List of Annexes

Annex 1: Problem tree

Annex 2: Programme Logical Framework

Annex 3: Incremental Cost Calculation

Annex 4: STAP Review and Response to STAP Review

Annex 5: Stakeholder participation plan

Annex 6: Monitoring and evaluation plan

Annex 7: Programme Indicative Workplan

Annex 8: Detailed Site Description and Socio-economic Profile of the Nimba Mountains Biosphere Reserve

Annex 9: Lessons learned from other programmes

Annex 10: Summary of negotiations with the mining partner

Annex 11: Concerning an International Nimba Foundation and a sustainable financing mechanism

Annex 12: Tri-national initiative for transboundary management of the Nimba Mountains

Annex 13: Institutional capacity of CEGEN and plans to strengthen it

Annex 14: Letter of endorsement

Annex 15: Maps and photos of the Nimba Mountains Biosphere Reserve

✍ **15a: Location of the Reserve**

✍ **15b: Zoning model of the Reserve**

✍ **15c: Vegetation map of the Reserve**

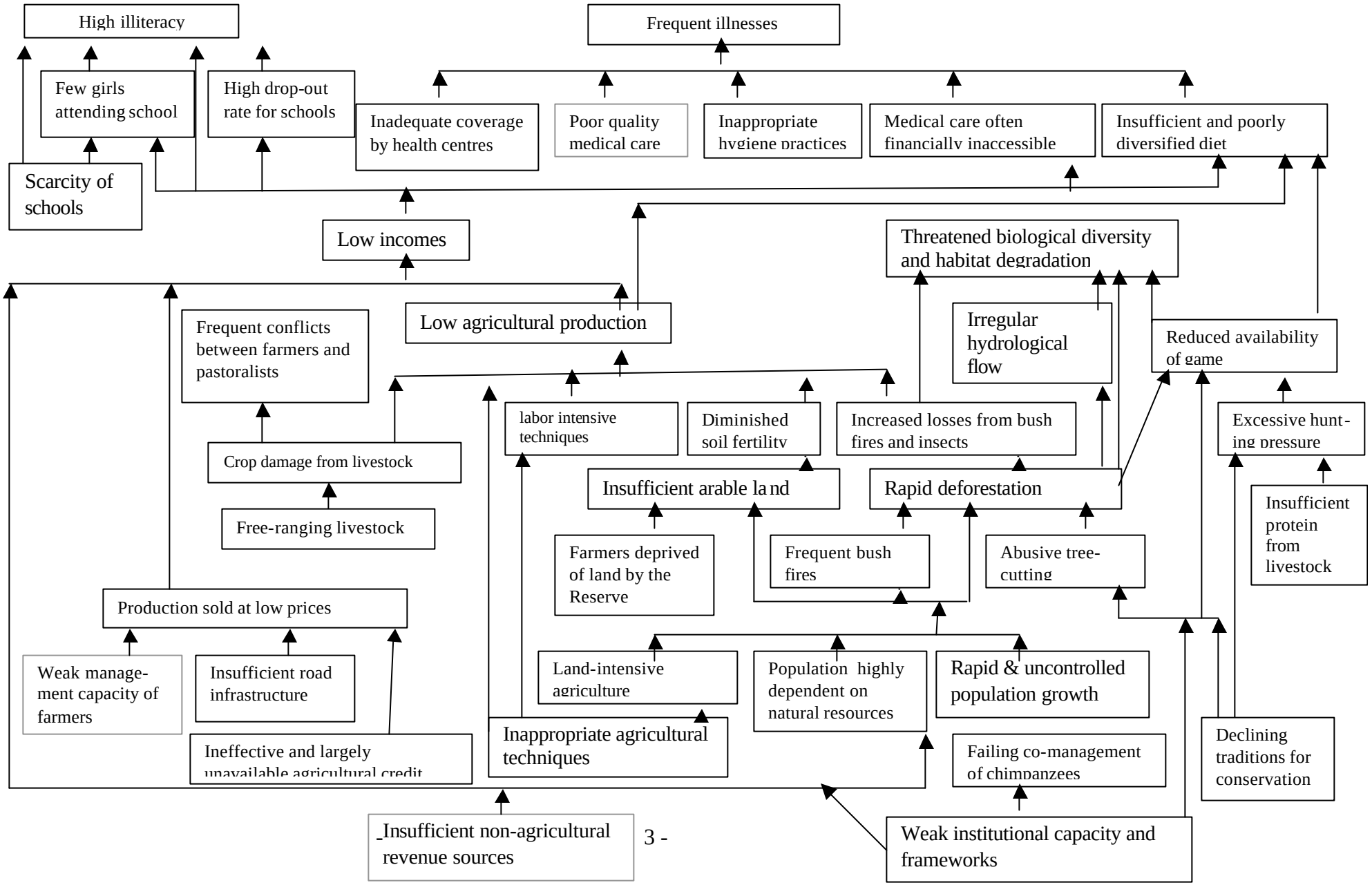
✍ **15d: Images and views of the Nimba Mountains**

Annex 16: Acronyms

Annex 17: Bibliographic references

Annex 1A. Problem Tree

For reasons of legibility, the problem tree is presented here in two parts: the main tree describing problems encountered on-site at the Reserve and the « branch » of the tree for institutional problems, that relate to institutional behaviour, that attaches to the several problems in the main tree indicated with grey shading.



Annex 1B. Threats/root causes and solutions matrix

Priority problem	Threats and Intermediate causes	Root Causes	Proposed solutions (Results)
1. Loss of globally significant biodiversity (fauna and flora)	Over-utilisation of fauna and game Potential over-utilization of medicinal plants Potential Abusive Forestry Decline in traditional conservation knowledge and techniques	Low incomes Institutional weaknesses Low nutrition Low productivity of agriculture and animal husbandry	Boundaries of the core areas recognised, legalised and demarcated (1.1) Management actions for core areas identified with participation of buffer zone villages (1.2) Decrease in incursions and illegal activities in the core areas (1.3) Diversified income sources enhanced (2.4) More productive animal husbandry, integrated with agriculture (3.1) Domestication and breeding of wild animals tested and disseminated (3.2) Wildlife resources and natural medicinal plants co-managed with local populations in a sustainable manner (3.3) An operational ecological monitoring system (5.3) Guaranteed long-term funding for conservation (5.4) Stakeholders better informed and aware of the issues and of resource conservation (5.5) Contribution to a national protected area system (5.6)

