rural populations in terms of management/protection of natural resources on their territory. Law 96-050 defines the natural public domain of local authorities, now comprising all State public structures based on their territory for which the State has devolved conservation and management powers. The Law also stipulates that local authorities are responsible for the management, development, conservation and safeguarding of the ecological balance in their jurisdiction. Consequently, local authorities are also responsible for elaborating area development plans that should specify the various land uses - forestry, agricultural, pastoral, fauna, fish farming, mining and habitat - and their respective importance.

The Forestry Code was revised to promote the empowerment of local stakeholders and to support the decentralisation process. Another important development is the Pastoral Code. Adopted in 2002, the Pastoral Code aims to clarify the rights and responsibilities of farmers and pastoralists and to foster negotiation of access rights among the various user groups. Based upon regional diagnostics and revision of the “Code domanial” which recognises customary rights, the new Pastoral Code considers the specific needs of transhumants and tends to reconcile modern law, customary law and the sustainable management of pastoral resources jointly with the local communities and the breeders.

d. Environmental Institutions

The focal point for environmental management is the Ministry of Environment, consisting of two national technical directorates, the National Directorate for Nature Conservation (DNCN) and the National Directorate for Sanitation and Pollution Control (DNACP), as well as the Permanent Technical Secretariat of the Institutional Framework for the Management of Environmental Issues (STP/CIGQE, created in 1998). STP/CIGQE has several functions, including (i) monitoring implementation of PNAE/PAN-CID, (ii) ensuring consistent environmental conservation measures; and (iii) mobilising funds. STP/CIGQE is furthermore responsible for conventions, treaties, and international agreements and, as such, has primary responsibility for Mali’s three Ramsar sites in the Inner Niger Delta.

Since it does not have an on-the-ground presence, STP/CIGQE, in principle, relies on support from the DNCN which does have decentralized services. The DNCN is responsible for Mali’s protected area system and has a decentralised structure at the regional (regional Directorates) and local levels (outposts in “cercles”). It is the only structure in the Mopti region that ensures follow-up and co-ordination of environment-related activities. At the regional level, it should be noted that the human and logistical resources capacities of these structures and of the decentralised authorities are very weak. A group of NGOs for sustainable NRM has also been created and is supported by various donors.

Co-ordination between Government and development partners in environmental issues was institutionalised in 2000 with the creation of a consultative Government-Development Partners Commission, particularly to follow up on recommendations of the Round Table on Environment (1999).

C. PROJECT AREA

1. The Inner Niger Delta and its Transition Zones

The project area covers the Inner Niger Delta¹, a vast wetland of almost 30 000 sq km, and its transition zones (for herds passing through on their way in and out of the Delta). It is one of the largest inner deltas in the world. Due to its particular location and dynamics in a Sahelian, arid-semi-arid zone, it is unique on the continent and in the world. It includes three RAMSAR sites and serves as a refuge for a high number of paleo-arctic migratory birds, as well as for endemic and/or threatened animal species, such as manatees or hippopotami.

The Mopti region covers an area of 79 017 sq km, or 6.34 percent of the national territory, with a total population of 1.475 million. The major part of the region is in the Sahelian zone, with annual rainfall varying from 150 mm in the north to 550 mm in the south. The region is divided into eight “cercles” (108 communes, five of which urban, and 2 018 villages).

The project area covers four out of eight “cercles” in the region (Mopti, Ténenkou, Jenné and Youwarou), 45 rural communes et three urban communes (see map 1). It has an approximate population of 622 000 (42 percent of the region), excluding seasonal populations (pastoralists, fishermen, agricultural labour). Endowed with a great cultural richness, the area is home to several ethnic and socio-cultural groups, including: settled Peul pastoralists (who increasingly practice farming), agro-pastoralists (Rimaïbé, Bambara, Sonraï, Soninké), agro-fishermen (Bozo, Somono), as well as transhumants pastoralists and fishermen².

From a natural resources perspective, the Mopti region is divided into two great inter-dependent agro-ecological zones:

- *An inundated area*, comprising part of the Mopti, Tenenkou, Jenné and Youwarou “cercles,” corresponding to the Inner Delta or central Delta of the Niger River, whose surface depends upon the rate of floods and recessions;
- *An exondated area*, for the most part to the east of the region (Gourma area), made up of the Koro, Bandiagara, Bankass “cercles,” as well as part of the Jenné, Mopti, Youwarou and Tenenkou “cercles.” It includes a mountainous or rocky part (Plateau de Bandiagara – Pays Dogon, Chaîne du Gandamia, Mts Hombori) and lowlands (including the Seno Bankass, Koro, Seno-Mango, Séno-Mondoro, South Gourma and Mema plains).

2. Dynamics of the Delta Ecosystem

The Inner Niger Delta, a vast area of wetlands in the sub-desert Sahelian zone, is characterised by very fluctuating dynamics both in terms of extent and timing. In a normal year, flooding starts in July and extends until November or December. Formed by a vast complex network of flood plains, tributaries, defluents, lakes and ponds, its average slope is often less than 2 cm/km, which normally results in very slow run-off.

The Inner Niger Delta’s inundated area is subject to **significant seasonal and annual fluctuations**, which depend on the level and duration of floods, in turn conditioned by the amount and regularity of flows from the upper Niger and its Bani tributary (137 000 sq km) which flows into the Niger river in the vicinity of Mopti. The average river flow after the confluence is 676 m³/s, with an average low in May of 76.4 m³/s and average peaks of 2 000-2 100 m³/s in August -September³ (HYDRONIGER, 1979-2000). In a normal year, the Delta would receive about 50 to 55 billion cubic meters of water.

¹ The Inner Niger Delta extends on a rectangle-shaped area oriented SW-NE, 400-450 km long and 100-150 km wide between Ké-Macina - San to the South and Timbuktu to the North. The Delta is divided into four zones: middle Bani, « Delta mort » (fossil valley partly re-flooded at the Markala dam for development of over 60,000 ha of Office du Niger rice crops), central Delta (approx.18-20,000 sq km) and lake zone (Timbuktu region - 9,900 sq km).

² Characteristics of the four circles are detailed in background, Annex 1.

³ These stream flows show significant year-to-year variations, with for example in 1984 (very poor year), for an average yearly flow of 404 m³/s, a low of 46,3 m³/s in May, 272 m³/s in July, 776 m³/s in August, 1,110

From the various studies conducted on the Inner Delta, including by IRD/ORSTOM, it has emerged that the maintenance and development of the natural resources (water, soils, fauna, flora) on one hand, and the extent of flooded areas, on the other, are both strongly linked to: (i) the river dynamics upstream which depends on the rainfall patterns and dam management¹, determining the magnitude of the floods and (ii) the functioning itself of the Inner Delta which in turn determines run-off, infiltration and evaporation. According to Olivry (1995), the inundated area varies from 9 500 sq km in 1984 (drought year and maximum flow deficit) to 35 000 sq km in 1967 (peak observed between 1965 and 2000). Losses measured when leaving the Delta compared to entries amount to 47 percent for wet years (more important flooded area and evaporation) and 30 percent for dry years.

Figure 2. Seasonal Flooding Dynamics in the Inner Delta (*In* Wetlands et al., 2002)

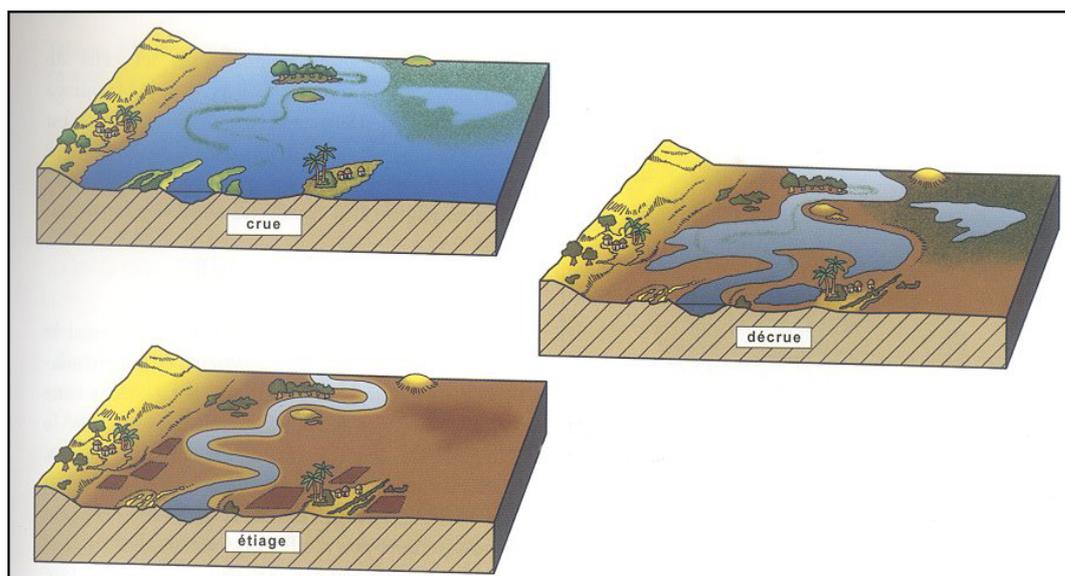


Figure 2 above provides a schematic of the seasonal dynamics of the Delta's flooded area and illustrates the alternating periods of high floods, periods of recession and periods where the Inner Niger Delta is dry (except for branches of the river, semi-permanent or permanent lakes and ponds). During this period, basically the dry season (February/March to July), the whole Delta is subject to intense wind erosion, sand siltation and desertification.

This process is exacerbated by the decrease in flood level, by climate aridification, by the presence of dunes, especially upstream, as well as by significant degradation of soils and vegetative cover. All these factors have resulted in significant hydro-rainfall deficits, constant decline of inundated areas (around 30 to 50 percent), increased seasonal variations and insufficient groundwater replenishment.

3. Biological Diversity of Global Interest in the Inner Niger Delta²

a. Vegetation Types

While the Inner Niger Delta is found in a Sahelian zone (with Sudanese characteristics in the south and Sahelian-Saharan traits in the north), the presence of water and temporary floodplains have

m³/s in September, 1,290 m³/s in October and 571 m³/s in November; in 1994 (high flood year), for an average yearly flow of 1,060 m³/s, a recorded low of 74,3 m³/s in May, 549 m³/s in July, 1,470 m³/s in August, 2,480 m³/s in September, 3,080 m³/s in October and 2,870 m³/s in November.

¹ According to a recent study (Hassane et al., 2000), while at all times there are important fluctuations in the river flow depending on rainfall, the level of the inundated areas is also linked, in particular in low water conditions, to the management of reservoirs upstream (Sélingué and Markala dams).

² PDF-B Study: Identification of potential sites for the project and local plans already drawn up in the four inundated circles of the Inner Delta (INACO, 2003). Niger River Inner Delta. Ecology and sustainable management of natural resources. Mali-pin publication. Wetlands International, Sévaré/RIZA, Rijkswaterstaat, Lelystad/Altenburg & Wymenga ecological consultants, Veenwouden, 2002.

favoured the development ecosystems particular to the Delta. Vegetation types or associations are varied and original; they are found in terraces and are dependent upon the water height, submersion time and nature of soils. Considering the high seasonal and inter-annual variability of flooding, their distribution is not static, but constantly changes with the presence of water. The common traits of this combination of original ecosystems include: (i) a relatively poor number of species, even if some or their associations are unique and of global interest, (ii) a very high productivity in terms of biomass, and (iii) a very good adaptation to great seasonal and continued changes in water level.

In general terms, vegetation in inundated areas can be distinguished from vegetation in exondated areas bordering flood plains.

In inundated areas, depending on water depth, several situations occur:

1. **In deep water and silty valley bottoms** (river beds, its tributaries/defluents and centre of large lakes and ponds), aquatic vegetation is nearly non-existent due to currents, water depth and/or lack of transparency. During recession, the vast areas of silty soils are covered by rare and low vegetation, dominated by grasses.
2. **“Bourgoutières”** are found in long and deep flooded areas (six to seven months, two to five meters) along the branches of the river, ponds and lakes. They are dominated by *Echinochloa stagnina* (“bourgou”), a highly productive fodder species (15 to >25 T of dry matter/ha) and much appreciated by cattle and aquatic fauna, including manatees and hippopotami. Other related grasses are *Vosicia cuspidata*, *Utricularia inflexa*, *U. reflexa*, *Pistia stratiotes* (water lettuce). They used to cover extremely vast areas but several tens of thousands of hectares have disappeared today due to the combined effect of droughts, overgrazing, competition with agricultural crops and the increasingly intensive harvesting of “bourgou” for sale.
3. **Waterlily ponds** are found in the more shallow inundation zones (five months, 1.2 to 1.8 metres) and are characterised by *Nymphaea*, rooted aquatic plants with floating leaves. Local populations collect tubers for consumption. They are also jeopardised by declining inundated areas.
4. **“Orizaies”** are found in areas where flooding never lasts more than three months and reaches a maximum water depth of two metres. The dominant vegetation is traditional or wild rice (*Oriza longiminata*) and other grasses (*Acriceras amplexans*, *Panicum subalbidum*, etc.). Wild rice constitutes a traditional food resource and an important example of agrobiodiversity. However, there has been a shift from “orizaies” to recession crops or paddy crops (both uncontrolled and controlled flooding).
5. In the highest parts like the sandy levees and along small ponds, **vetiver grass systems** represent a transition zone between deep-flooded and shallow or non-flooded areas. They play a significant role in bankside stabilisation. The main species are *Vetivera nigriflora* (Vetiver, also used for handicrafts, including the making of mats) and *Mimosa pigra*, an invasive shrub, used as a spawning and breeding place for fish.
6. **Flooded forests** (up to two to three metres) can be considered as the most original type of vegetation in the Delta: they are either open or closed and are dominated essentially by *Acacia kirkii* and *Ziziphus mauritiana*. They act as key nesting places for important migratory birds by forming an impenetrable web during the flooding period. The droughts, poor floods and overexploitation have nonetheless resulted in the loss of huge parts of these forests¹, many of which are made of dead wood or replaced by glacia or dunes.

Vegetative cover in **exondated areas** inside or immediately outside of the Delta varies according to weather conditions. In the south, east and west, it consists of shrub or herbaceous savannah with *Parkia biglobosa*, *Calotropis procera*, *Diosporos mespiliformis* (whose wood is sacred and protected), *Borassus aethiopicum* and *Acacia seyal*. To the north the sub-desert environment has very poor vegetation, including some typical species, such as *Boscia senegalensis*, *Acacia albida* and *Hyphaene*

¹ Only two closed flooded forests are left (Akka-Goun and Dentaka, for which a management plan has been drawn with the support of IUCN. Beyond Lake Débo towards Nianfunké, forests were plentiful, 14 of which were classified between 1945 and 1950 to protect the river and its defluents. They are now all degraded with many standing dead trees, as in the Farimaké forest.

thebaica (Doum palm, largely overexploited for crafts) and a *Panicum sp*-based discontinued herbaceous carpet (rainy season pastures).

Both the vegetative cover and soils in exondated and inundated areas are highly degraded. And, while the restoration/development potential is still relatively significant, it is severely threatened by a number of climatic and anthropogenic factors: decrease of rains and floods, water and wind erosion, sand siltation of river beds, feeder channels and ponds, uncontrolled deforestation and overtapped natural resources in and out of the Inner Delta. This situation is reflected in many parts by an imbalance between carrying capacity and utilisation and a disruption in the reproductive cycle of species and ecosystems.

b. Wildlife Resources

Just as for the vegetative cover, the spatial and time dynamics of the Delta's ecosystems is of critical importance to the richness of wildlife: avifauna, fish fauna, and land and aquatic mammals. In fact, the existence of many vegetation associations on limited areas – the area surrounding a pond, for example, can host five to six different plant types – guarantees the availability of food sources for piscivore, benthivore, insectivore and granivore birds and serves as a spawning site for a number of species. Abundant food sources are particularly important during the pre-migratory stage. Moreover, in times of unfavourable climate (ecostress), the Delta's lakes and large ponds serve as shelter for bird populations from less favourable Sahelian areas.

As to the **avifauna**, the Delta constitutes a hibernation site for paleo-arctic migratory birds, including the summer teal (*Anas quequedula*), the northern pintail (*A. acuta*) or the Northern shoveler (*A. clypeata*). It is also a breeding site for several species of afrotropical birds, including the fulvous whistling duck (*Dendrocygna bicolor*), the spur-winged goose (*Paleopterus gambiensis*) or the comb duck (*Sarkidiorius melanotos*).

The richness and diversity of the Delta's avifauna are of global importance: the Delta is estimated to shelter over 350 bird species¹, including 103 water bird species surveyed from 1998 to 2001. Every year, it supports over one billion birds, mostly paleo-arctic and coming from more than 80 countries (over 250 000 individuals were counted by a partial census carried out in February 1998).

The Inner Delta's global importance is confirmed also by the fact that: (i) for 27 species, such as the long-tailed Cormorant (*Phalacrocorax africanus*) and several species of herons, including the night heron and the purple heron, the Delta's population represents *at least one percent of the global population*²; (ii) 73 Delta waterbird species (of which the most famous is the crowned crane or *Balearica pavonina*) are considered as *vulnerable (uncommon, rare or threatened)*³. The loss of habitats but also intensive and very profitable hunting of some of these birds has an adverse impact on several of these species protected by international Conventions. Capture for trade already reached about 200 000 - 400 000 birds every year in the eighties (Sanogho, 1988), with an average sale price of 800 FCFA/bird. This situation persists despite various actions conducted by international NGOs (Walia, IUCN, Wetlands International).

The Inner Delta is also an **excellent fish spawning and breeding area**. In 1954, the Delta's **ichthyofauna** consisted of 138 species, 58 races, 26 families, all belonging to the osteichthyes family (teleosteans), including 24 considered to be endemic, which show original traits and/or are adapted to flooding or drought conditions. The surveyed species include *Protopterus annectiens*, *Clarias*, *Distichodus*, *Alestes*, *Tilapia*, *Lates niloticus*, etc. The species distribution depends on the river seasonal fluctuation and water depth. It is characterised by important lateral migratory (from the riverbed to the floodplains during the flood) and longitudinal movements (along the river).