Annex 2. Programme Logical Framework

	Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Goal	Contribute to the conservation of biodiversity and world heritage in a manner compatible with sustainable development			
Overall programme objective	Core areas of the Nimba Mountains Biosphere Reserve protected in a manner compatible with local sustainable development needs	Removal of the Nimba Mountains from the List of World Heritage Sites in Danger by programme completion Average income in the buffer zone increased by 10% , and in the transition zone by 5% by end of programme.	UNESCO publications Ministry of Planning or intl development agency (UNDP, UNHCR, AFD, EC, other) statistics	Political atmosphere that permits pursuing sustainable development
Specific objectives	1. Ecological integrity assured for the three Core Areas of the Nimba Mountains Biosphere Reserve	Forest cover restored in all degraded parts of the core areas by end of programme Boundaries of the core areas legalised and respected by mid-term Stabilisation or increases in populations of key indicator species by end of programme	CEGEN's ecological monitoring system Official legal documents setting the boundaries of the core areas	Lack of climate change or other external natural disturbance to the NMBR Inclusion of the NMBR on the list of officially protected areas of Guinea
	2. Sustainable land use and Agricultural revenues of local people increased on the basis of more productive practises	Land use in buffer and transition zones rationalized and plans enforced by end of programme Average revenues of farmers increased in real terms by 20% in at least 15 target villages by end of programme Stabilisation of the area cultivated by the same villages by end of programme	Revenue surveys/reports of decentralised sectoral services from the region CEGEN's ecological monitoring system	Revenues are not invested in harmful activities and do not incite additional immigration
	3. Local needs for animal protein more fully met using practises that do not damage wildlife	Reduced incidence of kwashiorkor by 30% in 15 beneficiary villages by end of programme Species indicating over-hunting increasing in their natural habitats (monkeys, antelopes, large birds) by end of programme	Surveys of health and nutrition CEGEN's ecological monitoring system	Revenues are not invested in harmful activities and do not incite additional immigration
	4. Improved health conditions, in particular among the neighbouring villages subject to constraints from the Reserve	Mortality rate for children under 5 years reduced by 20% in at least 15 local villages (measured at the level of the	Reports from the National Directorate of Health	The compensation offered by the programme is not viewed as a reward or encouragemen

		population and not at health centres) by end of programme		to harm the Reserve
	5. Strengthened capacity of the Reserve's management structures, mainstreaming of biodiversity conservation, and contribution to national protected area system	Programme is managed effectively by CEGEN; Specific objectives 1-4 are realised according to plan (measured continuously) All agencies are working coherently together and synergies are realised between interventions in the Upper Cavally Basin; no activity is undertaken that works against the objectives of the NMBR (by end of programme) National coordination system for parks established by end of programme	Programme evaluation reports	Consistency of personnel (CEGEN) who are willing to relocate to the Nimba region

Logical Framework for Component 1: Ecological integrity assured for the core areas of the Nimba Mountains Biosphere Reserve

	Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Overall Programme Objective	Core areas of the Nimba Mountains Biosphere Reserve protected in a manner compatible with local sustainable development needs			
Specific Objective	1. Ecological integrity assured for the three Core Areas of the Nimba Mountains Biosphere Reserve	Forest cover restored in all degraded parts of the core areas by end of programme Boundaries of the core areas legalised and respected by mid-term Stabilisation or increases in populations of key indicator species by end of programme	CEGEN's ecological monitoring system Official legal documents setting the boundaries of the core areas	Lack of climate change or other external natural disturbance to the NMBR Inclusion of the NMBR on the list of officially protected areas of Guinea
Expected Results	1.1. Boundaries of the core areas recognised, legalised and demarcated	Official maps by third year Legal documents by third year Beacons and signposts in place by midterm All relevant RDCs (4) state their acceptance of the boundaries by sixth year	Maps Legal documents Reports with photos Co-management contracts and signed statements from RDCs	
	1.2. Dynamics of the core areas' biodiversity known, threats precisely described and management actions identified with participation of buffer zone villages	Ecological monitoring system based on vegetation/forest cover and indicator species: Establishment by year 3 4 years of data by year 7 7 years of data by end of programme	Data base Reports analysing the data Local community perceptions	The ecological monitoring system (component 5) is operational
	1.3. Decrease in incursions and illegal activities in the core areas	Frequency of infractions per patrol-day decreased by: 20% by year 3, 50% by year 6, and 70% by end of programme	Reports on the law enforcement system	Local law enforcement accepts that the core areas are to be protected. The managers of the mine get involved in protection efforts, mine personnel respect the authority of the Reserve's guards. Community assistance actions

				(esp. components 2+3) are adequately effective.
	1.4 Improved compatibility of planned mining activities, and strengthened cooperation.	Detailed environmental study of all possible developments Mining Consortium contributing as expected to Foundation/Fund by end of programme	CEGEN reports and EIA	
	1.5. Management plan prepared and implemented for the three core areas, with full participation of local communities	Core areas' management plan focusing on the three areas: Preliminary versions by year 3, final versions by year 6.	Management plans (documents) Local community perceptions	The mining company agrees to the Nimba Mountains' management plan & effective collaboration in place with neighbouring countries. ERIB and its researchers adopt a participatory approach (Bossou Hills). The forestry industry and farmers accept the restrictions needed for conservation; successful planning and collaboration with Côte d'Ivoire (Déré Forest)
	1.6. Impacts of refugees do not affect the core areas	Refugee camps located far from core areas, by year 3 Reported infractions in Core Areas not committed by refugees. Refugee contingency plan developed by year 3	Reports of humanitarian agencies active in the area (UNHCR, WFP, etc.) and of CEGEN; refugee contingency plan (document)	Humanitarian agencies willing to work with CEGEN and its partners to address environmental concerns
Activities	1.1.1. Complete the process of legalising the Core Areas			
	1.1.2. Demarcate the boundaries of the core areas			
	1.2.1. Study the impact of fires, evaluate human impacts on fire dynamics and identify appropriate management responses			
	1.2.2. Develop a deeper understanding of the impacts of mining activities, including those related to introduced species			
	1.2.3. Develop a deeper understanding of conservation priorities, including indigenous knowledge, and identify solutions with participation of local communities			
	1.3.1. Design, equip and organise a patrol-cum-protection system			
	1.3.2. Involve local populations in the protection-cum-patrol system			
	1.3.3. Organise co-operation with public law enforcement agents			
	1.4.1. Monitor developments in the mining project and prepare precise environmental guidelines			

1.4.2. Leisure centre or gym ?

The leisure centre, gym and health club, what's the difference between them and why will this make any difference to you? We decided this was a very important factor to highlight prior to your joining any facility based on your needs and budget. Probably the most important difference will be the price you pay for the facilities you get in return, followed by the environment and equipment that you then use.

Leisure centre These are be funded and managed by local authority councils. They may or may not have a gym or health club within the facility (this may be run by an external company that specialises in offering this service) but the quality of the centre itself will vary. The price will be considerably cheaper than private members clubs and you will also get a large sports hall (badminton, basketball, basic fitness classes), a swimming pool (usually 25 metres), possibly squash courts, but relatively basic shower and changing facilities.

Gym The image conjours up free weights, basic machines and CV equipment. Increasingly they are moving away from the image of muscle-bound males with rippling muscles but there are still a few dedicated bodybuilding and weight-lifting gyms to be found. generally speaking the equipment will feature a gymnasium with free weights, machines and cardiovascular machines (e.g. treadmills, rowers, steppers) and there may be be an aerobics studio for a range of classes. There will normally be few frills, although there should be showering facilities. Importantly they are reasonably priced than many health clubs, as the facilities are mo re basic.

Health Club Finally, the largest growth market in the UK over the past 5-6 years, private member health clubs. They wil offer much the same as any gym, but you will also get an array of additional facilities such as saunas, Jacuzzi or spa pools, tennis courts, restaurants, bars, creches and more. The changing rooms may have free towels and products and increasingly you are also able to have beauty treatments, physiotherapy and sports injury massage within the larger facilities. Needless to say the membership is a lot more pricey, typically starting at around £35 per month after you have paid a sizeable joining fee.