¹ Census made since the 70s, including by IUCN. The most recent census, although partial, was made by Wetlands in the Walado-Débo, Korientzé and Mopti-Debo areas.

² Under criterion 6 of the RAMSAR Convention, a wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbirds.

³ Under criterion 2 of the RAMSAR Convention, a wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

Productivity varies from year to year, ranging from 15-25 to 75 kg/ha, showing the great adaptability of species to seasonal and inter-annual variations.

Despite monitoring by l'Office Pêche Mopti (OPM) on the 24 ponds, few data are available on the current status and diversity. At the very most, the decline in captures (from 100 000-200 000 T/year in the 70s to 60 000-70 000 T/year now) and the use by fishermen of nets with increasingly small mesh at least indicate a decline in the size of fish. Besides, it is known that the low flooding of past years and the proliferation of fish farming or agricultural dams have a very negative impact on a number of species which are endangered or extinct.

Due to less favourable climatic conditions and growing anthropogenic pressure, many natural habitats have been destroyed and several great Delta **reptiles and mammals** decimated, such as *Kobus kob*, *Gazella dama*, *Pantera leo*, now extinct. Other protected species are badly threatened, including manatees (*Trichechus senegalensis*), and hippopotami (*Hippopotamus amphibius*), due to their competition with human activities. The other species still present but at risk include the warthog (*Phacochoerus aethiopicus*), the spotted hyena (*Crocuta crocuta*) and the red-fronted gazelle (*Gazella rufifrons*).

c. Sites of Particular Importance

The Inner Delta includes three RAMSAR (wetland) sites of global importance (actively protected by IUCN, Wetlands International, etc.), two of which are located in the Mopti region (Lake Walado-Débo, 103,100 ha - Youwarou and Mopti “cercles;” Séri Plain, 40 000 ha – Tenenkou “cercle”) and one in the Timbuktu area (Lake Horo, 18,900 ha). In the Youwarou “cercle,” there are seven **classified forests**, all degraded, which cover a total area of 7 946 ha. The Delta has also several sacred forests.

The Walado Debo/Lac Debo site is part of one of the major Sahelian wetlands and is composed of an extensive floodplain area containing seasonally inundated lakes (Walado Debo and Lac Debo), ponds and river channels. It is of international importance for wintering waterbirds that migrate to breed in the Palearctic region. It is also one of the major dry season refuges for a huge number of afrotropical bird species, in particular during years of deficient rainfall. Counts taken in 1992 identified, for instance, over 15 000 glossy Ibis (*Plegadis falcinellus*) and 25 000 black-tailed godwits (*Limosa limosa*), 140,000 *Anas acuta*; 991 *Sarkidiornis melanotos*, among many others.

The Séri plain is an extensive floodplain complex on the left bank of the Diaka River, forming part of the Inner Niger Delta. The numerous ponds of the Séri Plain serve as habitats for both paleo-arctic and afrotropical birds and the endangered West African manatee (*Trichechus senegalensis*).

Lake Horo is a seasonally variable freshwater lake within the Inner Niger Delta, but it is separated from the river by a dam and a sluice gate. The site is very important for breeding and wintering waterbirds. In particular, the wetland harbours a breeding colony of African spoonbills (*Platalea alba*) and over 50 percent of the West African population of *Aythya nyroca*.

These wetland areas are largely owned by the State, but villages within the site boundaries have customary rights of exploitation over certain areas. While human use varies from site to site, local villages generally depend on the wetlands for drinking water, fishing, seasonal agriculture and livestock rearing/grazing. Outside the Ramsar areas parts of the Delta are irrigated for rice cultivation. Drought and inadequate flooding are the principal threats to the wetlands, but the impact of dams and water diversion projects within the catchment area, overexploitation of the national resources (fish, water birds, firewood, overgrazing) is also significant.

In years with good rainfall in the Guinea watersheds, the source of the Niger, these wetland areas are flooded between August and January; thereafter the area of wetlands shrinks gradually until the rains return. There has been a declining trend in the flood level over the last two decades. Prior to regulation, Lake Horo, contained at least some water throughout the dry season in years of good rainfall, but dried out completely by April in dry years. Now the sluice linking the lake with the Niger is opened in mid-November (earlier in years with poor rainfall) to allow the lake to fill.

The management of these sites is very weak and needs to be strengthened. The development of a national Wetlands Policy and action plan will be an important initiative that will bring together the

wide range of stakeholders at the national, regional and local levels. There are also a number of ongoing and planned initiatives, such as those of IUCN which has 20 years experience in Youwarou (Lac Debo) and Dentaka in community-based restoration and management of the flooded forests and bourgoutières, and Wetlands International (Western Sahelian wetlands and floodplains programme), with which the project will collaborate. IUCN's call for the establishment of a "Socio-Ecological Observatory of Wetlands under Pressure" is noted and can complement GEF initiatives. These will be followed up during implementation.

In addition to these nationally and internationally recognised wetland sites, there are many other sites of particular interest in terms of their biodiversity and ecological services they provide in turn threatened by climatic and anthropogenic pressures, such as the Korientzé lake. Through a participatory approach, the project will seek to characterise these sites and develop site-specific integrated management plans. These plans would address the multiple access, use, management, control and monitoring of the wetlands and adjacent areas.

4. Dynamics of the Farming Systems

As to its agro-pastoral use, it is generally believed that the Delta is 75 percent agro-pastoral (including 10 percent in exundated area), 21 percent purely pastoral, the remaining four percent being left for permanent waters. It should be noted that these indicative percentages do not take into account (i) activities like fishing, hunting or harvesting¹, (ii) increasing overlapping of different farming systems, or (iii) the needs of the wildlife which are also dependent upon the Delta's natural resource base.

The dualism and the variability of the geographical space between the inundated and exundated areas and movements between the two explain the interdependence between availability of resources and production or exploitation systems by local populations and/or wildlife. In fact, although degraded, the exundated area is open and relatively accessible at any time. It serves as winter pasture, has many ponds and sites valued for micro-nutrient-rich salt treatments.

The Inner Delta's inundated area is only accessible during recession and is navigable by canoe and pinasse (motorised boats) during the high water months. It harbours rich "bourgoutières" valuable during transhumants cycles. It also offers excellent fishing and farming opportunities.

The Delta is also interesting for its **agricultural biodiversity**, as it is considered, for example, an important source of diversity and a centre of domestication of African rice (*Oryza glaberrima* steud). There is the traditional (wild) rice and also over 20 varieties of rice cultivated by local producers. At the national level, at least 215 varieties of *Oryza glaberrima* have been identified.

Moreover, the Delta harbours native breeds of farm animals of particular importance, including the Macina wool sheep (in the flooded area of the Delta), the only wool-producing breed in West Africa and known for its wool production, and the Delta's peul zebu, a sub-species of the Macina peul zebu, known for its great resistance to wet environments.

The region's economy is essentially based on livestock (almost 30 percent of the country's livestock is found in the region, not counting the transhumants herds), fisheries (70 000 T/year, 200 000 - 300 000 fishermen) and agriculture (rainfed millet; uncontrolled flooding rice – 150 000 ha/year; controlled flooding rice – 50,000 ha of ORM crops; PPIV – 1 500 ha). For several centuries, the combination of these three major activities² has conferred important annual cyclical movements to the region, which should be well understood:

- annual and cyclical movements of transhumants cattle between exundated and inundated areas for pasturing, between the two are the transition zones (holding areas), which receive the herds before they enter and after they leave the Delta;
- significant movements of fishermen along the fishing zones depending on the flooding and water recession;

¹ Harvesting of wood products (*Diospiros mespiliformis*, *Calotropis procera*, *Acacia nilotica*, *Commiphora africana* and *Combretam micrantum*) and grass products (incl. Nymphae tubers) is a significant source of income (in particular fruits, pharmacopeia, etc.).

² To which should be added harvesting of forest resources, tourism (Djenné, Dogon,...) and handicrafts.

- transfer of the agricultural workforce in the Delta for rice and flood recession crops.

Livestock and fishing are traditional economic activities of the Delta. More recently, the introduction of agriculture and the installation of rice perimeters have left their mark on the Inner Delta as well. Figure 3 below shows the interaction between the different exploitation systems over time and their succession depending on floodwater seasonal variations.

Livestock systems in the region, besides household sedentary livestock, are mostly extensive and based upon transhumance between the Delta and exundated areas according to well-established traditional rules, including:

- common movement of herds driven by herdsmen;
- existing transhumance trails or "burti", rest areas for animals or "billé" and watering and pasturing points;
- programmed organisation of the transhumance into and out of the Delta with specific points and fords for the animals.

Generally, the rights to pasture, particularly the Dina promulgated under the former Peul empire (and which still persists to a certain extent), have long constituted the social/land-tenure basis for management of resources and space in the Delta: exploitation of bourgoutières for payment to the native populations of a traditional duty ("tolo") by allochthonous pastoralists. Every year, a conference of the "bourgoutières" unites all the structures at the regional level interested in the movements of herds and the main dioros¹. This consultative meeting establishes the dates for access to the delta and for departure of the animals from the delta (crossing dates) and sets regulatory requirements for conflict management.

The overall number of cattle, and sheep and goats entering the Delta every year is estimated to be about 1.25 and 1 million heads respectively (30 cattle and 25 sheep-goats /ha). At present, the two major problems are the degradation of pastures and the reduction of water sources in exondated areas. This induces animals to enter earlier and stay longer in the Delta, which no longer allows the necessary growth and reproduction cycle of bourgoutières. Further, the harvesting and sale of bourgou, increasingly widespread, is indeed very profitable (average income per hectare estimated from 160 000 to 400 000 FCFA/ha). This emerging activity contributes in turn to disrupt the growth cycle of the pastures and the carrying capacity of the bourgoutières.

As to **fishing activities**, the first fishing occupants in the Delta are the Bozo (founders of the first sites and seasonal migrants), later followed by the Somono (more sedentary). These two ethnic groups also used to practice subsistence farming at times of low waters. Presently, most have become agro-fishermen, both fishing and raising rice. They also own some **cattle**, which they entrust to herdsmen. This shift has been also favoured by the reduction in fisher migrations and their settlement in areas favourable to rice cropping.

Like the pastures, the fisheries are still community-managed by "maîtres des eaux" (water masters). For instance, traditionally, ponds and channels in Youwarou are managed by the Bozo (inland water master) while the Somono (river master) is in charge of the river. Decreasing floods and fishery resources tend to exacerbate conflicts among ethnic groups, as well as between fishermen, farmers and pastoralists for exploitation of the Delta's resources.

In the Mopti region, **agricultural systems** usually combine extensive rainfed crops in exondated areas (millet, sorghum, and cowpea) with low and uncertain yields, and irrigation/flooding-based systems (rice, recession crops). The arable land potential is enormous (rich floodplains) in the Delta and reported to be several hundred thousand hectares. After the great droughts, the development and intensification of agriculture has emerged as an alternative to ensure food security and that of livestock herds, which had been largely decimated. In Mopti, the development of rice and vegetable farming has contributed to altering the modes of natural resource exploitation and transforming the extent of flooded areas with the shift from bourgoutières and open spaces to closed spaces. In *flooded areas*, there are several cropping systems depending on the level of water control: recession crops in

¹ Dioro: Peul word. Refers to the pastures manager and chief pastoralist, traditional function specific to the Niger River Inner Delta.

ponds and lakes and in the Delta floodplains (rice, maize, sorghum), whose surface and yield are variable depending on the flood; uncontrolled flooding rice crops, estimated at around 150 000 ha/year along the river and around ponds and lakes (with low and uncertain yields of 600 to 800 kg/ha); controlled flooding crops in the rice-growing schemes, with low yields, on average one T/ha (50 000 ha managed with the help of “Office Riz Mopti”); and irrigated small-scale village schemes (PPIV, of which about 1 500 ha are managed), where cultural techniques are more intensive (total water control, motor pumps) and allow double cropping (rice, vegetable crops) and rice yields of over five T/ha.

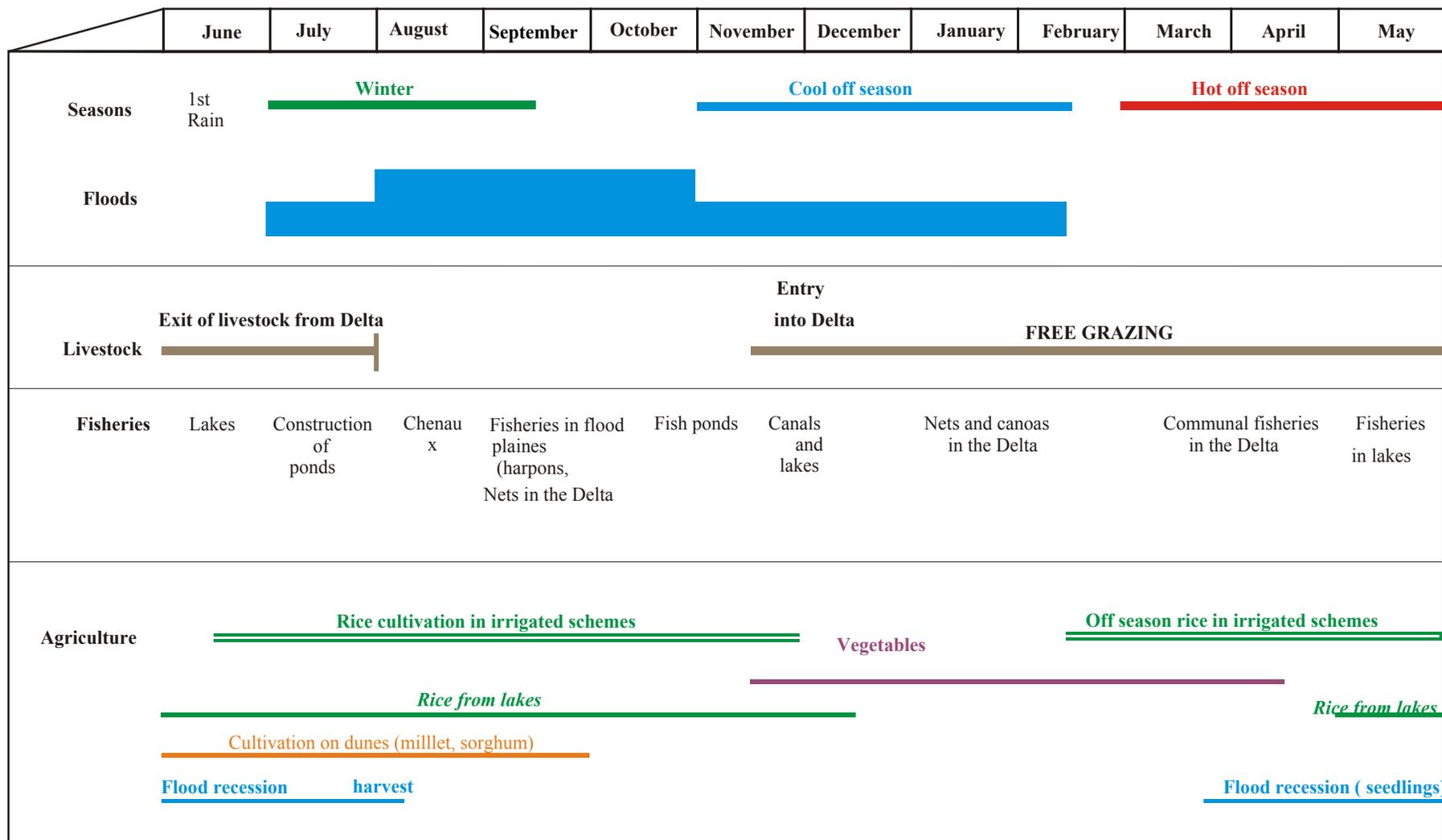
The extension and clearing of areas for rice cropping inside the Delta is widespread and detrimental to the forestry resources and/or bourgoutières¹. This extension has resulted in many conflicts and problems in the present management of the Delta. Moreover, it should be noted that most systems are extensive and uncertain and that cultural practices are not environmentally friendly (excessive clearings, non-compliance with protection standards, unorganised dykes, etc.).

The Ecosystem of the Inner Delta and its Transition Zones in Disequilibrium

The above analysis emphasised that the Inner Delta of the Niger River has a unique ecosystem of global interest having also a high agro-sylvo-pastoral and fisheries potential. However, despite its natural potential, the area and the ecosystems are considerably affected by degrading lands and soils, dwindling fisheries, unpredictable water resources flows, and increased anthropogenic pressures. The threats of increasing social and community conflicts from a diminishing resource base, competing use and demands from man and wildlife, and loss of biodiversity are increasing. While these threats are global, their impacts are most severe in the Inner Niger Delta –among rural people and especially women living in poverty. **Various customary and equitable user rights which in the past allowed for a relatively flexible adjustment to interdependent exploitation systems are increasingly becoming points for conflict.** The analysis demonstrated that the stability of the environment whereby herds entered and left the Delta during flood recession in a well defined period allowing for cropping and fisheries to be undertaken is being disrupted. As such, adjustments needed to systematically cope with seasonal and inter-annual flood and resource exploitation fluctuations are not being addressed **in a harmonious manner.**

¹ The shift from « bourgoutières » to rice fields was indeed confirmed by satellite imaging, particularly on the Kakagnan territory (Courel, 1992).

Figure 3. Calendar of floods and of the various agricultural activities in the Inner Delta of the Niger River



¹ Source: CIRAD, in ORM Support Project, FAO/IC, 2001

D. LESSONS LEARNED AND REFLECTED IN GEF/SADEF

The lessons learned in the first phase of the SADEF Programme in Mali and incorporated into the formulation of the second phase comprise: (i) the need to strengthen capacities of the local people and local stakeholders at the decentralised level to plan their own development activities and guarantee their sustainability; (ii) the efforts made to disseminate information and to communicate so that the project can act as a development catalyst; (iii) the need to support the ongoing process of decentralisation and communal/local development planning; (iv) the need to make provision for specific measures to ensure the inclusion of vulnerable groups (including women and young people) in the project.

The IUCN Project to Support Wetland Management in the Inner Delta of the Niger River is an example of a successful project (even though limited in terms of area) with respect to biodiversity conservation in the Delta. The results of this project show the need to: (i) establish a climate of trust between the communities and technical services in order to guarantee the viability of jointly managed systems; (ii) respect the value of traditions when laying down rules for sustainable management; and (iii) incorporate the importance of managing and regulating land tenure conflicts to ensure the success of conservation efforts; (iv) incorporate a component on monitoring of ecological and socio-economic indicators to measure project progress and impact on natural resource management; (v) link with national level to influence policy and regulatory environment; and (vi) analyse the carrying capacity of the ecosystem in relations to resource use and population pressure. The project will draw on these successes and the traditional management systems at the sites and project areas in order to involve all the local stakeholders in the processes of designing and implementing the activities and supporting the strengthening of mechanisms for conflict prevention and management.

The evaluations of the GEF projects will be used for implementing this project. They emphasise in particular the importance of the following factors: (i) efforts made for conservation of biodiversity *in situ* must stress the importance of easing the socio-economic pressures in peripheral areas; (ii) the need to define the initial state (baseline) of the biodiversity in the project area before any action is taken to evaluate results and impacts; (iii) strengthening capacities must be done after a prior assessment of needs of the target groups.

E. CO-ORDINATION WITH OTHER PROJECTS AND OTHER DONORS

During implementation, the GEF project will seek to ensure coordination and synergy with several other projects, including the following:

- **The GEF/World Bank (WB) Project for the Biodiversity Conservation in Arid Rangelands (Gourma)**, co-financed by the Fonds français pour l'environnement mondial (FFEM). Part of the project area is east of the Mopti region. Major synergies are envisioned with this project, particularly in respect of the following: (i) awareness-building and strengthening know-how and capacities for biodiversity management; (ii) biodiversity conservation in arid ecosystems (transition zones covered by this project); (iii) the integration of biodiversity/natural resources into community planning and development. The value added by the present project in the Delta lies, among other things, in the fact that it has to do with far more complex ecosystems and productive activities. Moreover, it will also finance activities to develop the productive potential of the natural resources. Contacts have already been made with the WB project management team at the national level. Coordination procedures will be established at the level of the Mopti region.
- **The GEF/UNDP/World Bank regional project Reversing Land and Water Degradation Trends in the Niger River.** This project aims at strengthening regional and national institutional capacities, and to address land and water degradation and management issues in the Niger River Basin. It builds on initiatives and activities which are already under implementation at the national and sub-Basin levels strengthening the institutions; or it provides

the necessary knowledge and tools for good resource management practices. Linkages will be developed with this project in the area of capacity building and land and water management (particularly with the microgrant-supported demonstration projects).

- **The UNDP/IFAD/GEF Boucle de Baoulé Project** is in the early stages of preparation. The WB-GEF Gourma project, the IFAD-GEF Inner Niger Delta, and the proposed UNDP/IFAD/GEF Boucle de Baoulé Project have the potential to form a programmatic triangle, whereby they could jointly contribute towards strengthening Mali's projected area management system. The potential for administrative and environmental policy development and capacity building (with the multiplier effects) from each of these projects is great. It could also become an exemplary project for effective donor collaboration at field level. In addition to collaboration, particularly at the national level, in capacity building and environmental policy development/strengthening and regulatory framework, other areas for effective linkages include monitoring and evaluation, impact assessment, knowledge sharing and diffusion of best practices.
- **The GEF/UNEP/UNDP Project for the Management of Indigenous Vegetation for the Restoration of Degraded Grazing Lands in Arid and Semi-arid Zones of Africa** and the **GEF/UNEP/UNDP Regional Programme on Desert Margins** covering nine countries including Mali, whose experiences could be of benefit to the present GEF project in Mopti.
- **The GEF/WB/UNDP Domestic Energy Project**, whose results in terms of forest management and conservation could be exploited, particularly with regard to community management of forested areas and the exploitation of commodity lines, taking into account the supply and demand for fuel wood.
- **The GEF/UNEP Regional Projects for (i) Community Management of Small Farmer Genetic Plant Resources in Arid and Semi-arid Zones of Sub-Saharan Africa** and **(ii) Conservation of Grasses and Associated Arthropods for Sustainable Agricultural Development in Africa**, and the **IER/IPGRI/FAO/IFAD Project on Participatory Development of *in situ* Conservation Strategies and for the Sustainable Use of Plant Genetic Resources in Pre-desert Zones of Mali**, whose results in relation to agricultural biodiversity conservation will be used for the GEF-Mopti project, which will make its contribution by focusing its efforts particularly on floating African rice and Macina wool-producing sheep. During its implementation, contacts will be established with the **GEF/UNDP Project for the *in situ* Conservation of Indigenous Ruminants in West Africa** (currently being formulated).
- As far as community environmental planning is concerned, the capacity strengthening activities of the project will be based on the Methodological Guide for preparing the PCAE developed by the Permanent Technical Secretariat (STP/CIGQE) under the **Project to Support Implementation of the CCD** financed by German Cooperation, which also supported the development of a guide to preparing PCAEs, which will be profitably used at Mopti.
- Project activities could also contribute to the **Programmes to Prevent Silting and Soil and Water Degradation in the Niger River Basin**, to be financed by the **European Union** (in progress), the **African Development Bank** (just beginning) and the **GEF/UNDP/WB** (being formulated).
- The project will also learn from other GEF projects for the integrated management of ecosystems in countries of the sub-region, such as the **GEF/WB Programme for the Integrated Community Management of Ecosystems**, the **Sub-programme of Community Action in Niger** and the **WB Project for Integrated Management of Sahelian Plainland Ecosystems in Burkina Faso**.

Lastly, in addition to these major projects/programmes, in the field the project will encourage partnership with other partners present in the area, particularly **Wetlands International**, whose

activities focus on providing training for wetland management and monitoring aquatic bird species in the Delta, and the **World Conservation Union** (IUCN), which focuses on the sustainable management and restoration of flooded forests. Collaboration would be established with the Wetlands International regional project, particularly the component “Western Sahelian wetlands and floodplains: wetlands, people and biodiversity in the Western Sahel”.

F. MAJOR SECTORIAL ISSUES TO BE ADDRESSED BY GEF RESSOURCES

The GEF intervention will support implementation of a number of key policies and strategies for environmental protection and NRM, as well as priority activities defined in the National Strategy for Biodiversity Conservation and the Strategy for the Conservation of Biological Diversity in the Mopti Region. It will furthermore support the development of the National Wetlands Policy through its collaborative linkages and sharing of site specific information and experiences with the Ministry of Environment and its decentralized services, Wetlands International, IUCN, Walia and other local NGOs, local stakeholder groups. It would also contribute to strengthening Mali’s protected area system through its collaboration with the proposed Boucle du Baoulé project (an IFAD/UNDP-GEF initiative currently under Concept Note formulation) and the World Bank-GEF Gourma project.

This strategy is incorporated into the framework for implementation of the PNAE/PAN-CID and contributes more specifically to the goals of the National Programme for Natural Resources Management. It will also contribute to the National Programme for the Management of Environmental Information, intended to create a system for monitoring and managing environmental information based upon a geographical information system (GIS), and to the Information, Education and Communication in Environment (IEC) National Programme, as well as to the Programme monitoring implementation of international conventions.

Furthermore, GEF will support the decentralisation process and, more particularly, the integration of environmental concerns, sustainable NRM and biodiversity conservation into the community development plans (PDCs), through participatory development and adoption of community environmental action plans (PCAEs). It will also contribute to organisational and institutional capacity building of the different structures responsible for environmental protection and NRM at the various levels.

GEF will support implementation of a number of key processes aimed at attaining local capacity building and alleviating rural poverty to reach the overall goal of sustainable development. Through its intervention, GEF will cover the incremental costs of these activities in realising global environmental benefits. The actions on the regional level in Mopti should bear primarily on:

- Restoration and conservation of fragile ecosystems affected by climatic and manmade pressures, through preparation and implementation of management plans for the most vulnerable sites, to halt the trend in natural resource degradation and the disappearance of natural wildlife habitats, while developing the socio-economic conditions of the local communities
- Support to the decentralisation process, to the planning necessary for incorporating participatory and sustainable environmental/NRM into local development plans and strengthening the consultation frameworks at the local, regional and national levels
- Support for implementation of national and regional environmental and NRM, policies and strategies particularly those related to biodiversity conservation and wetlands protection, focussing on the Inner Niger Delta and its transition zones for their preservation and participatory and sustainable management.
- Alleviation of rural poverty by sustainably enhancing the agro-sylvo-pastoral and fisheries potential on which rural populations depend for their livelihoods, by disseminating sustainable management techniques and by strengthening local actors’ organizational, technical and financial capacities, with a view to improved NRM at the different levels

As mentioned above, the Mopti region has one of the **highest incidences of poverty in the country** with over three quarters of its rural population living below the poverty line. Generally speaking, the area has the lowest social indicators. The school attendance rate is considerably lower than the national average, as well as the literacy rate: on average, there are eight villages for one primary school and only 19.4 percent of villages have a literacy centre. As far as health is concerned, the

Mopti region experiences one of the highest mortality rates for children less than five years of age. The infant/child mortality rate is 1.3 times greater than the national average. Although the unemployment rate is the lowest, under-employment affects over one third of the labour force. Access to potable water is also very low: almost half of the population doesn't have access to drinking water and most water sources are at more than 15 minutes distance. The number of wells in the region is 730 for 2 064 villages.

The target groups of the SADeF programme are the poor rural populations of Ségou (Ségou, Niono and Macina), Koulikoro (Nara, Kolokani and Banamba) and GEF Project Mopti (Mopti, Jenné, Tenenkou, Youwarou). A priority for the future intervention will be to better target the poorest social groups living in the villages, i.e. women and youth, outsiders, caste families, transhumant pastoralists, to allow them access to resources, technologies, information, training and decision-making so that they take part in their socio-economic development.

II. PROJECT RATIONALE AND OBJECTIVES

A. RATIONALE

There is an urgent need to take collective action (sedentary, transhumant or seasonal communities, decentralised authorities, administrative and customary authorities, civil society and development partners) to reverse the process of environmental degradation and loss of biodiversity, and promote sustainable and harmonious development. Reductions of flooded areas, climate aridification, overexploitation of natural resources, depletion of water sources and pastures in exondated areas, accompanied by population pressure are all contributing to the disruption of traditional relationships between native, “allochtones” populations, and important needs of wildlife.

GEF and IFAD are natural partners for the extension of SADeF activities into the Mopti region under the second phase. The Inner Delta of the Niger River, reaching an expanse of 30 000 sq km, covers four out of the eight “cercles” of the Mopti region (located in Sahelian areas and in the heart of Mali – see Map in Appendix 1) and is one of the rare large inland deltas in the world. Recognising the socio-economic and environmental challenges and the unique character of the Delta area's ecosystems, the GEF Alternative will focus its activities in the Mopti region on sustainable development and management of natural resources through an integrated ecosystem approach. GEF resources will allow SADeF to take into account the linkages between poverty and environmental degradation and adopt a holistic approach to addressing their underlying causes.

Project supported activities are needed to address:

1. Disappearance and loss of natural habitats and major threats to endemic species and/or species of local, national or global interest, including migratory water birds, manatees, hippopotami
2. Degradation of vegetative cover and soils in exondated areas and disappearance of migratory corridors for herds of cattle, sheep and goats
3. Disruption and disorganisation of the traditional calendar for land and resource use in the Delta and its transition zones and increased competition for use of the same areas; early herd occupancy of the bourgoutières and prolonged stays around water sources; increasing competition for access to natural resources and breaking down of interdependent exploitation systems of production (livestock, fishing, agriculture, hunting,...)
4. Degradation, even loss of many bourgoutières, and traditional fish breeding sites
5. Disruption of customary rights, and traditional land tenure systems, economic and political changes in traditional management and decision-making power (including cattle owners¹), with an ensuing growing number of divergent and individual interests adversely

¹ Before the great droughts, the Peuls were the owners of transhumant herds. Since the devastating droughts, reconstituted transhumant herds now belong up to 33 % to shepherds, the rest being divided between agro-pastoral communities (58 %), traders (8 %) and wage-earners (1 %).

affecting the community; alteration of territorial and land tenure issues and questioning of traditional management modes¹

6. Lack of knowledge of the ecosystems, risks and the state of natural resources degradation; inadequate mechanisms for building on the traditional knowledge base and effective participatory monitoring/evaluation
7. Poor institutional capacity for NRM, especially in decentralised authorities and civil society; inadequate incorporation of the environmental dimension into development policies and plans at the communal and regional levels
8. Worsening poverty of rural communities, in particular women, and youth is a major constraint to NRM.

This should be done by:

- Restoring the natural equilibrium and preserving unique ecosystems, including natural habitats for wildlife, through compliance with traditional management rules and building on the indigenous knowledge base when developing management plans for more vulnerable or remarkable sites and implementation of protection measures
- Restoring and developing the agro-sylvo-pastoral and fishing potential of the Inner Niger Delta, including its transition zones, through regeneration of bourgoutières, reducing siltation in the Delta and improvement of production systems.
- Reducing pressure on resources, through capacity building in sustainable and concerted management of natural resources and development of income-generating micro-projects.
- Improving the living conditions and incomes of the local populations and fostering the emergence of groups and financing schemes allowing for support and sustainability of NRM actions.
- Creating an enabling policy, regulatory, and institutional environment for the sustainable management of the Delta that would facilitate the implementation of existing national environmental policies and legislation, incorporate NRM and biodiversity considerations into sectoral plans and policies, and development appropriate policies and regulations where they are lacking.
- Improving processing/marketing of products derived from the Delta, in particular fishery products, and developing alternative income-generating activities to reduce pressure on natural resources.
- Enhancing monitoring of the state of resources in the Delta and its transition zones and promoting implementation of various priority programmes in environmental protection and biodiversity conservation at national, regional and local levels.

The GEF/IFAD partnership is complementary and brings together various dimensions that are important for poverty reduction and the sustainable development of the Mopti region. It will take into account the following factors: : (i) major environmental issues; (ii) the need to improve the lives and livelihoods of local populations for sustainable NRM and to take into account of their priority needs; and (iii) the need for capacity building in planning, including for the incorporation of the environmental component into local development plans and the creation of systems/structures for monitoring the state of natural resources in the Inner Delta and its transition zones.

¹ This explains why drought periods often reveal these new imbalances, individualized interests and the emergence of different economic and social strategies.

B. GEF/IFAD SADEF DEVELOPMENT OBJECTIVE

IFAD through SADEF aims at establishing, in three phases, a participatory and sustainable development process for the Sahelian regions of Mali. Its overall objective is to reduce rural poverty by improving incomes and living conditions for rural communities by providing access to productive resources, village infrastructure, and support services including primary health care and education. This goal should be met by empowering communities at the village level (or their associations/groups) to identify their own needs and design micro-projects to which the beneficiaries will contribute resources in cash or in kind. In its first phase (1999-2002), SADEF focused its actions in the regions of Ségou and Koulikoro. It set up the institutions and procedures for access to the Fund, provided micro-credit for socio-economic infrastructural development, and strengthened local capacities. The experience gained and lessons learnt during this first phase will serve as a basis for its expansion to new zones (Kayes, Mopti, San/Ségou) during the second phase (2003-2006). The various achievements will then be consolidated during the last phase (2007-2010).

The GEF Alternative will promote a participatory, local development process that would empower communities at the village level to design, plan and manage micro projects and productive activities that meet their own needs, as well as restore and safeguard their fragile environment. Local conventions will be developed, formalizing the consensus of all the actors in the management and use of the resources for each specific project area. These conventions would be based on traditional systems for resource management and conflict resolution. While the project will support the government's decentralization process in the area of natural resources management, it also recognizes the importance of sound policies, programmes and institutions at the national and regional levels to providing an enabling environment at the local level. The GEF Alternative will therefore reinforce this linkage, particularly through its capacity-building activities, and will also seek to influence sectoral plans and programmes (upstream) that cause adverse impacts on the Delta (such as the dams).

Specifically, the Objectives of the GEF Alternative will strengthen the capacities of the wide range of stakeholders at the local (organisations/groups, traditional and local authorities or "communes", users of the resources), regional (decentralised public authorities) and national levels in sustainable natural resources management and biodiversity conservation. Through the experience gained and lessons learned in the Mopti region, SADEF will also be able to incorporate NRM into its other project zones.

The GEF Alternative will:

- support the development of community infrastructure, productive and environmental micro-projects;
- promote the development and implementation of community-based integrated management plans; and identify, replicate and disseminate best practices;
- promote the removal of barriers to sustainable environmental management and support the development of a sound policy and regulatory environment by strengthening the government's decentralization process and promoting the implementation of existing environmental policies, strategies and actions plans (National Biodiversity Strategy and Action Plan, Pastoral Charter, among others) at the regional and local levels; and furthermore
- support the Government of Mali's efforts to develop a national wetlands policy and action plan and strengthen its protected areas system.

C. IMPLEMENTATION APPROACH

1. Stakeholder Involvement

This process of partnership and coordination was initiated with GEF PDF-B resources, and a SADEF-GEF Steering Committee was established in Mopti. A workshop was held in March 2003, attended by more than fifty stakeholders from the Mopti region, to brainstorm and agree on the GEF components, criteria for project site selection, complementarity between IFAD and GEF financing, and guidelines

to be for their work in Mopti. GEF resources will be utilized to deepen and expand upon the coordination mechanisms that have already been developed; regular workshops at the local and regional levels are already planned.

SADeF is designed as an active and participatory support programme for promoting development initiatives in the regions by involving all the local stakeholders. Regional associations, which are responsible for annual activity programmes, are made up of representatives of the main local institutions (farmer organisations, NGOs, Chambre Régionale d'Agriculture), and are headed by a representative from a farmer association responsible for directing local development. SADeF intends to strengthen local processes of decentralisation, planning and ownership by the communities and their institutions (socio-professional organisations, traditional authorities, elected representatives and communal councillors). Its support is designed to enable them to improve their control over their own environments, decisions and financing.