	1.5.1. Prepare and implement a management plan for the World Heritage Site, after consultations on relevant matters with the mining project, local populations and relevant authorities in the neighbouring countries, and based on data collected above
	1.5.2. Prepare and implement a management plan for the Bossou ecosystem after consultations on relevant matters with local populations and ERIB
	1.5.3. Prepare and implement a management plan for the Déré ecosystem after consultations on relevant matters with the National Directorate for Water & Forests, Côte d'Ivoire and local populations
	1.6.1 Liaise with humanitarian agencies to ensure incorporation of environmental concerns in relief work, including siting & sizing of camps and providing appropriate employment & income-generating activities
	1.6.2 Develop with humanitarian agencies a refugees contingency plan in case of future refugee movements

Logical Framework Component 2: Agricultural revenues of local people increased on the basis of more productive practises

	Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Specific Objective	2. Sustainable land use and Agricultural revenues of local people increased on the basis of more productive practises	Land use in buffer and transition zones rationalized and plans enforced by end of programme Average revenues of farmers increased in real terms by 20% in at least 15 target villages by end of programme Stabilisation of the area cultivated by the same villages by end of programme	Revenue surveys/reports of decentralised sectoral services from the region CEGEN's ecological monitoring system	Revenues are not invested in harmful activities and do not incite additional immigration
Expected Results	2.1 Sustainable land use systems	Local communities and local government have established land use plans by year 4 Refugee contingency plans (result 1.6) take into account land use planning principles	Reports of partner agencies working in the area of improving agricultural production (IFAD, AFD/PDSFI, etc.)	Local government is willing to include local communities in developing land use plans
	2.2. Increased agricultural yields	Annual rice production per hectare sown increased by 10%/year on upland sites without increasing soil depletion beginning in the 3rd year in target beneficiary villages. Proportion of rice production from irrigated sites increased in beneficiary villages by 5% in year 3, 20% in year 6, and 40% by end of programme. 5 ha/year prepared for irrigated agriculture starting in year 3 Sales of products other than rice increase by 25% every three years in target beneficiary villages	Agricultural statistical reports for the prefecture and for Guinée forestière Reports of partner agencies working in the area of improving agricultural production (IFAD, AFD/PDSFI, etc.)	Increasing agricultural production does not entail any unforeseen health or environmental risks
	2.3 Improved incomes from agricultural produce sold for higher prices	Net sales price per kilo of rice for farmers in the NMBR, with all charges/fees deducted, increased by 15% by year 6 and 30% by	Local market surveys and surveys at Lola	The (former) middlemen do not block the initiative IFAD, LISP and/or another agency or programme provides

		end of programme		the necessary credit
	2.4. Diversified income sources	Income from non-agricultural sources increase in beneficiary villages by 10% in year 6 and 20% by end of programme Statistical reports from the Lola Prefecture and from the decentralised sectoral services of the Ministry of Economic Planning		Demand and marketing channels exist for local goods and services. Developing agricultural processing industries helps to economise resource use rather than increase pressures
Activities	2.1.1. Develop a deeper understanding of the social and land-tenure constraints linked to agricultural intensification			
	2.1.2 Develop capacity for land use planning with local government and local communities			
	2.1.3. Develop land use plans, either for each community, or by commune, that take into account Refugee Contingency Plans			
	2.1.4 Disseminate and enforce land use system			
	2.2.1. Support improvements in cultivation methods (soil improvements like soil conservation methods, fertilisers, manures and other imputs, development of low-lying areas for irrigation, introduction of improved seed varieties, etc.)			
	2.3.1. Improve understanding of marketing channels			
	232. Improve storage techniques and how produce is marketed			
	233. Strengthen the negotiating skills of farmers' co-ops/communes/other groupings			
	234. Facilitate access to credit			
	241. Promote local micro-industry			
	242. Encourage the introduction of simple processing technologies of agricultural produce			

Logical Framework Component 3: Local needs for animal protein more fully met using practises that do not damage wildlife

	Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Specific Objective	3. Local needs for animal protein more fully met using practises that do not damage wildlife	Reduced incidence of kwashiorkor by 30% in 15 beneficiary villages by end of programme Species indicating over-hunting increasing in their natural habitats (monkeys, antelopes, large birds) by end of programme	Surveys of health and nutrition CEGEN's ecological monitoring system	Revenues are not invested in harmful activities and do not incite additional immigration
Expected Results	3.1. More productive animal husbandry, integrated with agriculture	Number of beneficiary villages: 5 villages by year 3, 12 villages by year 6, and 20 villages (end of programme) Productivity of beneficiary villages increased by: 5% by year 3, 20% by year 6, and 35% end of programme	Programme activity reports Reports on animal husbandry by technical sectoral services and relevant development agencies (National Directorate for Livestock, CRBREIG, AFD/AHSP, GTZ/RRMP)	Production or profits accruing to local populations
	3.2. Domestication and breeding of wild animals tested and disseminated	10 experimental trials underway to raise 2 wild species by year 3, 10 experimental trials underway to raise two new species by year 6. 15 wildlife-raising micro-enterprises launched by year 6. 10% of animal protein produced in the NMBR from local inhabitants raising domesticated wildlife species by end of programme	Programme activity reports Reports on animal husbandry by technical sectoral services and relevant development agencies (Natl. Directorate of Livestock, CRBREIG, AHSP, RRMP)	Such breeding projects do not encourage increases in pressure on protected wild populations
	3.3. Wildlife resources co-managed with local populations in a sustainable manner	Abundance of target species: stabilised and baseline level established b year 3 increased by 20% by year 6, and increased by 40% by end of programme. Off-take of these species:	Ecological monitoring system (Activities 5.3.1-2) Studies of hunting and consumption of bushmeat	Hunting pressures are not increased by the mine

		stabilised by year 6, and increased by 20% by end of programme		
Activities	311. Develop the management skills of animal husbandry co-ops/communes/ groupings			
	312. Facilitate access of individuals or groups raising animals to extension services and inputs			
	321. Develop a deeper understanding of past and current trials to raise wild animals in captivity			
	322. Establish animal husbandry trials for wild animals			
	323. Study the technical, economic and social feasibility of these trials			
	324. Progressively replicate breeding schemes for the most promising wild animals			
	331. Raise awareness of those who hunt or collect wildlife of the principles of sustainable management and of enforcement of relevant laws			
	332. Promote simple management practises for the most widely consumed wildlife species			

Logical Framework Component 4: Improved health conditions, in particular among the neighbouring villages subject to constraints from the Nimba Mountains Biosphere Reserve.

	Intervention Logic	**Objectively Verifiable Indicators**	**Sources of Verification**	**Assumptions**
Specific Objective	4. Improved health conditions, in particular among the neighbouring villages subject to constraints from the Reserve	Mortality rate for children under 5 years reduced by 20% in at least 15 local villages (measured at the level of the population and not at health centres) by end of programme	Reports from the National Directorate of Health	The compensation offered by the programme is not viewed as a reward or encouragement to harm the Reserve
Expected Results	4.1. Improved medical and para-medical health care	Post-treatment recovery rate in beneficiary villages increased by: 15% by year 3, 60% by year 6, and 90% by end of programme. Satisfaction rating by patients: Increased by 40% by year 3, Increased by 80%by year 6, and Attains a level of at least 80% by end of programme	Health studies of target villages Results of satisfaction surveys	The services offered are not overwhelmed by increasing demand due to mining activities Local incomes increase (an effect of components 2+3) The needed personnel is provided by the Directorate of Health
	4.2. Increased access to health care	No inhabitant further than a 2-hour walk from a functioning health centre (3rd phase) The cost of basic services decreased by: 20% by year 6. Percent of health centres offering traditional treatments: Increased by 60% by year 6 and Attains a level of 90% by end of programme	Studies on the provision of local health services	
	4.3. Increased access to potable water	Percentage of persons living less that 100 metres from a safe water source: Increased by 40% by year 6 Attains a level of 75% by end of programme Average water pollution levels decreased by 50% by year 6 and 80% by end of programme	Studies on local water supply Reports on water quality from the activity 4.3.1	Mine-related pollution is controlled Services offered are not overwhelmed by increasing demand due to mining activities

	4.4. Improved hygiene practises	Occurrence of illnesses directly related to poor hygiene (diarrhoea, tetanus, meningitis) decreased by 20% by year 6 and 40% by end of programme Absence of cholera by end of programme	Local health studies	Pressures of urbanisation and spontaneous appearance of settlements are not increased dramatically by mining activities
Activities	411. Support organising focused training for medical and para-medical staff			
	412. Facilitate on-going access to basic medicines			
	421. Contribute to the geographic coverage of health dispensaries and clinics			
	422. Promote better complementarity between “modern” and traditional medicines			
	431. Monitor water quality in light of changes to the environment			
	432. Identify sources and causes of pollution and execute the needed corrective measures			
	433. Contribute to the existing network of wells, pumps and water supply systems			
	441. Support initiatives targeting public health and waste treatment			
	442. Support education in schools and public awareness initiatives on matters of hygiene			

Logical Framework Component 5: Strengthened capacity of the Reserve's management structures, in particular of CEGEN

	Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions
Specific Objective	5. Strengthened capacity of the Reserve's management structures, mainstreaming of biodiversity conservation, and contribution to national protected area system	Programme is managed effectively by CEGEN; Specific objectives 1-4 are realised according to plan (measured continuously) All agencies are working coherently together and synergies are realised between interventions in the Upper Cavally Basin; no activity is undertaken that works against the objectives of the NMBR (by end of programme) National coordination system for parks established by end of programme	Programme evaluation reports	Consistency of personnel (CEGEN) who are willing to relocate to the Nimba region
Expected Results	5.1. Synergy ensured between institutions and between interventions	Development master-plan (or other planning documents) approved (before year 6) CEGEN is effectively consulted on all programmes in the NMBR (beginning in the 3rd year)	Master-plan (document) Minutes of cross-institutional meetings	The means and willingness of key partner institutions is sufficient. All partners accept and respect the role of CEGEN.
	5.2. CEGEN's human and material resources strengthened and well managed	Infrastructure installed, CEGEN's staff is in place at Nimba, CEGEN's documentation centre is equipped & stocked by year 3 Detailed training programme prepared and implemented by year 3 100% of higher and middle level CEGEN staff have received at least 2 months of training by midterm External technical assistance needs decreased by 90% (end of	Physical presence Plan (document) Activity reports Activity reports	CEGEN's organigram is updated and staffed Trained personnel is in place and has adequate working conditions

		programme)		
	5.3. An operational ecological monitoring system	Baseline data at *t=0* for the principal bio-indicators are established (1st phase) Data on trends for the principal bio-indicators are available for every year of the programme (2nd and 3rd phases)	Reports from the monitoring system	Maintenance of installations and availability of trained personnel permit satisfactory mastering of the system
	5.4. Guaranteed long-term funding for conservation	Donor commitment to finance long-term management of the NMBR by midterm Sustainable financing mechanism in place by end of programme Locally distributed ecotourism revenues of US$ 5000 per year by year 6, and US$ 10,000 per year by end of programme	Written commitments from donors Articles of the mechanism Activity reports	Mining activities begin before or at the end of the programme
	5.5. Stakeholders better informed and aware of the issues and of resource conservation	Favourable attitude towards and objectives understood for the NMBR by at least: 25% of the populations older than 10 years by year 3 60% of the population older than 10 years by year 6 90% of the population older than 10 by end of programme	Surveys of the population of the NMBR	
	5.6 Contribution to a national protected area system	National coordination system for parks established by end of programme		
Activities	511. Amend and complete the legal texts related to CEGEN			
	512. Establish and run a consultation and planning mechanism with local populations			
	513. Ensure complementarity between relevant institutions			
	514. Prepare a development master-plan for the Nimba Mountains Biosphere Reserve in collaboration with all stakeholders			
	521. Implement a staff training programme			
	522. Establish a monitoring and evaluation system for CEGEN			
	531. Establish and manage a geo-referenced database on land-use, botanical and faunal inventories and the overall ecosystem			
	532. Ensure data collection necessary for the ecological monitoring system			
	541. Establish a sustainable financing mechanism and Foundation (or analogue agency) for the Guinean Nimba Mountains			
	542. Prepare a fundraising strategy for the Foundation (or analogue agency)			

	543. Explore alternative income -generating activities (especially eco-tourism, etc.)
	551. Design relevant messages for stakeholders and prepare materials to distribute
	552. Identify appropriate communication channels
	553. Organise environmental awareness meetings
	561. Contribute to establishment of a national coordinating committee for Parks
	562. Evaluate CEGEN performance and consider expanding mandate to Simandou Mountain, with accompanying revision in legal texts
	563. Contribute to review of policy and regulatory frameworks at national level for Protected Areas management

Annex 3: Incremental Cost Calculation

Context and Development Objectives.
The overall goal of the GEF alternative is "to contribute to the conservation of biodiversity and world heritage in a manner compatible with sustainable development." Specifically, it will intervene so that the core areas and the Nimba Mountains Biosphere Reserve are protected in a manner consistent with local sustainable development needs.

In its National Development Plan (2001), the Guinean Government places "the fight against poverty" at the center of all development activities. This plan touches several sectors, including agriculture, animal husbandry, health, education, basic infrastructure and others.

In 1998, the Guinea's debt represented 102% of GNP and its debt-servicing ratio was 19.5% of exports of goods and services (UNDP, 2000). A large portion of the country's budgetary resources and foreign exchange thus goes directly to servicing the debt. This situation does not make financing the poverty reduction strategy, prepared with World Bank support, easy (Republic of Guinea, 2000). Because constraints linked to debt payments and poverty increase pressures on natural resources, this debt has a major impact on the biological diversity of the Upper Cavally Basin.

Agriculture. The agricultural sector was responsible for 14% of Guinea's 1998 gross domestic product (GDP) and 69% of primary sector production (IMF, 2000). But in the Upper Cavally Basin, in the absence of any mining activity, it is by far the largest contributor to GDP. Rice exports are significant, as are exports of bananas, plantains, roots & tubers, palm oil, kola nuts, vegetable, groundnuts, maize and other less important crops.

The Agricultural Development Policy Letter (1997) sets out the following principal objectives, among others: "food security through animal and crop production" and "rational and sustainable use of natural resources (soils, forests, water), as well as biodiversity." It pays particular attention to rice which should be the staple of national food security. Low yields from slash-and-burn upland rice cultivation and the tendency to reduce fallow periods are emphasised as the causes of food insecurity. Great importance is attached to preparation of low-lying areas (riparian zones, swamps) for irrigated rice cultivation, to improved techniques for upland (non-irrigated) rice cultivation, and to diversification of agricultural production.

Animal husbandry. Livestock rearing accounted in 1998 for just over 3% of GDP and 16% of primary sector production (ibid.). Animal protein is noticeably deficient among the inhabitants of the Upper Cavally Basin, which is due to increasingly scarce wildlife, to the low level of consumption of locally raised animals, and to the inability of local villagers to afford products imported from outside the region. Beyond supporting actions in support of traditional cattle-raising and pig-farming, the Animal Husbandry Development Strategy for the Year 2010, cited in the Livestock Development Policy Letter, aims to promote raising cane rats, frogs, snails and fish.