In the Mopti region, the GEF co-financing offers SADeF the opportunity to integrate environmental degradation/regeneration and natural resources management as the starting point for local and sustainable development planning. The participatory approach which will be developed is designed to make the local stakeholders and populations accountable in the whole process of planning, implementation and monitoring/evaluation of the natural resources management and development actions at the local level. These actions will be identified by the people themselves, who will be organised into groups or Management Committees. Local populations will be closely involved in site selection, the diagnostic of the sites/interventions zones, the planning and implementation of the activities, as well as in monitoring and evaluation.

The development and implementation of integrated ecosystem action plans for the management of the project sites, design and implementation of project activities, monitoring and evaluation would be agreed through a consultative process. This will also make it possible to define the conditions and incentive measures that are necessary to guarantee the long-term sustainability of the natural resource management and biodiversity conservation measures. The integrated management plans and activities, and related monitoring and management structures, will be validated in the PCAEs and eventually incorporated into the PCDs. The plans will be subject to the legal and administrative formalities required to make them official documents

Building on IUCN experience in Akka-Goun and Dentaka (Youwarou), local conventions will be developed, formalizing the consensus of all the actors in the management and use of the resources for each specific project area. These conventions would be based on traditional systems for resource management and conflict resolution. Protocols will also be developed with the local management committees that would give them responsibility for project's rural development activities.

GEF/IFAD co-financing will also be designed to set up an original organisational framework tailored to meet the specific features of Mopti, centred on the management of natural resources and sustainable development at the different levels. This framework will be based on the involvement of all the stakeholders, the establishment of partnerships and seeking synergies with all the other parties involved.

Local agents of the Nature Conservation Service and village facilitators recruited and trained by the project will facilitate the establishment of local Committees for the management of natural resources and the implementation of the project activities. Village facilitators will serve as a link between local communities, the GEF teams, and the SADeF regional association in Mopti. They will ensure that all the project activities are adequately carried out and are coherent with the village infrastructure and other activities implemented by SADeF.

2. Guiding Principles

There are several important guiding principles in the GEF intervention:

- Participatory and multi-disciplinary approach. Past implementation of projects for natural resource or environmental management has shown that to ensure the sustainability of ecosystem conservation and management, a minimum of three conditions should be met, i.e., (i) a close involvement and empowerment of local actors, in particular the beneficiaries, from identification/design to implementation and monitoring/evaluation of management and development actions on their territory. This includes also their concrete participation (financial,

material, in kind or labour) in the execution of actions and contributions to finance recurrent costs; (ii) enhancement of their technical, organisational and financial capacities to facilitate implementation and sustainability of management and/or development work; and (iii) adoption of a multi-disciplinary integrated approach, taking account of both sustainable development goals and environmental challenges and priority needs of populations so as to avoid the bias inherent to the sectoral approach.

The project will strive to meet these conditions through information, awareness raising/advocacy, training, organisational capacity building around NRM and grassroots development, as well as creation of local planning, execution and monitoring/evaluation mechanisms adapted to the financing of actions involving all relevant actors. In addition, the project will have a significant role in strengthening the organisational, technical and financial capacities of all actors.

- Interdependence/coupling of incentive or productive measures with environmental actions. Natural resource user communities, which the project will seek to involve in their sustainable management, have basic socio-economic needs, which are often of more concern to them than longer-term challenges. These needs are often neglected or cannot be taken care of by traditional environmental projects. This situation gives rise to frustrations when communities are often required to make a considerable human investment without immediate compensation.

The project will seek to avoid this trap **by creating a clear link between NRM and ecosystem restoration/protection activities and the traditional financial support activities financed through SAdEF, i.e., community-based and productive micro-projects, as well as support to decentralised financial services.** This is a unique opportunity for these two complementary funding sources to ensure success and sustainability of socio-economic development and environmental protection/management actions.

- Indigenous knowledge, replication and upscaling of technical and methodological processes and development of local capacity and know-how. Whilst there have been significant methodological and technological developments made by different projects either in Mali or in the sub-region, they are not widely diffused and replicated or upscaled beyond the project area.

The project will reinforce and disseminate the experiences and knowledge gained and tools by adapting them to the specific conditions of the Delta. Also, it will promote information and experience sharing with similar projects and areas. At the same time, it will capitalise on the local know-how of populations and their knowledge of their environment. Recognition and utilisation of this know-how, as well as its dissemination beyond the Delta, will ensure that these skills are not lost with the ongoing social changes.

- Seeking synergies and creating partnerships. Considering the extended area and the magnitude of environmental and socio-economic challenges, the project cannot act alone but should necessarily identify synergies with other stakeholders, both those involved in environmental management and in rural development. This consultation/synergy of actions should allow (i) harmonising the modes of intervention; (ii) avoiding duplication; and (iii) creating partnerships in order to maximise the complementarity of activities in the same area.
- Decentralised implementation. Considering the variety of situations and the isolated nature of many sites and village communities in the inland Niger Delta, a centralised execution that would impose a rigid framework cannot be considered: it could not reflect site-specific conditions, nor ensure ownership of activities by local actors.

The project will establish a structure and grassroots decentralised mechanisms (“cercle,” commune and village for project implementation). Finally, the project will be implemented by local actors (populations, decentralised authorities, civil society, technical structures, others) to guarantee local capacity development and strengthening.

- Flexibility of execution. In such a dynamic context as the Delta, the conditions for implementation of activities cannot be foreseen in advance and may undergo significant changes during the life of the project. The project should be set up with sufficient flexibility to take into account these changes and adapt swiftly the implementation tools and processes as needed.
- Concerning the choice of priority sites for intervention, the project will foster flexibility and ensure, prior to any intervention, **full commitment of the local populations and actors to the objectives defined in terms of sustainable management of natural resources** and

restoration/conservation of ecosystems in the Delta. A number of selection criteria were identified to help the project team in the choice of the priority areas for intervention. In a geographical area as vast as the Inner Niger Delta, the project, although aimed at improving the environmental condition of the whole region, must focus on a defined number of priority sites and project areas. These sites will be selected according to certain criteria reflecting both environmental and social factors.

The launch of conservation and restoration activities will provide an entry point to other interventions, including micro-projects which contribute to socio-economic development and respond to the immediate needs of local communities. Priority will be given to financing micro-projects that demonstrate the sustainable use of natural resource and biodiversity conservation.

The GEF supported components of this environmental conservation and natural resource management project will complement and strengthen SAdEF's rural development activities to meet a common development objective and these are described in the IFAD-GEF Components.

D. PRIORITY PROJECT SITES

1. Selection Criteria

In such a huge geographical area as the Inner Delta of the Niger River, it is quite obvious that, even though the GEF project is designed to improve the environmental state of the whole region, it must focus on a specific number of priority sites and project areas. To do this, a number of criteria have been defined reflecting environmental as well as social factors. These selection criteria for the GEF project areas (which were discussed at the GEF/SAdEF workshop in March 2003 in Mopti and confirmed during Appraisal) are:

1. The presence of known users/stakeholders: participatory management can only be envisaged on sites where populations and users exist and are known in advance.
2. The presence of at least two different activities: the coexistence of different economic activities based on the natural resources of one and the same limited geographical area is specific to the Delta: it reflects the abundance and the diversity of the local natural resources and makes it possible to establish synergies between the activities.
3. The willingness of the local populations to invest in sustainable resources management and to resolve conflicts related to natural resources management. While recognising that it is impossible to find sites/areas where there are no conflicts, the project must avoid sites where serious and persistent conflicts are likely to block the development of the NRM activities.
4. Complementarity with other development partners in the area: to maximise the impact at the regional level, all duplication must be avoided.
5. Accessibility of sites/areas: in order for the support and monitoring activities to be smoothly implemented and also to foster the dissemination of results and the exchange of experiences, the selected sites/areas must be accessible for at least part of the year by means of transport at a reasonable cost.
6. More specifically, for the ecosystem management and conservation activities, environmental criteria (such as the presence of diversified animal and plant life, the presence of endemic species and particular and fragile ecosystems, representativeness in terms of the diversity of the ecosystems of the Delta) must also be included.

2. Priority Areas

Several priority areas (each one measuring between 80 000 and 150 000 ha) were identified at the level of each “cercle” at the GEF/SADeF workshop (Mopti, March 2003 and Confirmed during Appraisal). They take account of the aforementioned criteria and also of the complementarity between flood areas and transition zones. They are presented in detail in Annex 1 and shown on Map 2. These large areas can be divided as follows:

- *Transition Zones*: Fakala (Cercle de Djenné), Méma Dioura (Cercle de Ténenkou) and Méma Farimaké (200 000 ha, Cercle de Youwarou)
- *Agro-sylvo-pastorale areas*: Pondori (120 000 ha, Cercle de Djenné), Koubaye, Galandjiri (300 000 ha, Cercle de Mopti)
- *Areas with large bourgoutières*: Femaye (Cercle de Djenné), Kotia (Cercles de Mopti and Ténenkou), Walado Debo (100 000 ha, Cercle de Youwarou)
- *Doumeraies areas*: Lake Korientzé (120 000 ha, Cercle de Youwarou), Kareri (Cercle de Ténenkou)

Starting with the basic assumption that there will be an equal share among the “cercles” and complementarity with the other development partners, the GEF project could initially concentrate on the following major priority areas: (i) Méma Farimaké (Cercle de Youwarou); (ii) Pondori (Cercle de Djenné); (iii) Kotia (Cercle de Mopti); and (iv) Kareri (Cercle de Ténenkou). This choice was confirmed during Appraisal. During implementation and following the information/awareness-building sessions will be further considered in participatory planning. This by no means excludes other project areas or more specifically targeted actions in other parts of the Delta which depends upon other needs or priorities that are subsequently defined or identified.

E. BENEFICIARIES AND BENEFITS

As already stated the target beneficiaries of IFAD operations in Mali are the poorest and most vulnerable rural populations, namely at the village level, women and young people, low caste families, non-residents and transhumant pastoralists. The Mopti region, which is 90 percent rural, is one of the regions with the highest poverty levels in Mali. The four “cercles” to which GEF/SADeF will give priority coverage have a population of about 622 000. This population comprises numerous different ethnic groups: Bozo, Somono, Peul, Dogon, Soninké, Bambara, Sonraï, Maure, Mossi, Bellah and Tamacheq.

The main beneficiaries in the Inner Niger Delta and in its transition zones are the sedentary populations and the indigenous populations that depend for their livelihood on the natural resources of the Delta. There are six socio-economic groups among these users/exploiters and their families:

- the transhumant pastoralists: Peul, Tamacheq and Maure in the north;
- the agro-pastoralists: Peul, Rimaibé, Bellah;
- the agro-fishers: Bozo, Somono, Sorko;
- the sedentary/non-sedentary crop farmers: Bambara, Sonraï, Rimaibé, Soninké (Marka);
- the transhumant fishers;
- the traders and artisans.

Analysis of the dynamics of the natural resource farming systems and methods in the Delta shows that these different socio-economic groups are trying to adapt to the new ecological conditions. They are increasingly diversifying their activities and at the present time they are in a "re-composition" phase, with the emergence of a new category of agro-pastoralists-fishers category, which is adding itself to or superimposing itself upon the other groups. This mixture of production functions has excellent chances of developing, and of eventually becoming the only alternative for survival in the Delta. But this situation is likely to increase pressure on what are already over-exploited resources in numerous places, as well as the disputes over land tenure for rights of access to these resources.

In order to reduce this risk, it is essential that the project take into account this new land occupancy dynamic and support all the social groups in order to ensure compliance with the rules for rational

management of natural resources and for the sustainable restoration/conservation of unique ecosystems. To do this, the GEF/IFAD partnership will ensure that (i) land tenure conflicts are prevented, (ii) alternative sources of income are developed in order to reduce pressure on the natural resources and (iii) production systems and techniques are improved.

There are many benefits from the GEF/IFAD co-financing. The most important benefits at the local level are improved living conditions and incomes (namely, poverty alleviation), increased productivity of production systems and strengthened food security. Other benefits, which also have links to national and international levels, are the improved management of natural resources, the safeguarding of threatened ecosystems and the incorporation of conservation and management rules into local and regional planning.

At the local and regional levels the following may be added: (i) support to the decentralisation process by strengthening institutional capacities (including support for the establishment of an adequate organisational framework for managing and monitoring the resources of the Inner Niger Delta and its transition zones); (ii) support for implementation of policies, strategies and legislation for managing natural resources, combating desertification and conserving biodiversity; (iii) contribution to the socio-economic development of the region.

F. COMPONENTS OF IFAD/GEF

1. SADeF Components

The five components of SADeF in the second phase (and most probably in the third phase) are the following:

- (a) Component 1: Strengthening capacity of local actors/Information-Education-Communication (IEC).** This component aims to strengthen the local ownership processes of communities and their institutions, in order to allow them to have better control over their environments (economic and political environments, but also ecosystems in the Mopti region), in decision-making and financing of activities. Therefore, the idea is to reinforce the social capital specific to each region so that it can fully meet its social (management of community investments), economic (creation of income-generating activities and management of markets) and political (taking part in identification, planning and implementation of local development policies/programmes) functions.

The capacities of the rural poor and their organisations should be strengthened to allow them to access social services, basic infrastructure, technologies and economic opportunities (markets and financial services). Implementation of an Information, Education and Communication Strategy (IEC) will be a cross-cutting element closely linked with capacity building at all levels of project intervention. In Mopti, besides its traditional activities, SADeF, in partnership with GEF, will support activities, which will integrate issues related to environmental management, biodiversity conservation, ecosystem monitoring and support to an organisational framework centred on NRM.

- (b) Component 2: Support to local development.** SADeF has defined a typology of micro-projects in order to meet the specific needs of populations and villages. The typology includes: (i) community projects, providing for basic infrastructure allowing villagers to access basic public services, such as drinking water, water for cattle, access routes to the village and communal buildings; (ii) productive projects, including small-scale irrigation schemes, vegetable and rice perimeters ensuring a sustainable income to beneficiaries, income-generating activities providing vulnerable groups (women and youth) a steady income for low investment; and (iii) productive environmental projects aimed at protecting and restoring natural resources, including stabilisation of river banks, silt removal from feeder channels of ponds and lakes, management of ponds and forests, regeneration of “bourgoutières.” This component will support GEF’s natural resources management initiatives in Mopti.
- (c) Component 3: Support to sustainable Natural Resources Management and biodiversity conservation in the Mopti region** – This is the primary area of support of the GEF

intervention *Biodiversity Conservation and Participatory Sustainable Management of Natural Resources in the Inner Delta of the Niger River*. This component will focus on the participatory and sustainable management of natural resources and on the conservation of biodiversity. It aims at the sustainable development of the Inner Niger Delta (inundated area) and its transition zones (exundated areas) and considers the inter-dependence and seasonal migratory movements between these two inter-related areas. The three sub-components specific to GEF are detailed below (see GEF Components below1).

- (d) **Component 4: Support to decentralised financial services.** This component intends to facilitate access of rural populations in the project area to decentralised financial services, better adapted to their needs. To this end, the creation of microfinance institutions, such as credit and savings schemes, is planned. These activities will be introduced in Mopti only in the third year.
- (e) **Component 5: Project Co-ordination and Management.** Co-ordination and management of SADeF is based on the following principles: a single structure at the national level in order to facilitate relations with the Government and external partners; full management autonomy on the regional level; allow beneficiaries to gradually assume responsibility for programme management; operate under private law conditions; light and flexible organisation. Changes will be made during the second phase to improve performance and adapt the project to GEF evolution and co-financing/expansion of project areas (Mopti, Kayes).

2. GEF Components

GEF-IFAD funding are complementary and will provide important synergies that will ensure the success and the future sustainability of SADeF operations in Mopti, particularly in the area of sustainable natural resources management. GEF resources will, in effect, provide an essential dimension that will lead to the restoration and conservation of the biological balance in a region whose ecosystems are of global importance and whose complex production systems are tied to flood and flood recession.

Through the experience gained and lessons learned in the Mopti region through this GEF-IFAD co-financing, SADeF will also be able to incorporate NRM and biodiversity conservation considerations into its other project zones. GEF co-financing is planned to last for six years and the GEF resources will cover the incremental costs necessary for achieving global environmental benefits during the second and third phases of SADeF.

The sub-components and activities to be provided with GEF resources are described below, under the relevant SADeF component heading, and are summarised, together with performance indicators and underlying assumptions in the logical framework in Appendix 2.

Component 1: Capacity building and institutional strengthening (in integrated ecosystem and sustainable natural resources management)

This sub-component component will build on and complement the capacity building and Information-Education-Communication (IEC) activities of the SADeF programme (using IFAD funds), which include: the organisational and technical strengthening of the SADeF management institutions, the decentralised authorities, the peasant organisations, the village communities, the decentralised technical services of the Government, etc. GEF resources would be utilized to incorporate natural resource management and biodiversity awareness-raising and training activities into the IEC strategy and training activities that would be developed with IFAD resources. GEF resources will furthermore focus on addressing some of the key barriers contributing to unsustainable NRM practices and biodiversity loss and to developing the institutional, managerial, technical and financial capacities to improve all aspects of management. GEF resources would be utilized to:

- strengthen the organisational, technical and financial capacities of the full-range of stakeholders (national, regional and local levels) in integrated ecosystem and natural resources management. Training and capacity-building at the local level will be given particular emphasis to ensure the participation of the local and indigenous groups in the design and implementation of the project site/ecosystem action plans and the management and monitoring of the activities that promote biodiversity conservation and sustainable use;

- support the Government of Mali’s decentralisation process in the area of environmental management and biodiversity conservation through the preparation of Community Environmental Action Plans (PCAEs) for incorporation into the Community Development Plans (PDCs); and
- create an enabling policy and regulatory environment and promote the incorporation of sustainable natural resource management and biodiversity considerations into sectoral plans and policies.