Health. The health situation remains one of the region's chronic problems, due to the lack of health care supply (too expensive for the majority of Guineans if it were available), a loss of confidence in traditional medicine (a consequence of "modernisation" and the loss of natural ecosystems with their medicinal plants) and hygiene practices that are poorly adjusted to the zone's current demography and land-use. In addition to the deplorable health and hygiene conditions in the Upper Cavally Basin, average annual population growth was above 4% in the 1990s in the Lola Prefecture. Addressing food security, health and hygiene, as well as other key social services like education, in the face of such population growth is extremely difficult. Several national development strategies and plans address health, both sector-specific ones and the National Development Plan which highlights health as critical.

Mining. Mining accounts for 16% of Guinea's 1998 GNP, 25% of Government revenues and 73% of total exports of goods and services (ibid.). In terms of revenue-generation and exports, it will probably remain the most important sector for several decades. Guinea is determined to establish active mines in the Nimba and Simandou Mountains, which represent two of the largest and highest quality iron ore deposits in the world, and without rival in Eurasia/Africa. In addition, Guinea has valuable bauxite, diamond, gold and other mineral deposits that the government is determined to continue exploiting.

Conservation policy. The Guinean Government has set aside 11,821 km^2 of classified forests covering 4.8% of the national territory. These have the double-objectives of, first, providing forest products such as timber and second, of protecting biological diversity and providing ecosystem services such as watershed protection and maintenance of regular stream-flow.

Apart from sacred groves protected by local communities (whose total surface area is difficult to estimate), Guinea has only 1,094 km^2 of strictly protected areas, covering less than 0.5% of the national land mass. This area is composed of two national parks and the Nimba Mountains World Heritage Site. Guinea has two biosphere reserves (the Nimba Mountains and Ziama Massif), covering 2,575 km^2 or 1% of the national territory.

The National Biodiversity Strategy (2001) sets out the objective, among others, of "creating and developing a network of protected areas representative of the biodiversity of the terrestrial and aquatic ecosystems" of the nation. Mobilising international cooperation and assistance is one of its four primary objectives for the strategy, which will allow biodiversity to be conserved and used sustainably.

The Wildlife and Hunting Act sets out the framework for wildlife utilisation and the protection of species threatened with extinction. Thus hunting of certain species is strictly forbidden while for others it is limited to certain seasons and methods, with the objective of the latter's sustainable use.

Forestry policy. Managing forestry is the responsibility of the Directorate of Water & Forests, which is part of the Ministry of Agriculture. A forestry company wishing to obtain a logging concession works with the local Water & Forest agents to identify an area and prepare the technical specifications (*cahier des charges*) the concessionaire must follow in carrying out any logging. This generally includes preparing an inventory and annual coupe plans, reforesting after logging or reforesting degraded areas, as well as constructing and maintaining infrastructure (roads and bridges) and possibly assisting local communities with schools, clinics and other support. The *cahier des charges* specifies the minimum diameters for particular species that may be cut, as well as the responsibilities if any of the logger to protect the area from encroachment during and following logging. All *cahiers des charges* must be consistent with the Forestry Act which specifies general responsibilities, rules and regulations concerning commercial forestry. Once a proposed forestry concession is agreed between the concessionaire and Water & Forests agents, the request is channeled up to the Minister of Agriculture for approval. A concessionaire is supposed to operate according to the *cahier des charges* and under the supervision of a locally assigned Water & Forests agent.

Guinea has a Tropical Forestry Action Plan which was under implementation in Forested Guinea or *"Guinée Forestière"* at the time of writing. However its impact in the province has not been felt significantly.

Despite the emergence of commercial forestry as a powerful force in the regional economy in the 1980s, historically forest loss and degradation in *Guinée Forestière* and the Nimba region is due largely to subsistence agriculture, followed by livestock raising and settlements. Commercial forestry is not directly responsible for much forest loss. However over the past decade it is responsible for opening up many of the last remaining forest blocks to slash-and-burn agriculture and hunting, fragmenting, degrading and reducing their ability to recover from disturbance. In 2002, the forestry industry in *Guinée Forestière* has suffered the set-backs of a presidential decree banning all commercial tree-cutting in the province, and the closure of the

borders with Liberia and Côte d'Ivoire. However small scale logging continues, although illicitly, with the complicity of some local authorities.

Baseline situation.

Development. The Baseline situation is supporting sustainable development in line with the above official policies. However the aid currently received in the NMBR is sporadic insufficient to address the problems of over-exploitation of natural resources and biological diversity, which is impoverishing both the Reserve's biodiversity and people. IFAD assists one village in the transition area with agricultural and other support via the Project for the Development of Small-scale Forest Inhabitants in Forested Guinea (PDSFI/FG) and the French Development Agency's Animal Husbandry Support Programme (AHSP) is providing small-scale support. The FAO is providing support to pisciculture in the region although its impact has not been felt in the buffer zone. In 2002 the Japanese funded a study of potential sites for irrigated rice cultivation around Bossou.

Without any new interventions, the NMBR would continue to receive irregular support from national, regional and prefectural programmes. It would also benefit from programmes described above and in Section 9 "Past activities and present baseline activities" such as the PDSFI/FG and the AHSP. Furthermore in addition to falling far short of local needs, current support is not co-ordinated in any manner with efforts to manage the core areas' biodiversity.

Mining. The proposed mine in the north-western part of the Nimba mountain range would eventually be used according to the guidelines agreed between Government and EuroNimba, in the Convention currently pending signature, and according to any additional guidelines and standards that EuroNimba will follow as a matter of corporate policy and good citizenship. MMGE will monitor that EuroNimba upholds its commitments.

Conservation measures. CEGEN's presence in the field remains very weak. Apart from meteorological monitoring that has been underway since the Nimba Mountains Pilot Project, whatever infrastructure was installed and has undergone disrepair, is hardly utilised and there is no regular patrolling. CEGEN's skeleton staff live in Conakry awaiting the construction of appropriate infrastructure and the provision of necessary equipment in the Reserve so that they may carry out their responsibilities.

The Guinean Government provides approximately $25,000 per year in salaries for CEGEN, plus another $1000 per year in recurrent costs for CEGEN's office in Conakry. It should be noted that the PDF B has permitted CEGEN to strengthen its presence in the field and numerous activities from the Pilot Project have been restarted since early 2001.

As part of its environmental responsibilities, the mining company will monitor certain parameters related to water and air quality in the mining concession. It will furthermore see that all environmental clauses are respected in the mining agreement to be signed between all parties, especially EuroNimba and Government (see Annex 11). As stated above, an additional obligation will be an annual contribution to the management of the core areas and to development in the surrounding communities.

Various international partners are already contributing to certain core areas. Specifically, the University of Kyoto and the Japanese Embassy in Conakry contributed just shy of $45,000 in 2000 for the Bossou-Nimba forested corridor, as well as a community health center. The University has supported on-going chimpanzee research worth a portion of that per year since the mid-90s via the Environmental Research Institute of Bossou. The University will continue its research programme over the long term, contributing to the management of the Bossou Hills. UNESCO has over the past several years made contributions to the Nimba Mountains and the Déré Forest but these are too irregular to constitute any sort of baseline, and they have been more diagnostic than management-oriented.