Specifically, the GEF resources will support:

- (i) **environmental education and awareness-raising in the area of natural resource management (NRM)**, biodiversity conservation, integrated ecosystem management, and participatory approaches. The approach and activities are described in Components 3 below. As one of the initial activities of SADeF in the Mopti region, IFAD funds would be utilized to develop an IEC strategy and action plan. GEF will provide the incremental resources to bring NRM and biodiversity conservation and an integrated ecosystem approach into the IEC strategy.
- (ii) **development and adoption of participatory techniques** in priority setting, problem solving, design and implementation of natural resource management and biodiversity conservation programmes and activities on an integrated ecosystem basis;
- (iii) **organisation of key stakeholders for biodiversity conservation and NRM.** Collaborative mechanisms involving the full-range of stakeholders at the different levels (villages, communes, “cercles” regions) will be established to ensure the participatory decision-making and management of the selected project sites/ecosystems;
- (iv) **training needs assessment.** In light of the weak institutional and human resources capacities in the Mopti region in the design and management of NRM activities, a needs assessment will be conducted as one of the start-up activities in order to identify existing capacities and weaknesses and design an appropriate training programme. This programme will be phased over the life of the project, and would build on the training activities in the organization, financial, and management activities foreseen under SADeF-IFAD, as well as link to the extent possible with the training activities of other related ongoing and planned activities, such as those of IUCN, Wetlands International, and the World Bank-GEF Arid Rangeland Biodiversity (Gourma) project and the proposed GEF/UNDP/IFAD Boucle de Baoulé Project. Special emphasis will be placed on building collaboration among the projects particularly for training that would be carried out at the national level and at the level of the decentralized technical services.
- (v) **training of local communities and indigenous groups (including transhumant pastoralists)** in the planning, management and implementation of actions plans and in the various technical fields linked to the protection and sustainable management of the natural resources of the Delta (soil and water conservation techniques, controlled non-grazing areas, integrated cropping/livestock/fisheries techniques, sustainable fisheries management, improved rangeland management, etc.). Activities related to the *in situ* conservation of agricultural biodiversity and the promotion of indigenous crop varieties and livestock breeds will be given particular attention.
- (vi) **strengthening the capacity of key sectoral ministries involved in natural resource management** (such as Ministry of Environment, Ministry of Agriculture, Livestock and Fisheries, Ministry of Energy, Mines and Water) **and their decentralized units** to integrate biodiversity and conservation aspects into sectoral plans and policies and into sustainable development programmes. Special attention will be focused on strengthening the human resource and institutional capacities of the Nature Conservation Service(s) in Mopti to plan and manage NRM activities and projects.
- (vii) **support to the decentralisation process through the preparation of Community Environmental Action Plans (PCAEs) for incorporation into the Community**

Development Plans (PDCs) for at least 40 communes. Preference will be given to providing assistance in the priority areas and project sites, and links should be made to the integrated management plans and site-specific action plans under Components 1 and 2 above. The PCAEs will be validated by the communities and stakeholders at workshops.

- (viii) **development of a Strategy and Action Plan for Conservation and Sustainable Management of the Inner Niger Delta and its Transition Areas.** This strategy would build on the priorities established in the NBSAP, including the Mopti biodiversity conservation strategy (1999). The strategy would layout a framework and structure for the sustainable management of the Delta using a landscape/integrated ecosystem approach and guide the development of appropriate site-specific management plans. It would take into consideration ecological considerations, traditional use and current management practices. « hotspots » and priority areas for conservation and sustainable use would be identified and demarcated, including areas for strict protection because of the important ecological and other (sacred forests) services they provide. It is envisaged that a number of studies would be commissioned to provide critical information for the development of the strategy, as well as to verify key assumptions. A workshop inviting the full-range of stakeholders from the national, regional, commune and local levels would be organized to validate and adopt the strategy. Collaboration would be established with IUCN, Wetlands International, Walia, IRD, WWF, community-based organizations and other institutions and organizations that have a long tradition of working in the Delta.
- (ix) **creating an enabling policy and regulatory environment** through: promoting the implementation of existing, sound environmental policies and strategies (NBSAP, Pastoral Charter, etc.) at regional, commune, village and local levels; incorporating NRM and biodiversity considerations into sectoral plans and programmes; collaborating in the development of new policies (National Wetlands Policy); supporting the Mali's protected area management system by maintaining close collaboration between GEF, World Bank, UNDP and IFAD for the development of an observatory for impact monitoring and for creating an institutional framework for effective management and environmental protection policies.
- (x) **strengthening of an existing institution or establishment of another structure for the long-term planning and management of the Inner Niger Delta and its transition zones.** The institutional framework is linked to the Strategy and Action Plan (above). In this respect, the recent decision of the Government of Mali to create the Niger River Agency will be followed closely. The stated goal of the Agency would be to preserve the terrestrial and aquatic ecosystems of the delta, to avert negative impacts from both natural and man-induced changes, and to strengthen capacities for integrated management.
- (xi) **organisation of local and regional workshops** to facilitate the participation of the wide range of stakeholders on the planning and management of the project's activities, including the verification of studies and demonstration activities. They would serve as a means of distilling best practices and disseminating results. These workshops will also promote discussion on key issues related to the sustainable management of natural resources, the promotion and enhancement of agricultural biodiversity, and the conservation of biodiversity and ecosystems of global interest within the Delta.

Component 2: Support to Local Development

SADeF components 2 - Support to Local Development and 3 - Support to Sustainable Natural Resources Management and Biodiversity Conservation are inextricably linked. Component 2 is the baseline, and without the GEF resources SADeF would not have entered the Mopti region with NRM as its point of entry. The traditional SADeF activities would most likely have continued without any support to NRM activities, and may not have been extended to the Mopti region. SADeF in its original design is not well adapted to establishing consensus between the conflicting needs of different communities living in the same area. As such, the GEF alternative complements the SADeF programme, by mobilising substantial, additional specialised support for conserving biodiversity of global importance, including *in situ* conservation of agricultural crop varieties and livestock breeds, and for the promotion and demonstrations of the sustainable use of natural resources in the Delta. GEF contributions will amplify the impact of SADeF interventions in the Mopti region. The wider objective of GEF support extends beyond village level interventions, as would be the case with SADeF alone, to tie in with national and international initiatives. Thus, GEF support will not only supplement SADeF interventions but will also confer global benefits, which otherwise would not be achieved.

Micro-projects financed by IFAD through SADeF will be carefully screened and selected to complement and facilitate the sustainable use of natural resource and biodiversity conservation, including support for alternative income generating activities, which will reduce pressure on natural resources. The innovative coupling of activities to meet immediate needs with those intended to safeguard natural resources in the long term will initiate implementation of the SADeF programme in the Delta region. GEF support activities are described in Component 3.

Component 3. Sustainable Natural Resources Management and Biodiversity Conservation

GEF resources will be utilized to support three sub-components. They are:

- Restoration and development of the agro-sylvo-pastoral and fisheries potential through integrated natural resources management and biodiversity conservation;
- Community-based conservation and management of biodiversity at the most threatened ecosystems (hotspots) of national and global importance; and
- Establishment of a monitoring and evaluation system on the state of biodiversity and natural resources of the Inner Niger Delta

The project will promote a community-based approach and will build on the experience gained by, and complement the work of IUCN, Wetlands International, IRD and other institutions with long experience in the Inner Niger Delta or in other similar ecosystems. PDF-B resources were utilized to commission a local NGO to conduct a preliminary inventory of potentially manageable sites. The draft report includes information on the characteristics of zones and potential sites, a survey of existing local plans, and identifies potential interventions for their management. This inventory will serve as one of the base documents for the more detailed diagnostics that will be conducted during the first year of the full-scale project.

The criteria for site selection were agreed at the brainstorming workshop that was held in Mopti in March 2003. On the basis of this information, the workshop also identified preliminary project areas at the level of each “cercle” (see Annex 2 for description of the sites) for restoration and development of the agro-sylvo-pastoral and fisheries potential. Project sites will be selected that contain a high concentration of biodiversity of national and global significance, or play a critical role in water regulation, nutrient recycling or other ecological processes that sustain human livelihoods. Sub-component 3.1 (Restoration and development of the agro-sylvo-pastoral and fisheries potential through integrated natural resources management and biodiversity conservation) will focus on these larger project areas. Within these zones, there are Ramsar and other critical ecosystems (hotspots) that may not (yet) have been formally designated as protected areas. These critical ecosystems would be the focus of Sub-component 3.2 below.

A participatory approach, involving the wide range of stakeholders from national to local levels, would be adopted in designing the site-specific integrated management plans. These plans would encompass the multiple uses of the wetlands and adjacent areas. Priority will be given to those sites

and interventions that have also been identified in, and address the priorities of, the Community Development Plans and related Community Environmental Action Plans. Linkages between and among communities concerned would be developed, as well as between local, regional and national levels, would be developed.

Sub-component 3.1: Restoration and development of the agro-sylvo-pastoral and fisheries potential through integrated natural resources management and biodiversity conservation

Despite its high productivity (fisheries, livestock, agriculture), the Delta remains one of the poorest areas of Mali. The Inner Delta of central Mali is a dynamic system, in which indigenous communities have developed integrated, sequential uses of the floodplain by different groups in connection with the inundation and recession of flood waters. Building on indigenous knowledge and experience in the management of these ecosystems, complex and innovative land and water management practices have evolved over time that have produced unique systems. Until recently, the natural resources have been sustainably managed and adapted to adjust to environmental and manmade stresses and changes, contributing to enhancing rural livelihoods, food security, and ecosystem resilience. These systems are rich in biodiversity, including biodiversity important to agriculture, within and between species, as well as at the ecosystem and landscape levels. The integrated management practices have furthermore maintained important ecosystem services (soil and water conservation, biodiversity conservation, water regulation and quality, carbon sequestration) and contributed to the high productivity of the Delta. This human-environment interaction has resulted in a culturally diverse and rich system, whose social organizations and customs, including conflict resolution, have also evolved with the changing ecosystem/landscape.

The balance is now threatened, and the system is no longer adjusting to environmental and man-made pressures. Recurrent droughts have reduced the extent and duration of the floods, sedimentation prevents adequate flooding, increased population pressure has resulted in over-exploitation of the resources, and conflicts over resource use have increased.

This sub-component is therefore designed to promote the restoration and the long-term development and community-based management of the significant agro-sylvo-pastoral and fisheries potential of the Delta and its transition zones and to incorporate biodiversity and sustainable use considerations into these integrated production systems, building on indigenous knowledge and cultural traditions for natural resource management. The aim of this component is to restore and maintain the ecological balance of the Delta, while, at the same time, increasing rural incomes and contributing to food security.

Priority sites for action were identified at the Mopti workshop and confirmed during Appraisal are discussed below and in Annex 1. Project sites will be selected that contain a high concentration of biodiversity of national and global significance, or play a critical role in water regulation, nutrient recycling or other ecological processes that sustain human livelihoods. In addition, this component would adopt a landscape/integrated ecosystem approach (hence, the Delta and its transition zones) and would focus on those areas with high agricultural potential (agriculture, livestock, fisheries and forestry) and which are presently under threat.

SADeF (IFAD funds) will make its matching contribution for the involvement of the village communities/groups/populations by financing priority **social/community micro-projects** of a productive nature or NRM activities which have been included in the Community Development Plans. Such micro-projects/activities could include: small-scale commercial activities, rice productive/small-scale irrigation, vegetable production schemes, rangeland improvement, water management for livestock, improved stoves (for smoking fish), nurseries/forest plantations for firewood, mechanical dredging of ponds, de-silting of ditches, fencing of transit corridors and trails, etc. All of these actions will be designed for the sustainable development of the villages/communes involved, improving living conditions and raising the incomes of the rural population while easing the pressure on the natural resources and the seriously threatened ecosystems of global interest.

GEF and IFAD support is also envisaged to cover some of the natural resources management and biodiversity conservation activities included in the PDCs of the communes that are not directly targeted. SDeF will, however, ensure that the financed activities provide benefits, as a matter of

priority, to the village communities and groups involved in the natural resource management/restoration and sustainable development activities.

The following activities would be implemented with GEF support :

- (i) **Information/awareness-raising campaign** – As for Component 1 above, environmental training and awareness-raising would precede the participatory selection of sites and any on-the-ground activities. The IEC activities would, *inter alia*, raise awareness about the importance and benefits of biodiversity conservation, challenges of reversing the degradation process and long-term natural resources management, integrated ecosystem approach. These activities would be designed to promote commitment and buy-in of the local populations and stakeholders to attain the objectives sought.
- (ii) **Mapping and inventorying the priority areas, conducting miscellaneous complementary studies and carrying out targeted research to fill in gaps in information.** More detailed studies of the dynamics of the ecosystems and the state of the natural resources in the priority areas building up on the baseline data would be among the studies conducted. Special attention will be given to studying the carrying capacity of the ecosystem with respect to utilization of the resources and population growth. Given the economic importance of fisheries production and rich biodiversity of the fisheries resources, a study will be conducted, for example, to better understand the ecological links between flooded forests, bourgou areas, fish production, and water birds.
- (iii) **Complementary studies analysing the socio-economic conditions at selected project sites (ecosystems) and surrounding villages,** the users of the resources and their methods of exploitation, land tenure systems, constraints to sustainable natural resource management, approaches to conflict resolution, etc., would also be conducted. The proposed studies and surveys will make it possible to establish a baseline and define the constraints and major types of priority activities to be in consultation with the local people and resource users. With this baseline, it will be easier to understand the dynamics of the ecosystems and their exploitation in time and in space. These studies will become the baseline for allowing effective project monitoring and for measuring the impact of the project activities on the status of the resources, as well as on rural livelihoods and conditions. The studies would also help to **identify appropriate incentive measures** that would encourage integrated sustainable management of the natural resources, including the adoption of new and innovative practices.
- (iv) **Participatory planning** (with the local populations and actors concerned) of the activities to be undertaken for restoration of the agro-sylvo-pastoral and fisheries production potential and community-based management of the sites. **The development and implementation of integrated ecosystem action plans for the management of the project sites,** implementation of project activities, monitoring and evaluation would be agreed through a consultative process. Integration of the ecosystem/site action plans into the Community Environmental Action Plans (PCEAs) (prepared under Component 1 above).
- (v) **Integration of the ecosystem/site action plans into the Community Environmental Action Plans (PCEAs).**
- (vi) **Development and implementation of pilot demonstration activities with a high replication value.** The project would support and strengthen the integrated natural resource management systems that have evolved over time. Building on indigenous knowledge and the integrated approaches that have evolved, resource utilization, conservation, restoration technologies will be developed and tested in the selected project sites. Results and best practices will be disseminated and could be introduced in other areas of Mali or in other semi-arid/arid zones of Africa where integrated and sequential approaches to the management of the floodplains have been developed by communities.

Potential activities could include: soil conservation and erosion control measures, improved rangeland management, the protection and the reintroduction of local species through *in situ* conservation, support to local cultivators' production, distribution and exchange of seeds of traditional landraces, assisting pastoral communities in the conservation of traditional animal breeds, improved fisheries management, among others. Other activities that could be carried out to restore the productive potential of the sites could include the regeneration of the bourgoutières, restoration of the natural forests (*Acacia albida* or doumeraies), protection of the riverbanks by replanting them with vetiver, marking out the transit corridors with the aid of *Euphorbia balsamifera* cuttings, etc.

- (vii) **Promotion and development of alternative sources of income** that would reduce the pressure of the biological, land and water resources of the Delta and its transition areas. GEF resources would supplement IFAD-funded micro-projects to develop new income-generating activities.
- (viii) **Identification, development and testing of incentive measures for the adoption of environmentally friendly practices** that preserve the resource to meet future needs, as well as conserve the unique biological resources base (including indigenous plant and animal, domesticated and wild resources), traditions, and cultural richness of the Delta. The objective of the proposed interventions is to change resource user's attitude and behaviour. In the implementation of the activities in Components 1 and 2, the positive and perverse incentives which affect changing behaviour will be studied. Land tenure systems, economic viability of improved integrated systems, and the cost of conservation measures would affect an individual's/community's decision-making to adopt sustainable/improved NRM activities and biodiversity conservation measures.

Sub-component 3.2: Community-based conservation and management of biodiversity at the most threatened ecosystems (hotspots) of national and global importance

This sub-component aims to conserve and sustainably manage six of the most threatened sites («hotspots») in the Inner Niger Delta in central Mali. The sites would be limited in size, contain a high concentration of biodiversity of national and global significance, or play a critical role in water regulation, nutrient recycling or other ecological processes that sustain human livelihoods. Potential threatened sites include, *inter alia*: the flooded forests, mainly populated by the *Acacia kirkii*; havens for large populations of migratory birds; a number of water bodies or traditionally protected ponds (including existing Ramsar sites) which are indispensable for the reproductive cycles of several dozen species of fish; areas containing threatened species, such as manatees. The criteria for site selection were agreed at the brainstorming workshop that was held in Mopti in March 2003. Priority would be given to those sites which have been identified as « hotspots » within the larger project areas that would be the focus of Sub-component 3.1 and are described in Annex 2.

To achieve this objective, GEF resources would support the development and implementation of integrated management plans for the conservation and sustainable use of the resources, in close consultation with the populations and stakeholders most directly involved. The sites would be identified in a participatory manner through broad-based consultation with the key stakeholders concerned, among which are the indigenous populations and users, the local authorities and the traditional chiefs responsible for natural resource management, and the decentralised authorities.

Site selection will be preceded by an **information/awareness-raising campaign** at all the potential sites¹ and priority project areas. The awareness-raising activities will be directed at familiarizing the wide range of stakeholders and users of the resources of the uniqueness of this important ecosystem and the significance of its land, water, plant and animal resources (of which many are endemic and/or of global interest) for their livelihoods. The threats to the ecological balance of the system and the importance of conserving its biodiversity, including biodiversity important to agriculture, and the need to take a holistic approach to managing these complex systems, would be highlighted. The

¹ The list of the sites identified during the implementation of the PDF-B and the appraisal mission could serve as the basis for discussions with the local populations and stakeholders.

information campaign would be designed in such a way as to raise the awareness of the stakeholders of the value – intrinsic and economic – of conserving the natural resource base and its biodiversity and to enlist their active support in carrying out and sustaining the project's activities.

As co-financing, SADeF (IFAD funds) will finance priority **socio-community micro-projects** (Component 2) of a productive nature or important NRM activities that have been included in the Community Development Plans. Such activities could include the mechanical dredging of the ponds, the de-silting of the channels requiring machinery, alternative livelihood activities that could reduce over-exploitation of the resources, etc. All these actions will contribute to the sustainable development of the villages/communes and to raising the living conditions and incomes of the rural populations. They will also help to ease the pressure on natural resources and the seriously threatened ecosystems of global interest.

Specifically, the GEF activities would support:

- (i) **Participatory selection and delimitation of the project sites:**
- (ii) **Mapping, Inventories and Complementary studies**, including a study of the dynamics of the ecosystems at site level and their carrying capacity;
- (iii) **Participatory diagnostics**, taking into account in particular the different stakeholders, the users/their methods of exploitation, the surrounding village and site-level socio-economic conditions, land tenure, constraints on sustainable management, etc. These studies will make it possible to establish the baseline state of each of the sites, which would be utilized for subsequent monitoring and evaluation of the project's activities and measurable impacts on the status of the resources (see also Component 4). They will also make it possible to define the conditions and incentive measures that are necessary to guarantee the long-term sustainability of the NRM activities.
- (iv) **Development of Integrated Management Plans (IMPs)** for six selected sites and for a refuge area for protection of manatees (see below). These IMPs will be developed in close consultation with all the actors and stakeholders concerned and subsequently validated and tested at the local level. The IMPs would multiple use of these critical ecosystems and their adjacent areas and, *inter alia*, layout the framework (including policy and regulatory aspects) for the long-term restoration, conservation and sustainable use of the sites, identify potential activities to be undertaken and resources required, establish financing arrangements (including contributions in cash or in kind from the local populations and other stakeholders), lay out an implementation programme and timetable, develop monitoring and evaluation plans. Among the activities that could be envisaged are: the regeneration of the bourgoutières and natural forests; eliminating alien species such as *Mimosa pigra* (which invades the bourgoutières); reintroducing/promoting local plant varieties and animal breeds; introducing erosion protection/management measures; setting up controlled non-grazing areas on parts of the sites identified for strict conservation, etc.
- (v) **Establishment of a protected area for the West African manatee.** In close consultation and partnership with local communities, communes, regional and national authorities, the project would conduct a **feasibility study** on the establishment of a protected area/national park for the protection of the West African manatee and its habitat. The study would cover, *inter alia*, legal, regulatory and land tenure aspects, types of use (strict protection, multiple use, low impact visits), boundary demarcation, infrastructure requirements, operational plans, environmental and other assessments, identification of key indicators for monitoring and evaluation, economic feasibility, potential income-generating activities (for example, opportunities for ecotourism). GEF resources would also cover the activities required for the site to be designated as a protected area, if agreed at the local, regional and national levels, and the development of a management plan;
- (vi) **Adoption and validation of the IMPs** at the communal level. The IMPs would be integrated with the Community Environmental Action Plans (PCAEs) (see Component 3 below). An appropriate organisational framework (site or inter-site management

committees) would be established and local agreements, which are required by law to establish contractual relations for managing operations among all parties, would be prepared and signed;

- (vii) **Implementation of the IMPs.** The IMPs and related project activities would be implemented and tested in up to six sites. Adequate monitoring of the project activities and impacts and flexibility in implementation are important elements of the project design in order to adjust activities as experience is gained are important elements of the approach. Best practices and lessons learned would be disseminated and could facilitate expansion to other sites (for which it might be necessary to identify additional sources of co-financing).

Sub-component 3.3: Establishment of a monitoring and evaluation system on the state of biodiversity and natural resources of the Inner Niger Delta

A phased approach will be taken in the third sub-component dealing with monitoring and evaluation of the resources of the Delta. In the initial phases, the component will establish and strengthen capacity for monitoring and evaluation of environmental impacts within the Project Coordination Unit (PCU) for SAdEF-GEF. This capacity will coordinate the various studies and surveys necessary for building baseline data on Delta resources and developing the basis for a future geographic information system (GIS). It will also evaluate existing/planned databases and information systems, design a strategy for developing a unified system, and ensure co-ordination with the other development partners in the field. In the subsequent phases, in coordination with other development partners in Mali, the component will develop a dynamic environmental information system to manage natural resource data specific to the Inner Delta and its transition zones. This Delta Environmental Information System (DEIS) will be an effective tool for decision-makers at the local and regional levels for sustainable and coordinated management of their natural resources and ecosystems.

The establishment of this DEIS will be part of the implementation of the National Environmental Information Management Programme (a priority programme of Mali's national environmental protection policy) and will strengthen the national programme with respect to its application in the Mopti region, in particular in the Inner Delta. Implementation of the national programme, the responsibility of the STP/CIGQE, will also be based on a national GIS, which will rely on technical and financial support from the French Cooperation. Building on this effort, the GEF would bring additional value to this environmental information system at the regional level. The DEIS will also strengthen the new Niger River Agency (the Inter-Ministerial Committee that has just been created but is not yet operational). It will appraise, update or strengthen the partial databases that already exist at the Mopti Fisheries Office (OPM), which is responsible, in particular, for monitoring fish catches, the National Agricultural Research Institute (IER) and the IRD/ORSTOM.

Activities planned for the early phases, building capacity for environmental monitoring and evaluation in the PCU and in relevant resource persons in Mopti will include the following:

- (i) **performing various complementary surveys and studies** needed to develop and put into operation the environmental information monitoring and management system for the Inner Niger Delta, including identifying specific impact indicators to make it possible to monitor the state of resources in terms of flooding and exploitation rates, etc.;
- (ii) **designing a strategy for establishment of the GIS database**, in partnership with other development partners, and bearing in mind existing tools and achievements. This will particularly include the acquisition of GIS tools and air photographs and/or satellite images;
- (iii) **conducting training needs assessment and training resource persons** in GIS and data collection techniques.

In subsequent stages, and following the creation of a permanent environmental monitoring facility based in Mopti, activities will include the following:

- (iv) **support for establishment of (i) a monitoring and evaluation system** at different levels (sites, villages/inter-village, commune/inter-commune, "cercle," region) and (ii)

a permanent organisational framework for monitoring the state of the resources and defining the conditions for its long-term operation, in coordination with the regional and national technical structures;

- (v) **regular publication/dissemination** of a report on the state of the natural resources of the Inner Delta, including information on flooding, species count, etc.;
- (vi) **wide dissemination of the achievements** in order to extend the actions, and for the restoration and conservation of the biodiversity and the sustainable management of the natural resources of the Inner Niger Delta and its transition zones.

This environmental monitoring facility will complement the organisational framework and be fully integrated into the management and monitoring structures planned for sustainable management of the Inner Niger Delta (see Component 3). It will furthermore support the project's monitoring and evaluation activities as described in Component 5 below and in Annex 5.

Component 4. Support to Decentralized Financial Services

This component will evolve over time. The final methodology to be adopted will have to be consistent to IFAD's guidelines on rural micro-finance which emphasize capacity building and strengthening linkages between the formal sector institutions and informal group savings and credit schemes. The institution model will be flexible for the Mopti region, as the demand for financial services is very diverse even among poor and remote communities. Some communities may require access to more capital than local savings allow, and the essential activity may be to foster linkages with upstream financial institutions with a much larger capital base. Under this project, it is likely that support could take a variety of forms from intense training of microfinance institutions, so they may become viable partners to strengthening these institutions to increase their rural outreach.

No GEF increment is foreseen in support of this component, although a possible positive impact on the biodiversity of the Delta may result from taking environmental aspects into consideration in the activities supported by decentralised financial services. To ensure that the SAdEF credit interventions do not undermine the ecological purposes for which the project is being established, a number of measures are presented below. These would become concrete conditions for implementation:

- A list of activities deemed to be or concern to the environment and sustainable development will be prepared and distributed and explained to the members, management and credit committees of the cooperatives.
- Any integration of a particular community, or producer group, into the micro finance component, and the provision of support, depends on a partnership agreement elaborated between SAdEF, the implementing agency and the community. This agreement, drawn up in the respective vernacular language, is displayed at the counter of the credit cooperative. The agreement comprises, among others, the items that the credit cooperative will not finance. Committees and members publicly agree to abide by the rules of the project and to cooperate fully with the project in this regard.
- Project and implementing agency staff constantly discuss environmental issues with cooperative members and committees.
- Cooperatives submit a list of details on credit disbursed to project staff. This standard procedure is already implemented in all other projects and required for monitoring and reporting purposes. Data are to comprise name of borrower, loan purpose, duration and repayment mode.
- Annual review of the performance of the cooperative during the General Assembly comprises environmental audit as regular point of the agenda.
- Training of credit committees comprises environmental issues and environmental friendly loan use monitoring by credit cooperatives.
- All borrowers provide some details on main sources of income, productive assets (cropped area, number of work oxen, number of pirogues etc.), nutrition, education etc. on a specific entry form, which should be subject to periodic review and updating, preferably annually. This mechanism provides a simple database for borrowers and permits also impact assessment of loans for evaluation purposes.

- Annual environmental audit workshops organized by the program for members of management and credit committees of cooperatives at zonal level may complement the above measures.
- Particular attention will be given to the assessment, sensitisation and promotion of eco-tourism potential and related activities (guides for ecological and cultural tours, accommodation-cases de passage, pirogue hire, bird-watching, manatee viewing, traditional customs, handicrafts, meals, photo-opportunities etc.).

Component 5. Project Management and Co-ordination

Management. At the National level, SADeF management falls under the lead agency, the Ministry of Agriculture, Livestock, and Fisheries. Implementation is however, the responsibility of the *Association Nationale Pour le Développement du Sahel (ANDES)*. The Association, operating under private law conditions, recruits a Programme Coordination Team for the National level and to coordinate linkages between the Regional Coordination Units in each of the four regions (Ségou, Kayes, Koulikoro, and Mopti). At the National level, the Programme Coordination Team (ANCG: *Agence Nationale de Coordination et de Gestion*) is headed by a Coordinator supported by a Financial Controller, an M&E Specialist and an Assistant. Each Regional Project Coordinating Unit (*AREG: Agence régionale d'Exécution et de Gestion*) has a complement of staff comprised of a Regional Coordinator; a Financial Controller; a Rural Development Officer; a Capacity-building Management and Training Officer; and an M&E Officer. The Regional PCUs report to the Associations through the National Coordination Team. It is foreseen that the Mopti Regional PCU to be established in Mopti will remain throughout the project implementation period.

Within the Regional PCU in Mopti, the **GEF team** will be given the essential roles of supporting and strengthening (i) the implementation of the natural resources management and biodiversity conservation policies and strategies at all levels (local, regional, and national); (ii) the establishment of an appropriate organisational framework to guarantee environmental monitoring and the long-term management of the Inner Niger Delta and its transition zones; and (iii) local/regional structures (decentralised authorities, agents of the Nature Conservation Services, populations) in planning and implementing the conservation of biodiversity of global interest and the sustainable management of natural resources, whose exploitation is the main source of food and income. The GEF team will also support the installation of SADeF in Mopti, ensuring that the natural resources management objectives are incorporated into all support activities. It could also strengthen the SADeF structures, if necessary, that have been set up in other regions (Ségou, Koulikoro) in order to take greater account of the environmental challenges.

Coordination. Considering the priority attributed to natural resources management in the Mopti region, the GEF component will operate under the authority of the Ministry of Environment, which is responsible for implementing and monitoring environmental and biodiversity protection/conservation policies and in close collaboration with the Ministry of Agriculture, Livestock, and Fisheries. Therefore, even though it is incorporated within SADeF, **the GEF team will be closely linked to the Regional Nature Conservation Services**, as well as the other technical services at the regional level, to ensure their involvement in implementation and the sustainability of the GEF activities. The GEF team will also seek synergies and partnership arrangements with other environmental projects in the region.

Composition of the GEF team. The GEF team will be assisted by an international expert recruited for three years, a specialist in the participatory approach and NRM in wetlands, whose role will be to ensure that the various support activities are properly launched and given sound technical co-ordination. The international expert's presence is justified by the complexity of the ecosystems in the project area and by the need to define an adequate organisational framework that will make it possible to attain the objectives specific to the Mopti region. This expert will facilitate speedy start up and coordination of innovative technical aspects of the programme in collaboration with the Regional Nature Conservation Services. Specific expertise in participative approaches to natural resource management in wetlands is required. The GEF team includes also a socio-economist, a monitoring and evaluation specialist, who will be in charge of the GIS (all of whom will be recruited by public vacancy announcements and as per IFAD's recruitment procedures), and by local support staff (two secretaries, one accountant, drivers). Vehicles (4x4) and travelling costs (including those of the staff

of the technical facilities and others) will also be provided to guarantee effective support for and monitoring of the various activities.

In the field, the GEF team will be backstopped by agents of the local Nature Conservation Service (one per “cercle”), who will be trained and equipped with motorcycles and small boats. The GEF team will work closely with local "antennas" of SADeF. In order to assure close monitoring and eventual hand-over from the GEF team to the management committees/populations/decentralised authorities, village facilitators for each site and project area managed will be recruited. These facilitators will be trained and will work closely with the local agents of the Nature Conservation Service. They will also be provided with logistical support (motorcycles and fuel).

G. COMPONENT COST AND FINANCERS

GEF resources will support the following components: (1) Capacity building and institutional strengthening in integrated ecosystem and sustainable natural resources management (33%). This sub-component will build on and complement the capacity building and information/education/communication activities of the FODESA programme. (2) Support to local development. The GEF alternative complements the FODESA programme by mobilising substantial additional specialized support for conserving biodiversity and for the promotion and demonstrations of the sustainable use of natural resources in the Delta. GEF support activities are described in component 3. (3) Support to natural resources management (47%). GEF resources will be used to support three sub-components: (a) restoration and development of the agro-sylvo-pastoral and fisheries potential through integrated natural resources management and biodiversity conservation. (b) community based conservation and management of biodiversity at the most threatened ecosystems of national and global importance. (c) establishment of a monitoring and evaluation system on the state of biodiversity and natural resources of the Inner Niger Delta. (4) No GEF funding will support this component. (5) Project Management and Coordination (20%).

Table 1 provides a breakdown of GEF funding of project costs by component, under the relevant FODESA component headings.

Table 1. Costs by Component

Components		Costs (US\$ million)			
		IFAD	Government/ Beneficiaries	GEF	TOTAL
1.	Capacity Building/Information/Communication Capacity Building for NRM	3.63	0.18	2.00	5.81
2.	Support to Local Development	3.30	0.65	-	3.95
3.	Support for NRM-GEF Initiatives in Mopti Conservation of Threatened Ecosystems Development of Potential of the Delta and its Transition Zones Monitoring and Evaluation System	-	1.27	2.80	4.07
4.	Support to Decentralised Financial Services	2.50		-	2.50
5.	Management and Co-ordination	2.50	0.21	1.20	3.91
	Sub-Total	11.93	2.31	6.00	20.24
6.	IA Administrative Costs			0.747	0.747
	TOTAL PROJECT COSTS	11.93	2.31	6.747^{1/}	20.987

^{1/} This does not include the PDF B: USD 0.326 million

Table 2 provides a breakdown of GEF funding of project costs by category of expenses, and the cost of each category as percentage of total project cost. Categories of expenses have been divided between investment costs and recurrent costs. Investment costs represent 83% of base costs, recurrent costs 17%. Weight of the training and services category (37%) is explained by the importance of capacity building activities. The incidence of the studies and technical assistance categories is explained by the complexity of technical aspects in the project.

Table 2. Costs by Category of Expenses

Categories		Costs (USD 000)	% Total Base Costs
I	Investment Costs		
I.A	Infrastructure	590	10%
I.B	Vehicles	290	5%
I.C	Equipment and Material	100	2%
I.D	Technical Assistance	990	16%
I.E	Studies	830	14%
I.F	Training and Services	2,210	37%
	Total Investment Costs	4,990	83%
II	Recurrent Costs		
II.A	Salaries & Indemnities	730	12%
II.B	Maintenance	280	5%
	Total Recurrent Costs	1,010	17%
	TOTAL BASELINE COSTS	6,000	100%

Table 3 provides a breakdown of project costs by year and by component. It also provides total costs by year as percentage of total project costs.

Table 3. Project Cost by Year and Component

Components	Costs by year (USD 000)						
	2005	2006	2007	2008	2009	2010	TOTAL
Capacity Building/Information/Communication	370	432	463	288	244	204	2,000
Support to NRM-GEF Initiatives in Mopti	420	560	840	560	280	140	2,800
Management and Coordination	328	175	178	192	148	178	1,200
TOTAL GRANT COSTS	1,118	1,167	1,481	1,040	672	522	6,000
Costs by year as % of TOTAL PROJECT COST	18.63%	19.45%	24.68%	17.33%	11.20%	8.70%	100.00%

II. PROJECT ORGANIZATION AND MANAGEMENT

A. MANAGEMENT AND COORDINATION

In its second and third phases, SADeF, which was originally designed to be a participatory support programme to promote local level development initiatives, will strengthen its support for decentralisation, local development planning and ownership of activities by the communities and their institutions.

With GEF support SADeF in Mopti will finance the development and implementation of PCAEs and their integration into the PDCs which will serve as the basis for all project activities. The establishment of the AREG must therefore take into account both the fact that IFAD is not currently involved in the region and the particular character of GEF co-financing, which gives priority to local planning/implementation of natural resource management activities and biodiversity conservation. The AREG will be comprised primarily of representatives of the local Committees for the management of natural resources to ensure a close link between support to local development (micro-projects) and sustainable natural resource management and biodiversity conservation activities. The modalities for accessing funding for micro-projects financed by SADeF will be defined by this AREG, in consultation with the local communities and decentralized services. The level of

commitment and involvement of the beneficiaries in the NRM and biodiversity conservation activities will be an important consideration in designing these modalities.

As already recalled above, in the Mopti region the GEF financing should enable SADeF to incorporate into its support an essential environmental restoration/conservation and sustainable natural resources management dimension. In this way the joint GEF/IFAD financing will seek to trigger a local development process based on the consideration that natural resources management forms the basis for long-term development. To do this, GEF/SADeF will implement a participatory approach, which will essentially be based on: (i) **informing/sensitising** the largest number of people regarding the major challenges raised with regard to natural resources management and biodiversity conservation in the Inner Niger Delta and its transition zones, and (ii) **strengthening the technical, financial and organisational capacities** of all the stakeholders involved, particularly the local population. This approach will make it possible to involve them in the process of identification, planning, implementation and monitoring/evaluation and adjustment of restoration/management and development activities.