The tri-national meetings on transboundary collaboration for the Nimba Mountains that occurred in late 2001 and early 2002 were supported by grants from the World Heritage Fund, Rio Tinto Mining and Netherlands Committee for IUCN totaling $42,000, and in-kind contributions of $27,000 from the three international NGOs who organised them (Fauna & Flora International, Conservation International and BirdLife International) and participating governments. With the initial contacts established and identification of areas of collaboration completed, smaller focused meetings will be needed in future to ensure continuation of the momentum created. FFI will seek to ensure the Guinean participation in this, which will cost approximately $10,000 per annum for the duration of the programme. Although the three countries expressed their strong desire for the process to undertake field activities, no funding has been secured for these. However FFI intends to continue funding tri-national dia logue at a modest level.

Forestry. In the 1990s, the GTZ, KfW and Directorate of Water & Forests launched the Rural Resources Management Project and established the N'Zérékoré Forestry Centre. This support has helped to strengthen management of the Diécké, Ziama and Mont Béro Classified Forests of *Guinée Forestière*. In 2003 parts of the programme will be extended to three additional classified forests, but not in the Nimba Mountains Biosphere Reserve.

The forestry baseline in the NMBR consists of ensuring that the presidential decree is effectively enforced and that loggers do not escape through loopholes, with local collusion. Logging by commercial foresters is not a problem for the Nimba Mountains or the Bossou Hills, but has been highly damaging to the Déré Forest, and parts of the Buffer Zone and Transition Area. As the Directorate of Water & Forests is CEGEN's main partner for managing the Déré Forest and forests outside the core areas, responsibility falls to it to ensure the baseline is met, with CEGEN's oversight through the planning committees and preparation of the Reserve's development master-plan.

In conclusion, in spite of certain actions in support of conservation, the current situation will lead sooner or later to the loss of the majority of the biodiversity of the Nimba Mountains Biosphere Reserve, regardless of the probable but distant proposed contributions of the mining company. Such a loss will be due principally to forest loss and encroachment on the edges of the core areas due to agricultural and forestry pressures (subsistence and commercial), to hunting and to wildfires. The loss of biodiversity will be accompanied by ever-increasing poverty of local peoples, characterised by declining agricultural production, low levels of animal production, and worsening health and sanitary conditions. This is because the baseline, which is outlined accoridng to Guinea's official development policies, is unlikey to materialise in the absence of a programme like the porposed GEF intervention, and the eventual contributions of the minign company will not be sufficient to address magnitude of the problems, even if mining is done resopnsibly. The only solution for biodiversity and improving local living conditions over the long term is to invest in a participatory and integrated conservation programme for all three categories of the Biosphere Reserve: core areas, buffer zone and transition area.

Global Environmental Objective.

The proposed programme's global environmental objective is the conservation of the globally significant biodiversity of the Biosphere Reserve's core areas and the sustainable use of biodiversity in its buffer zone and transition area. These ecosystems represent a unique continuum of the Upper Guinean Forest Ecosystem including lowland rainforest and savanna, mid-altitude rainforest on the slopes of the Nimba Mountains, gallery forests in the deep ravines snaking up to high altitudes, high-altitude forests and finally high-altitude savanna formations generally above 1400 meters. This range of habitats is unique in West Africa. It contains numerous endemic species, in particular at the upper altitudes. This combination of factors is the reason the area was identified as one of the highest priority sites for conservation in West Africa by the Upper Guinean Forest Ecosystem Conservation Priority-Setting Exercise (1999). Because of the pressing

threats on the ecosystem, informally many considered it the single highest conservation priority in humid West Africa.

As a Biosphere Reserve, the Guinean Nimba mountains have the potential to be a showcase for a holistic landscape approach to ecosystem management and sustainable development, proving that local development needs and national-level mining interests can be reconciled with biodiversity conservation imperatives.

GEF Alternative.
GEF funding over a 9-year period will permit the institutions responsible for environmental conservation and local development at the Nimba Mountains to be strengthened, and for integrated conservation and sustainable development activities to be launched and consolidated. Once consolidated, the recurrent costs and other needed inputs will be significantly lower and should be met without further GEF support. To do all this, the proposed programme will overcome the relevant institutional, inter-institutional, scientific, field-orientated, financial, legal and development-related barriers. GEF support will not only realise global environmental benefits, but has catalysed additional direct co-financing that would otherwise not likely be forthcoming.

Institutional barriers: Since its creation in 1995, CEGEN has had inadequate personnel, training and equipment to carry out its responsibilities. Furthrmore, due to the lack of infrastructure in NMBR, the existing personnel have been concentrated in Conakry, thus not being able to provide adequate presence in the field. As the statutory agency responsible for the core areas of the Biosphere Reserve and also for ensuring coherence and complementarity between interventions in the Reserve, the bulk of CEGEN's staff will be moved to the Reserve and appropriate local infrastructure will be constructed. The programme will provide the means and incentives for CEGEN personnel to be trained in their job responsibilities, and to pursue individual study. It will set up an internal management and evaluation system for CEGEN to constantly improve its operational efficiency and for individual achievement and dynamism to be rewarded. The Guinean Government will revise the legal statutes governing CEGEN and assign or hire the specified personnel so that before the end of the programme CEGEN has all the required personnel, fully trained to carry out all aspects of its mandate, and whose costs are borne by regular budgetary allocations. The programme will permit CEGEN and its partner agencies to be recognised locally as the legitimate, competent and approachable management authorities for these protected areas.

Inter-institutional barriers: The programme will permit CEGEN to lead preparation of a development master-plan for the Reserve with all concerned stakeholders, and to co-ordinate planning and consultation mechanisms at several levels - with local communities, local authorities, sectoral agencies and development initiatives – in order to ensure transparent and comprehensive information-sharing, and mainstreaming of biodiversity into development planning for the zone between all concerned parties. In this way synergies between interventions, which until today have been seriously lacking, will be realised.

The programme will also permit, as and when the situation improves across the border, the Guinean team not only to continue the transboundary dialogue begun in 2001 on co-ordinated management of the Nimba Mountains' environment, but to carry out harmonised and possibly joint field activities with its neighbours as part of the management plans for the World Heritage Site and Déré Forest. The transboundary goal towards which the programme will work is to bring all three countries' conservation management and economic development programmes into harmony for the full Upper Cavally Basin and Nimba Mountain chain.

Scientific and field-related barriers: Although management of the core areas has been irregular over the past decade, activities to date and those planned are based upon scientific assumptions that are unconfirmed and need testing. For example, while fire is considered a threat in some cases and a necessary ecosystem component at times, its role is poorly understood at Nimba. Thus management of the core areas' biodiversity as well as biodiversity in the buffer zone and transition area will be informed by an ecological data collection

and analysis system designed to track key biodiversity parameters indicating overall programme success or failure. This same overall system will monitor key pollution parameters like water and air quality, related to mining operations and local sanitary conditions. In this way the barrier of missing biophysical data and scientific information will be overcome.

Financial barriers: Since its creation, CEGEN has lacked the financial resources to fulfil its mission. This programme will mobilise the funds to put in place the tangible and intangible elements, overcoming the various barriers, for CEGEN to function efficiently and effectively after the programme ends and with relatively modest recurrent costs. However without a sure source of recurrent funds later on, this programme will have helped mainly to defer or diminish the inevitable loss of the biodiversity of the Reserve.