The GEF/IFAD partnership for providing joint financing, on the one hand, of the environmental activities and, on the other, the social-community or productive activities (support for the implementation of income-generating micro-projects, support to decentralised credit systems, etc.) is the **key to the success of the sustainable development of the Delta area**. The participation and partnership process with the various stakeholders that will be put into practice will make it possible to gradually structure the SADeF regional agency in Mopti. Existing associations actively involved in managing natural resources as well as those, which will be put into place with the support of GEF, will act as a direct line for setting up the regional association/agency.

This approach, which is based on the principle that natural resources management is the ideal and priority point of entry for the sustainable development of the Delta zone, completes the approach proposed by SADeF. In such a sensitive region as Mopti, whatever is done must take sustainable natural resource use into account, in order to ensure that all the environmental investments and the socio-economic structures are successful.

The GEF project will also develop special relations with the nature conservation services and the decentralised authorities, which will support creation of an organisational framework and permanent coordinated and sustainable management structure for the Delta, working jointly with them and with other parties involved in the region (NGOs, research, etc.). This structure will benefit from the environmental monitoring system that will be developed with GEF support.

The steering committee set up in Mopti under the framework of PDF-B to support the preparation of this project will be strengthened and enlarged in order to reflect the new thinking. Moreover, GEF/SADeF will support the creation or the strengthening of frameworks for co-ordination with all the development partners involved at different levels, in order to encourage the exchange of information and co-ordinate all the natural resources management-related activities, and those designed to foster the socio-economic development of the Mopti region.

Furthermore, workshops for discussion and/or validation will be regularly organised in order to strengthen links between the GEF, IFAD and the other development partners and actors, along the lines of the workshop which was organised in March 2003. That workshop, which was attended by about fifty people, including the representatives of the decentralised authorities, made it possible to refocus and expand the activities that had initially been planned for the Mopti region and to define priority areas for action.

B. FINANCIAL MANAGEMENT

The Ministry of Environment (MOE) will sign an executing agency convention with ANDES. Its role will be to ensure the compliance of relevant conventions and procedures. MOE will have a role in ensuring the regular follow up activities of the programme with GEF. MOE will have access to all necessary information through the National Coordination of IFAD Projects and Programmes (CNPPF), and can at any moment audit project management.

The National Association (ANDES) represents the Programme at the central level, and is constituted as a declared association. It is composed of a Committee for the Coordination of NGO Activities in Mali (CCA-ONG), the Association of Counsel Engineers, the APCAM, Regional Associations of each region covered by the Programme and of a representative of the Mayor of each region. The representatives of these Regional Associations constitute the majority at the General Assembly. The General Assembly will be in charge of approving the global programme. The operational responsibility is under the purview of the Programme Coordination Team (ANCG), headed by a coordinator, and supported by a financial controller, M&E specialist and an assistant. The National Association is a federation of regional associations.

To ensure the efficiency of the management structure of the FODESA Programme, the Programme has a single structure at the National level to facilitate relations with the government, disposes of autonomous management at the Regional level, allows beneficiaries to take charge progressively of responsibility for Programme management and is under private law.

The Regional Association of Mopti is composed of Regional Coordination of NGOs, the Regional Chamber of Agriculture, the Association of Mayors of Rural Communes and the representatives of Village Associations and Federations. These Village Associations and Federations will constitute the majority of the Mopti General Assembly. As new federations are created, they will be incorporated into the Assembly to increase beneficiary control over the Association. The Mopti General Assembly will be in charge of approving regional AWPB and micro-projects.

Each Regional Project Coordinating Unit (PCU) is comprised of a Regional Coordinator, Financial Controller, Rural Development Officer, a Capacity Building Management and Training Officer, and an M&E Officer. The GEF team within the same PCU will be assisted by an international expert recruited for three years, a specialist in the participatory approach and NRM in wetlands, whose role will be to ensure that the various support activities are properly launched and given sound technical coordination. The GEF team also includes a socio-economist, a monitoring and evaluation specialist, who will be in charge of the GIS and by local support staff (two secretaries, one accountant, drivers). In the field, the GEF team will be backstopped by agents of the local Nature Conservation Service (one per “cercle”), who will be trained and equipped with motorcycles and small boats. The GEF team will work closely with local “antennas” of FODESA. In order to assure close monitoring and eventual hand-over from the GEF team to the management committees/populations/decentralised authorities, village facilitators for each site and project area managed will be recruited. These facilitators will be trained and will work closely with the local agents of the Nature Conservation Service. They will also be provided with logistical support.

The regional PCU reports to the Associations through the National Coordination Team. AREG, the Regional Coordinating Unit, ensures execution of the AWPB, takes charge of training and monitoring activities and ensures the execution of the communication and information management strategy.

GEF Special Grant Account

ANDES, the executing agency of the project, will open an interest-bearing *Special Grant Account* in USD at a commercial bank in Bamako acceptable to IFAD. This account will be operated through the FODESA PMU in Bamako.

IFAD shall make one or more withdrawals of up to USD 300 000 in the aggregate (the “Authorized Allocation”) from the GEF Grant Account to ANDES. This amount will be deposited by IFAD in the *Special Grant Account*.

Advances and Replenishments

The flow of funds. The flow of funds for the GEF Grant Funds is illustrated in **Annex-10**. The proposal is in line with GOM agreement for funding development initiatives within ANDES/FODESA and as stipulated in the IFAD FODESA Loan Agreement.

ANDES will open an interest-bearing Account in FCFA at a commercial bank in Bamako acceptable to IFAD, which is to be operated through the FODESA PMU in Bamako. Grant Funds will be transferred from the *Special Grant Account* (USD) to this *GEF FODESA FCFA Account* as needed following required procedures.

The Mopti Regional Association will open a *Mopti Regional Account* (FCFA) in a commercial bank acceptable to IFAD in Mopti. GEF Grant Funds will be transferred from *GEF FODESA FCFA Account* in Bamako to the *Mopti Project Account* (FCFA) based on annual work plans and budgets. This will be accounted for as per the procedures developed under FODESA.

Authorized signatories to withdraw funds from the *Mopti Regional Account* will include the following officials: (i) Project Coordinator at Regional level; (ii) Financial Controller at Regional level and (iii) ANDES representative at Regional level. The three authorized signatures will be required to withdraw funds from the *Mopti Project Account*.

As a first allocation, ANDES will transfer an initial lump sum equivalent to USD 100 000 from the *GEF FODESA FCFA Account* to the *Mopti Project Account*. Further transfers of funds will be initiated by requests for replenishment issued by the Project Accountant to FODESA Bamako, and based on detailed Statements of Expenditure (SOE).

IFAD shall replenish the *Special Grant Account* from time to time upon request of ANDES in accordance with the provisions of the Grant Agreement. The minimum amount to be claimed for reimbursement will be USD 20 000. Re-imbursement of funds will be dependent on funds accounted for in the Project SOEs. The Mopti Project will prepare SOEs and submit them to FODESA Bamako for consolidation. Following consolidation, the SOEs will be submitted to IFAD for re-imbursement.

Procurement, Disbursement, Accounts and Audit

Procurement. Procurement of goods and civil works financed by the Grant shall be subject to the provisions of the Borrower's national procedures and must be consistent with IFAD guidelines.

Procurement will be conducted at the community, communal and Government levels. FODESA PMU will provide procurement co-ordination services as required. In consultation with regional Government and the communes and based on its own market surveys, FODESA PMU will supply a database of suppliers of goods, input prices, and a list of service providers including local consultants, artisans and NGOs. The information will be made available to communes and communities for their use. The FODESA PMU will monitor procurement carried out at the community and communal levels to ensure compliance with IFAD guidelines.

Because of the shared financing arrangements and the relatively small procurement budgets, *local competitive bidding* (LCB) will be used where possible. Contracts for more than USD 100 000 will be awarded using ICB procedures. Contracts for less than USD 100 000 but more than USD 50 000 will use LCB or *international shopping* procedures acceptable to IFAD. Contracts for less than USD 50 000 will be awarded through *local shopping* with at least three quotations. Contracts for more than USD 50 000 for whatever category of procurement will be subject to prior review by IFAD. Contracts for consultants and studies will be in accordance with IFAD guidelines. Terms of Reference, contract conditions and the qualifications and experience of consultants will be subject to prior review and approval by IFAD.

Disbursement. Disbursements for civil works, machinery, vehicles, equipment and consultant services will be fully documented. Disbursements for expenditures of less than USD 20 000 for training, workshops, local salaries and allowances, office supplies and other operating expenses will

be made against certified Statement of Expenditure (SOE). Related supporting documents, including suppliers' invoices, evidence of payments, contracts and analysis of bids and recommendations for award, and payment vouchers will be retained in a central place for inspection during supervision by IFAD and for examination by auditors. When the beneficiaries carry out the work themselves, disbursement for the work completed will be made after certification from a responsible officer appointed by the programme.

Accounting for Funds Utilized by FODESA. Regional Financial Controllers will prepare SOEs for expenditure incurred under FODESA, prepare the Withdrawal Application and submit documents to PMU for transmission to IFAD.

Financial Reporting. As part of FODESA, Mopti Project would follow similar financial reporting systems as those developed for FODESA. Account SOEs from the Mopti Project would be submitted fortnightly to the Senior Project Accountant at FODESA Bamako. These would be submitted to IFAD. FODESA Financial Controller would be responsible for the preparation of Withdrawal Applications for replenishment of the *Special Grant Account* (USD).

Auditing. All accounts, including the Loan Special Account; *Special Grant Account*; Mopti Project Accounts, and SOEs for each fiscal year will be audited by independent auditors selected by FODESA and acceptable to IFAD within six months after the end of each fiscal year. Internal physical audits would also be carried out to ensure conformity with the contracts for the procurement of equipment and materials. The auditors' reports would be submitted to the PMU, MOE and IFAD no later than six months after the end of the audited period.

C. MONITORING AND EVALUATION

The Monitoring and Evaluation (M&E) plan would be implemented to measure: (a) project performance; and (b) environmental impacts (biological, natural resource, and socio-economic indicators). Regarding the monitoring of project activities and performance, a monitoring and evaluation system will be put in place in the Project Coordination Unit. A preliminary participatory monitoring and evaluation plan can be found in **Annex-4**. M&E will be further refined and build on the initial base line studies undertaken with PDF Block B resources (initial base line includes socio-economic surveys, environmental mapping, scoping and screening, critical assessment of priority areas of interventions, and data base of relevant literature). The M&E plan will also validate preliminary data and screen priority indicators for benchmarking during Year 1 of the project by the monitoring and evaluation specialist of the GEF team in the Project Co-ordination Unit.

The M&E plan is consistent with both IFAD and GEF procedures, and will comprise both internal and external evaluation procedures, at the project and both ecosystem and local levels. The monitoring and evaluation plan will be linked to both the Delta Environmental Information Systems (DEIS) and SADeF systems. The DEIS will be for the monitoring of the evolution and management of the Delta ecosystems in the Mopti region in particular while the rural development and poverty reduction aspects in the Sahelian regions will be covered from the SADeF systems. The two systems will converge progressively and the combined SADeF-GEF M&E plan will develop into a holistic system capable of measuring:

(a) SADeF IFAD-GEF project implementation performance by component and sub-component (socio-economic, rural poverty, agriculture and rural development, gender and institutional development)

The M&E system will be decentralised and based in the Project Coordination Unit (PCU) of SADeF in Mopti and operational as from Year 1. As such the M&E system will cover the region of Mopti and will eventually be integrated into the master M&E programme of SADeF (Bamako) thus part of multi regional coverage. With regards to socio-economic indicators, IFAD experience has shown that community-based, demand driven programmes are best monitored with decentralised participatory monitoring and evaluation systems that integrate continuous evaluation with ongoing programme planning,

development of annual work programmes and budgets, adjustments to programme design and intensive programme supervision.

As such, the decentralised approach, which is the key feature of the SADeF-IFAD Programme, of M&E is based on (i) a participative and demand-driven log frame approach where communities will take a lead role in the definition of the programme's activities and in the finalisation of the M&E system, and (ii) a flexible learning approach, where both, programme activities and M&E can be adjusted based on lessons learnt during programme implementation.

(b) Environmental and ecosystems impacts (biological, physical, land and water management indicators).

The environmental and ecosystem monitoring and evaluation plan also located initially in the Regional PCU of Mopti will be further refined to validate and finalise the benchmarks developed from baseline data generated during Project formulation. The plan will be tested during Year 1 of the project by the monitoring and evaluation specialist of the GEF team. The M&E expert to be recruited by the GEF project will confirm more precisely project performance and impacts indicators (biological, NRM, and socio-economic indicators).

The DEIS developed under the Project will also be decentralised and will provide for a dynamic database and a GIS. The DEIS will complement and catalyse the Environmental Information System and Global Information Systems being proposed from French funding and for National coverage. The M&E system will ensure that the specific requirements of GEF (biological, ecosystem, physical indicators, land and water systems) are covered, and are included in the baseline data, with clearly defined and measurable indicators.

Experience has shown that community-based; demand driven programmes are best monitored with decentralised participatory monitoring and evaluation (M&E) systems that integrate continuous evaluation with ongoing programme planning, development of annual work programmes and budgets, adjustments to programme design and intensive programme supervision. Besides this decentralised approach, which is the key feature of the system to be developed, the SADeF-GEF M&E system will be based on two other basic concepts: (i) a participative and demand-driven log frame approach where communities will take a lead role in the definition of the programme's activities and in the finalisation of the M&E system, and (ii) a flexible learning approach, where both, programme activities and M&E can be adjusted based on lessons learnt during programme implementation. The M&E system will be adapted to ensure that the specific requirements of GEF are also covered, including capturing the findings of the baseline data in order to test and validate instruments and indicators respectively. Also, complementary with decentralised participatory M&E, coordination mechanisms set up under the project will ensure that data collected and analysed from various baseline and ongoing studies and surveys feed into a dynamic environmental information system. Through these combined approaches and systems, decision-makers will be able to access validated and reliable information to guide and effectively coordinate management of natural resources and ecosystems.

The monitoring and evaluation systems will capture the effectiveness of interventions over time. Adequate flexibility, through annual work planning and budgeting, will enable prompt attention to be given to delays if any are introduced. Through active participatory processes in place, and stakeholder involvement in work planning and implementation, the risks of delays are minimised. The intensity of efforts will be made as from Year 3 when minimum capacity requirements are in place for long term sustainability. Supervision missions will focus on implementation effectiveness and identify areas where delays are likely to ensure impact by the end of the six year implementation period.

D. SUPERVISION

Supervision arrangements will contribute directly or indirectly to the monitoring and evaluation of the SADeF programme and the Biodiversity Conservation and Participatory Sustainable Management of Natural Resources component (see below and Annex 4). These arrangements include: (i) formal and informal information meetings with all stakeholders to be organised regularly, at various levels; (ii) monthly and quarterly reporting by the PCU; and (iii) bi-annual progress reporting at commune, circle

and national. It also concerns external supervision arrangements by IFAD with participation of the World Bank as needed, such as: (i) regular supervision missions which will be organised twice a year with the objective to identify technical implementation as well as financial management and loan disbursement issues; (ii) follow-up mission which will ensure that recommendations are implemented; (iii) IFAD/Government of Mali joint mid-term reviews to be organised at the end of each implementation cycle; (iv) annual project implementation review for GEF; (v) IFAD/Government of Mali joint mid-term reviews to be organised at the end of each implementation cycle; and (vi) IFAD completion mission to be organised at the end of the SADeF-GEF project life.

Supervision missions

Supervision missions will be carried out twice a year IFAD will have responsibility for monitoring disbursement and procurement and overall programme management. IFAD will take a pro-active role in supervision through participation in PPME. One of the annual missions will be programmed to coincide with the annual review meeting at which all stakeholders review progress and agree planning for the forthcoming year. The second mission will be timed to coincide with the thematic and diagnostic studies to examine specific aspects of impact and link impacts to programme interventions. Technical specialists on this mission team will provide TA support for the studies thus developing a full understanding of programme progress.

Supervision Mission Reports

Due to the innovative and wide spread activities of the Programme, some supervision missions will include technical specialists to support programme implementation who will provide specialist technical annexes. Supervision mission reports will identify issues impacting on implementation and disbursements, which have to be addressed by the Regional PCUs through the National PCU. Follow up missions may be undertaken to ensure that recommendations are implemented.

Mid-Term Review

Government of Mali, Ministry of Agriculture, Ministry of Environment, IFAD, and GEF shall jointly carry out a review of Programme implementation no later than the end of PY 3 based on terms of reference prepared by the National PCU, in consultation with the Government of Mali and the regions, and approved by IFAD. Among other things, the MTR shall consider the achievement of programme objectives and the constraints thereon, and recommend changes required to achieve the programme objectives and inputs and or activities needed to address identified constraints. The MTR will coincide with the annual review meeting for PY3 / planning workshop for PY4. The mission will participate in these workshops at which the mid-term milestone review will be discussed and evaluated. The National PCU will assist the regional PCUs and circles implement the recommendations of the MTR with respect to programme implementation in each region, circles within the time specified in the review, and to the satisfaction of IFAD. Recommendations may result in modifications to the Grant Documents or cancellation of the Loan / Grants.

IFAD Completion Report

At the end of the IFAD/GEF funding period the National PCU and the regional PCUs will prepare a report on programme implementation at the national and regional levels respectively based on reports from each commune on programme implementation at local government and community levels. They will also prepare milestone reviews. The Regional PCU shall consolidate and submit regional completion reports to the PCU no later than three months after the cessation of IFAD / GEF funding. The National PCU will consolidate these reports and reviews to be discussed at the annual review meeting from which the conclusions on completion of the IFAD/GEF financing. IFAD will actively participate in the review meeting. The national PCU shall prepare a completion report for the national Programme and consolidate this report with the regional Programme completion reports submitted by each regional PCU and submit the consolidated completion report to Ministry of Agriculture, Environment, and IFAD no later than six months after the programme completion date.