Therefore the programme will establish a sustainable financing mechanism to address this issue. However every effort will be made to avoid creating mechanisms that duplicate one another, targeting the same topic(s) and/or working in the same geographical area(s). For example, the programme will ensure complementarity rather than duplication of the mechanism created by PCGAP in Côte d'Ivoire assisting the Ivoirian Nimba Strict Nature Reserve among other sites.

Concerning the Guinean side, the mining company has committed to contribute a sum annually to conservation and local development for at least a 50 year period. The possibility of establishing a endowment fund with this contribution, to cover certain recurrent costs of protected area management as well as contribute to sustainable development, has been discussed and will be further refined during the Full programme. The idea of establishing an efficient, independent and non-governmental interlocutor to receive and programme the resources has in principle been accepted by Government.

Whatever the solution chosen above, the programme will make the investments to create positive conservation momentum that can be sustained with recurrent funding after the programme closes, such as from contributions of the mining company and Government.

To support outreach and sustainable development activities for surrounding communities, the programme will develop income-generating activities based upon tourism in the core areas, as well as sustainable use in transition areas. Although tourism revenues are likely to be limited initially, they will be shared with local communities according to transparent criteria to be established during the programme. Because of the high degree of community involvement foreseen in core area protection, particularly of the Bossou Hills, revenue-sharing will be an essential part of tourism and core area management.

Legal barriers: The programme will resolve once and for all the legal ambiguities concerning the legal status under Guinean law of the three core areas and the management and inter-institutional responsibilities for all zones of the Biosphere Reserve.

Sustainable development: Improving local production systems, in particular agriculture and animal protein production, is essential to ensure the ecological integrity of the Reserve's core areas. Coherence between interventions and their integration with conservation measures are equally fundamental to realise the programme's objective of integrated ecosystem management.

A small percentage of GEF resources are destined for sustainable development activities, and this percentage targets technical assistance directly linked to sustainable use of biodiversity *in situ* as well as to ensuring coherence and complementarity between conservation and development activities. The overall programme will furthermore provide alternative sustainable development models to the currently destructive ones so that local inhabitants are not left worse off but their livelihoods improve as protective measures of the core areas increase and biodiversity use in the productive landscape (such as wildlife gathered for food like frogs, snails, cane rats and fish) is made sustainable.

The programme's PDF B phase has come to the attention of many high-level decision-makers in the Guinean Government as well as donors, who are encouraged to direct their programmes and resources to the Upper Cavally basin in future. A Parliamentary Question in February 2003 directly instructed the Minister of MMGE to proceed as soon as possible to the signature of the Convention. While this support forms part of the wider baseline in Guinea, this programme will attract additional resources to the Nimba region specifically to support the double objectives of conservation and sustainable development.

Incremental Cost Calculation.
Activities that address overcoming the barriers to integrated long-term management of the NMBR and its biodiversity are considered incremental. The following programme elements are thus eligible for GEF support:

?? activities related to interventions directly in support of conservation of the core areas that were not pursued regularly in the past. These consist of the majority of the component 'Ecological integrity assured for the core areas of the NMBR', namely basic infrastructure for the core areas, patrols, local involvement, ecological monitoring and identification of conservation priorities, preparation of management plans for the three core areas, collaborative field activities with Liberia and Côte d'Ivoire, and more. Activities directly related to planned mining operations however are not considered incremental.

?? strengthening of CEGEN's capacity. This consists of installation of basic infrastructure and provision of basic equipment to permit CEGEN to function at the Reserve, a training programme for CEGEN personnel, setting up an internal monitoring and evaluation system of CEGEN's staff and performance, and provision of technical assistance to ensure that adequate systems exist to maintain programme accomplishments and continue managing the Reserve after the programme ends.

?? Support to activities related to setting up and/or running fora for consultations, information-sharing and planning between stakeholders (CEGEN, villages, decentralised governmental sectoral services, local and national authorities, the mining company, development agencies and programmes, research and documentation centers, commercial operators, etc.), and for developing Core Area Management Plans, as well as the Reserve's integrated development master-plan.

?? ensuring a sustainable financing mechanism to support activities after the programme ends and programme the resources available.

?? a modest but strategic support to the agricultural component, focusing on understanding the the land-tenure related processes that may drive forest clearance in the core areas

?? aspects of the Animal Protein and Health components directly related to sustainable utilisation of biodiversity in the productive landscape, namely establishing sustainable off-take regimes for selected wild species, promoting the raising of wild species to relieve pressures on wild populations, sustainable use of non-timber forest products, and actions related to promoting complementarity of traditional with 'modern' medicine and sustainable management of locally collected medicinal plants.

System boundaries. The programme primarily targets the Guinean Upper Cavally Basin and its management authorities. The philosophy of a biosphere reserve focuses firstly on conservation of the core area(s) and compatible sustainable development of buffer zone. The buffer zone will serve as the priority area for testing development solutions and where development activities will be strictly controlled, while successful activities from the buffer zone will be replicated in the transition area. The programme will largely stop at the international borders, although it will support Guinea's participation in the recently established transboundary planning and co-ordination mechanism, with the intention of managing the Nimba Mountains as a single ecosystem. The system boundary is also extended to the national level, as the programme will contribute to strengthening the MMGE in developing a national protected area system. The GEF Alternative will address the main threats as identified (agricultural expansion, unsustainable harvesting) but will not address the issue of commercial logging directly. It will do so indirectly through strengthening the capacity

of local government to plan, manage and control illicit logging, and improve its integration with other economic activities.

Incremental costs. The baseline cost is estimated at $5,640,000 over the nine years of the programme. The GEF Alternative is estimated at $17,076,900 over the same period. The increment will be shared by GEF ($3,660,000) and other co-financing ($7,776,900). See matrix that follows.

Incremental Cost Matrix.

Component	Cost (US$ thousand)	Intervention summary	Local benefits	Global benefits
1. Ecological integrity assured for the core areas of the Nimba Mountains Biosphere Reserve	**Baseline** **970**	Monitoring of the mining project; preparation of environmental guidelines for mining operations; dialogue with neighbouring countries; modest support to CEGEN from GoG, UNESCO, FFI, Japan, and Mining Consortium	Reduction of the impact of mining on the Nimba Mountains World Heritage Site	Probable loss of a significant part of the biodiversity of the Reserve's 3 core areas
	Alternative **5,264**	In addition to the above, active protection of the core areas of the NMBR through planned and strategic patrolling, community participation, management-oriented monitoring and studies, management plan development and legal measures	Long-term protection of watersheds and genetic stock for replenishing sites outside the core areas	Protection of rare or unique habitats and species, especially at higher altitudes
	Increment **GEF 2,160** **Other 2,134**			
2. Agricultural revenues of local people increased on the basis of more productive practises	**Baseline** **1,820**	Support to more intensive and productive agricultural practices to stabilise the land surface cultivated; support to improving the terms of trade and negotiating power of local farmers; diversification of local employment (IFAD, AFD, FAO)	Incomes & agricultural production improved and diversified employment on the basis of less land-extensive techniques but not necessarily in the Reserve	Continued encroachment on the core areas of the NMBR
	Alternative **3,861**	In addition to the above, a better understanding of the social, viz. land-tenure-related, constraints that drive local inhabitants to encroach on the core areas	More effective intervention because of better local knowledge; improved water flow for irrigated agriculture; actions targeted at the Upper Cavally Basin	Agricultural interventions better targeted to counter threats to the core areas
	Increment **GEF 20** **Other 2,020**			