Post Completion Report

An innovation in SADeF is the proposal to have a post-completion evaluation. The justification for this is that SADeF is considered as a long term programme running over at least 20 years within which IFAD and GEF provides funding over an initial period of about 8 and 6 years respectively. The mechanisms for carrying out the milestone review will therefore be in place and this will be discussed at the annual review meeting. It is therefore proposed that IFAD send a post completion review mission to participate in the review in order to learn about sustainability and the long term impacts and programme success. In the longer term it will be appropriate for SADeF to have a milestone review every 3-5 years and for IFAD to continue to participate.

E. REPORTING

The SADeF M&E system will follow the channels of information flow between the various involved agencies and the communication modalities established for the PMIS. Quantitative information (dealt with by MIS) will be reported by Communes and Service providers on, for example number of female and male community groups / farmers participating in field days, training sessions. SADeF reports will provide more qualitative information on the outcome of such participation: farmers knowledge resulting from these activities, manifested by changes in their attitudes and abilities to understand and explain issues such as why prices go up and down. The self-monitoring of community-based groups' activities over time will be recorded in the reports, highlighting expressed needs, priorities and emerging problems to be addressed by the programme. The groups' perceptions of SADeF services and their suggestions for changes will also be reported on in a section dealing specifically with "beneficiaries' constraints and recommendations".

Informal reporting will play an important role in SADeF, given the programme's emphasis on participatory and learning-oriented M&E. A system will be put in place by the Communes to record useful information captured by front line staff at the field level, during planning and implementation of field days and community-based self-monitoring meetings. A unified format for SADeF monitoring reports will be prepared by SADeF-PCU in PY 1 and discussed and agreed at the SADeF M&E Start-up Workshop in early PY 2. The formal requirement is for a six monthly report to IFAD. More frequent short reports will be prepared by the PCUs and National M&E officer. This will allow problem areas or constraints to implementation to be identified early so they can be dealt with quickly and efficiently before having a large impact on the Programme schedule. The level of detail and information required in more frequent reports will be limited to reduce the time spent preparing the reports and to highlight key issues to be addressed by Programme management.

Monthly Reports

After its regular monthly meeting, the Regional PCU will prepare a short report (2-3 pages) covering the following points and distributed to the circles and communes chairperson, community members, the national PCU.

- For the previous month, programme activities underway, starting or finishing in each village area with planned finish date (this should be a spreadsheet which can be updated each month)
- Issues for any of these activities which will prevent them being completed on schedule
- Proposed solutions for identified problems and assistance that will be required from the Circles / communes, or Regional PCU to implement the solutions
- Planned activities by communes / circles implementing agencies in each village area in the next month.

Quarterly Reports

At Regional PCU level, the M&E officer will undertake a quarterly review of all Programme activities and spend one day visiting Village areas where identified problems have not been resolved. In addition to the information contained in the monthly report, the 4-5 page report will contain:

- A review of completed activities with a subjective assessment of completed activities as set out in the following table made by both the community based organisation (CBO)

implementing the activity and the communes / circles (either by direct inspection and discussions with the CBO).

- A short report on field monitoring or evaluation visits by M&E staff.

This report will be distributed to the communes / circles, the Regional PCU and National PCU.

Six Monthly Progress Reports

Communes / circles Level. The six monthly reports will be the due quarterly report together with the assessments of all activities completed during the six months (i.e. from both quarterly reports) and reports of any field monitoring or evaluation visits made by communes / circles and M&E staff.

Regional Level. The Regional PCUs shall prepare semi-annual progress reports on Programme implementation at the Region level and request each communes / circles to prepare semi-annual progress reports on Programme implementation at local and circles levels. It should highlight progress, constraints to progress, issues to be addressed to resolve these constraints and proposed changes needed to resolve issues. The Regional PCU shall consolidate and submit the region, circles and communes progress reports to the National PCU no later than two months after the end of each six-month period during the Programme Implementation Period.

National Level. The PCU will prepare progress reports on National Programme implementation and consolidate this progress report with the progress reports on regional Programme implementation submitted by each regional PCU and submit the consolidated progress report to Ministry of Agriculture and Ministry of Environment, IFAD no later than three months after the end of each six-month period. These six monthly reports should be the main reference document for supervision missions and the mid term review (MTR) and highlight progress, constraints to progress, issues to be addressed to resolve these constraints and proposed changes needed to resolve issues. This report will be distributed to IFAD, Ministries of Agriculture, Environment and Regional Commissioners.

IV. GLOBAL BENEFITS, SUSTAINABILITY AND RISKS

A. GLOBAL BENEFITS

Through its activities aimed at promoting the restoration, conservation and sustainable use of natural habitats and critical ecosystems of the Inner Niger Delta, the GEF Alternative will provide multiple global benefits. Many of these ecosystems host indigenous plant and animal species that are threatened, as well as provide refuge for wildlife and for migratory birds on the African-Asian flyway. The project will also contribute to maintaining the dynamics of the Delta ecosystem, which is unique in the world, and to restoring its biological equilibrium. In addition to conserving biodiversity in arid, semi-arid and freshwater ecosystems, benefits will also accrue in the areas of sustainable land management, reduction of carbon emissions (greenhouse gases), and protection of international waters.

The global benefits of the activities financed by GEF resources are detailed in the incremental cost analysis (see Annex 2). They may be briefly summarised as follows:

- the conservation and sustainable use of biodiversity of global significance (endangered species such as the West African manatee, indigenous plant varieties, among others);
- the critical habitats for migratory birds and breeding areas for endemic species of fish;
- in situ conservation of agricultural biodiversity (for example, floating African rice culture and Macina wool-bearing sheep; local cultivars; aquatic biodiversity) through enhancement of traditional integrated agro-sylvo-pastoral and fisheries systems;
- the rehabilitation and reduction of land degradation (improved soil fertility and soil biodiversity, reduce soil erosion); the restoration of soils and natural resources, rehabilitation of natural forests/reduction in deforestation; reduction of carbon emissions;
- reduced sedimentation and improved water quality thereby improved water regulatory services and reduced degradation of the international waterway (Niger River); and

- The multiplication of long-term benefits applicable to other sites through the dissemination and the replication of the approach and tools for sustainable restoration of similar ecosystems.

B. SUSTAINABILITY

Emphasis has been placed on laying a solid foundation for the adoption of a holistic approach and new and innovative sustainable natural resource management practices by strengthening capacities, ensuring stakeholder participation and ownership, identifying and testing new techniques, among others. Sustainability (including financial sustainability) should be achieved by demonstrating direct economic benefits and improved living conditions from sustainable natural resource management and biodiversity conservation.

The project will achieve sustainability by promoting a multi-disciplinary and participatory approach for planning, management, monitoring and evaluation of the activities, starting with the selection of the priority areas for intervention. The proposed techniques for restoration, conservation and management of natural resources will be simple and easily adopted by the local populations. These techniques will make use of indigenous knowledge and understanding of the Delta and build on the traditional, integrated management systems and uses of the Delta that have evolved over the centuries. In addition, the local actors will benefit from training and inter-village exchanges, as well as the recruitment of village facilitators, who will assure a link between the local technical agents and the GEF team. Over the course of the project, new techniques will be identified and tested in the different priority systems with a view to their replication in other areas. Strong linkages will be developed and maintained with other GEF and IFAD initiatives in the country and the region to build on the knowledge base.

The project was furthermore designed to support the process of political decentralisation underway in Mali. For this reason, all the activities with respect to restoration/conservation of biodiversity and natural resources management will be undertaken in the context of Community Environmental Action Plans, which will be prepared and adopted by decentralised authorities and integrated into the Community Development Plans. Experience gained in incorporating the PCAEs into local development planning will be replicated throughout Mopti and other regions of Mali. Project-financed technical training and capacity building activities will strengthen the Nature Conservation Service and other decentralised technical services from ministries concerned (Water, Agriculture) in the planning and management of natural resources and biodiversity conservation programmes and projects.

Where not already undertaken, further Baseline studies of the physical environment and socio-economic conditions will be completed before each project activity to assure the full commitment of local populations and beneficiaries, as well as the absence of any underlying conflicts with respect to natural resources management, which could present an obstacle to the success of the activities. In this regard, the project would respect and reinforce the use of traditional conflict resolution measures, where possible, and design and support the use of other conflict management methods, where appropriate.

The project will study incentive measures and best practices for enhancing the economic benefits of biodiversity conservation and sustainable management of farming systems. In addition, as a means of promoting their sustainability, micro-projects will be selected and formulated by village associations and groups, and an adequate level of in kind or cash co-financing from the associations/groups is one of the conditions for approval. Another condition is the link between financing of micro-projects and involvement of beneficiaries in the implementation of natural resource management and biodiversity conservation activities. The importance of alternative livelihoods has been recognized, and one of the project's activities will be to identify alternative income-generating activities. IFAD support to micro-projects will also provide lessons learned that may be replicated.

The project's establishment of a functioning facility for monitoring the state of resources of the Delta (through the DEIS) and the training of necessary resource personnel at the regional level in Mopti will permit, over the long term, better control of the causes of degradation in the sustainable management and conservation of this wetland area of global importance. In the baseline studies noted above, key socio-economic and environmental quality indicators identified will be monitored throughout the life of the project. In this way, the DEIS will serve as an important tool both for project management

decisions and mid-course adjustments, as well as for the development of other programmes and projects in the Delta.

The results achieved and lessons learned will be validated and documented in the form of brief technical notes, which will be widely disseminated and discussed throughout the region. Lessons learned will be disseminated as well at workshops, other donors' projects meetings/workshops, in other regions, etc.

C. REPLICABILITY

All the activities proposed for GEF financing are designed to ensure replicability, not only at the level of the project area, but also in other regions of Mali or elsewhere in the sub-region (including other wetland areas in the sub-region, such as the north of Burkina Faso). The project will build on indigenous knowledge and traditions and the successful experiences – technological and methodological - of IUCN, Wetlands International and other actors with long experience in the Inner Niger Delta or similar ecosystems, with a view to replicating and scaling up. The lessons learned from IUCN's experience in developing the integrated management plans for Akka-Goun and Dentaka will be particularly relevant. Stakeholders and decision-makers (local, regional and national) will be fully involved in the identification, planning and management of the project interventions which will ensure their ownership and uptake to foster the following: (i) sound natural resource management and environmental policies at national level ; (ii) integration of natural resources management and biodiversity conservation into Community Development Plans; and (iii) creation of a socio-economic environment which is favorable to sustainable development.

The project will develop an information and knowledge sharing system which will be able to document and share effective processes initiated or successfully implemented. A mid-term review of the SADeF II is envisaged at the end of 1994. This is likely to correspond to a review of initial development and progress to date for GEF activities after one year of implementation (assuming project start-up January 2004). As the SADeF covers the whole of the Sahelian zone of Mali promising initiatives will be quickly internalised and replicated in other regions notably Kayes, Koulikoro, and Ségou. Furthermore as IFAD finances interventions in similar dry semi arid zones in Niger, Chad, and northern Nigeria, lessons learned will also communicated and shared with other IFAD projects in the region. Links will be further strengthened with the World Bank and the African Development Bank to facilitate replication and up scaling of promising opportunities in other areas/countries.

D. RISKS

In the field, the implementation of natural resource and biodiversity conservation measures do not give rise to particular risks apart from those relating to the climatic uncertainties which condition the success of the physical operations in the field, but they are difficult to control. Apart from these climatic risks, there are also the following: (i) risks linked to land tenure issues, and to the difficulty of preparing and implementing common programmes involving one or several village communities (collective sites); (ii) the inadequate mobilisation of the people to undertake work to restore and protect the natural resources on the village lands, which could cause their planning, implementation and monitoring/sustainability efforts to fail; (iii) the inadequate account taken of transhumant or semi-sedentary herders, who do not particularly have the same objectives as the sedentary populations in a typically pastoral zone with a strong agro-pastoral character.

In order to attenuate these risks, and before any management work is undertaken, socio-economic forecasts must be made in order to better understand all of the constraints, the land use dynamics and the various interests at stake in terms of natural resources management. Furthermore, before the beneficiary populations can be supported (with micro-projects, decentralised financial systems, etc., financed by SADeF) they must commit themselves formally and do so within the framework of a clearly defined partnership, specifying all the undertakings of the various parties concerned and the procedures for implementation.

Measures will be taken in advance and in conjunction with the various users to prevent conflicts, mainly relating to water, land or grazing land access. The rules for setting up controlled non-grazing

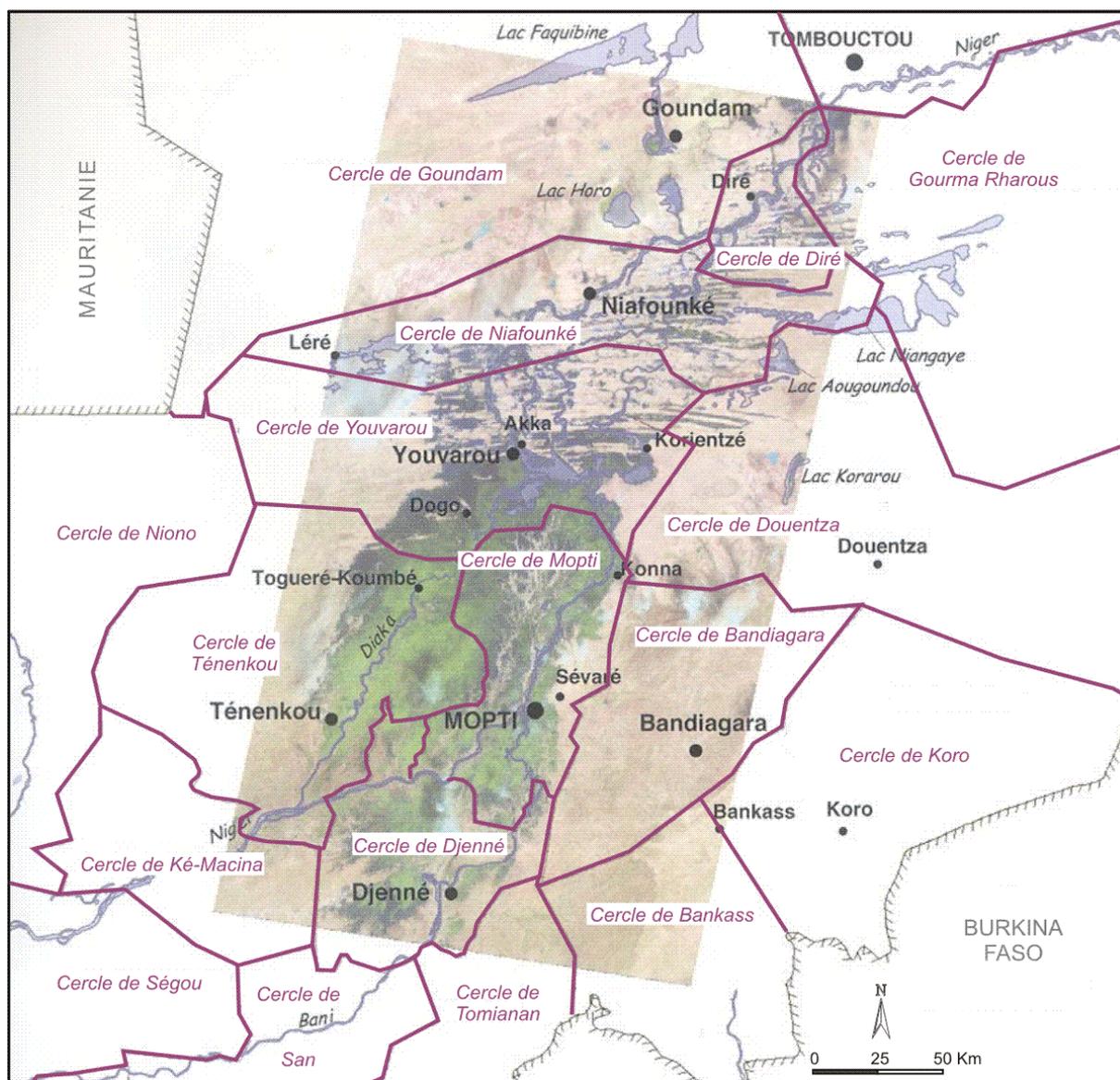
areas and for guarding and managing the developed and restored sites must be defined and agreed upon by all the users and widely disseminated. Alternative solutions to prevent conflict arising between herders, fishers and farmers, or between the sedentary and the transhumant populations, will be defined on the basis of consensus if necessary.

With regard to the GEF/IFAD partnership and co-financing, the main risks could arise from (i) the inadequate cohesion of the GEF and IFAD projects and (ii) the premature establishment of a regional SAdEF association in the Mopti region before the beneficiary populations are properly organised to carry out the natural resource management activities. Unless this is taken into account there is a risk that the local development activities supported by SAdEF may precede or be implemented without any direct linkages with the natural resource and biodiversity conservation activities. Supervision missions will report on these processes and its impact on project implementation.

In order to pre-empt these risks, co-financing mechanisms will be clearly defined taking into account the specificities and environmental challenges that are inherent in the Inner Delta of the Niger River and its transition zones. The organisational framework in Mopti (including the SAdEF regional association/agency) will be gradually put into place and be based on organising the rural people and local stakeholders around biodiversity conservation and natural resource management as the basis for the sustainable socio-economic development of the region. The GEF team, once this framework has been put in place, will be able to effectively support the choice of SAdEF operations in the project areas.

Environmental impact assessment. As a demand-driven program SAdEF has a wide menu of options including expansion of rural financial services, grassroots institutional development, development of production, marketing and social infrastructure (schools, health centres, irrigation and soil and water conservation schemes, micro-dams, wells as well as agricultural, forestry, livestock and fisheries development). The baseline program has been subject to an environmental screening and scoping exercise and is classified as Category "B" (projects without significant adverse environmental impacts) in accordance with IFAD's procedures and criteria for environmental assessment and classification. Hence, baseline interventions would not induce any significant alteration in the physical and biological components of the ecosystem. Potential negative environmental impacts will be systematically identified and addressed through adequate mitigation measures and strong capacity building. Moreover, the project intends to raise awareness on best practices for natural resource management, biodiversity conservation and agricultural production in a participatory manner and establish an environmental monitoring and evaluation system that would help to monitor the project's impacts and mitigate for negative effects over time and across space to ensure sustainability of the program's operations

Map 1 - The Inland Delta in the Mopti Region



Source: Wetlands et al., 2002