3. Local needs for animal protein more fully met using practises that do not damage wildlife	**Baseline** **790**	Support to more productive animla husbandry (technical assistance and other inputs) Promotion of animal husbandry producer groups	Improved local production of animal protein but not necessarily in the Upper Cavally Basin and without any attention to reducing pressure on wild fauna	Impoverishment of wildlife populations outside of the core areas and increased poaching pressure on core areas
	Alternative **2,026**	In addition to the above, rigorously evaluated 'wild' animal species husbandry trials with the most promising ones replicated across the Reserve (GEF co-financed); and establishment of management regimes for the most widely (legally) hunted or collected wild species; awareness of laws and management techniques related to wildlife	Traditional interventions are more targeted on the Upper Cavally Basin; increased long-term local protein supply and incomes through breeding schemes of 'wild' species and sustainable off-take in the wild	Reduced threats to wildlife in the core areas; sustainable management of wildlife outside the core areas
	Increment **GEF 740** **Other 496**			
4. Improved health conditions, in particular among the neighbouring villages subject to constraints from the Nimba Mountains Biosphere Reserve	**Baseline** **1,210**	Improved quality and coverage of medical care, improved access to potable water, improved rural sanitation conditions	Improved health conditions but not necessarily in the Upper Cavally Basin and without any focus on traditional medicine or medicinal plants	Probable decline in local medicinal plants
	Alternative **2,728.8**	Same as above with an emphasis on complementarity of 'modern' and traditional medicine, plus sustainable management of local medicinal plants	Interventions more focused on the Upper Cavally Basin and health care is more affordable thanks to traditional medicine	Better appreciation of traditional medicine and improved management of medicinal plants and traditional knowledge
	Increment **Other** **1,518.8**			

5. Strengthened capacity of the Reserve's management structures, mainstreaming of biodiversity conservation, and contribution to national protected area system	**Baseline** **850**	Limited monitoring of certain biophysical parameters (meteorology, hydrology, water quality); insufficient infrastructure and staff in the Reserve for it to be managed properly; poor if non-existent inter-sectoral planning of interventions in the NMBR No coherent national level dialogue on protected area system	CEGEN stays weak in terms of its presence at the Reserve, technical & institutional capacity and knowledge of important management issues for the Reserve; lack of synergies between interventions -even interventions that conflict and damage one another; lack of awareness and acceptance of CEGEN's co-ordinating role; chronic lack of funds	Degradation of the ecological integrity of the core areas' biodiversity
	Alternative **3,198**	CEGEN's capacity strengthened in terms of infrastructure, equipment, trained personnel, internal management system, clear and accepted roles; regular consultations and planning with relevant stakeholders including local residents; interventions are planned according to a development master-plan; a comprehensive ecological monitoring programme in place looking at the entire Reserve; creation of a sustainable financing mechanism and associated institutional arrangements; eco-tourism promoted; awareness programme launched; and inputs provided for a national system of protected areas	Synergies realised between interventions; all stakeholders understand one another's roles and responsibilities at the Reserve	CEGEN its partners are strengthened in terms of material needs, legal mandate, human resources and inter-institutional co-ordination to manage the Reserve and it biodiversity
	Increment **GEF 740** **Other 1,608**			

TOTAL	**Baseline** **5,640**			
TOTAL	**Alternative** **17,076.9**			
TOTAL	**Increment** **GEF 3,660** **Other** **7,776.9**			

Annex 4 : STAP Review and Response to STAP Review

ANNEX 4A. STAP TECHNICAL REVIEW

By John Mugabe
28th February 2003

Project Number	PIMS 1584
Project Title:	Conservation of the biodiversity of the Nimba Mountains through Integrated and Participatory Management
Implementing Agency:	United Nations Development Programme (UNDP)
Requesting Country:	Guinea
GEF Focal Area:	Biological Diversity

General Statements and Comments

I have read and reviewed the proposed project with great interest. The project is intended to address a wide range of conservation and developmental issues, some of which are complex due to their social and political underpinnings. The proposal provides a rich body of information on the status of biological diversity in the Nimba Mountains region, and outlines a range of activities that would be implemented to achieve specific conservation and development goals. On the whole, it is well designed. There are a few general concerns that emerge from reading the proposal. These are:

(a) Lack of clarity in usage of terms and concepts—such phrases as 'integrated ecosystem management through participatory approaches', are used severally in a vague way. While it is not the task of the proposal to provide definitions of such concepts as 'integrated ecosystem management' and 'participatory approaches', 'mainstreaming of biodiversity conservation into local and national level sustainable development planning', it is crucial that in the description of the project's activities effort is made to at least indicate how they are or will be achieved.
(b) Terms/words 'project' and 'programme' are used interchangeably. See for example on page 15 paragraph 60 "The project will have to…." and paragraph 61 "The overall objective of the programme is…."
(c) While in the project summary and description of components there is explicit reference to the development dimensions of the project, the outline of objectives (para 61) is silent on social and economic development goals.
(d) Usage of such phrases as 'the protection of the biological diversity of the Nimba Mountains Biosphere Reserve' tends to create the impression that this is one of the

traditional/conventional conservation projects that ignore economic and social facets of sustainable development.

Key Issues Considered

1. Scientific and technical soundness of the proposed project: The proposal gives a good overview of the environmental context and status of biological diversity of the Guinea, and particularly the diversity of species found in the Nimba Mountains Biosphere Reserve (NMBR). It clearly demonstrates that this diversity is threatened by a variety of factors including the lack of national institutional capacity for conservation. The proposed project is being designed to promote the conservation of biological diversity while at the same time addressing economic needs of local peoples and interests of the mining industry. Indeed this one of the main challenges of biodiversity management: balancing conservation with economic development imperatives. While the proposal states that animal husbandry and crop production activities will be encouraged and strengthened, it does not really discuss how local communities and the national economy shall directly benefit from their rich biodiversity through *sustainable use practices*. Instead of 'protecting' and/or 'preserving' the biodiversity—the conventional paradigm—what specific initiatives is the proposed project likely to institute to promote sustainable harvesting and use practices, particularly of forest tree species?

The proposed project recognizes the importance of involving local people in conservation. However, it pays very little attention to the importance of promoting and protecting their traditional knowledge. There is no discussion in the proposal on how such knowledge will be harnessed, utilized and recognized. Paragraph 74 of the proposal makes reference to article 8 of the Convention on Biological Diversity but there is no discussion of how the project will contribute to the implementation of provisions of Article 8j. A related issue is how local people can be effectively engaged in building an information base on the social and economic uses/values of NMBR biodiversity, for example their involvement in taxonomic studies.

On the whole, the proposed project is designed on sound scientific and technical principles. The above issues may be considered to upgrade its scientific and technical soundness.

2. Global environmental benefits identified and/or drawbacks of the project: There are at least two global environmental benefits that the proposed project would generate. These are maintenance of the ecological integrity of the NMBR which is a recognized global heritage and biological asset, and potential contributions to the stabilization of greenhouse gas concentrations in the atmosphere. It would provide sinks for greenhouse gases and thus contribute to the management of climate change. The proposal explicitly outlines conservation of a globally significant ecosystem as a benefit but does not refer to or explicitly recognize potential contributions to mitigation of climate change. Other potential benefits that the project would generate relate to controlling land degradation. It is intended to improve land use practices in the region.

3. Project fit within the context GEF goals and operational strategies: The proposed project aims at meeting GEF goals as is designed to promote the conservation and sustainable use of a

globally significant biosphere. Its objectives and activities are explicitly aimed at implementing the Convention on Biological Diversity, and in particular article 8 on *in situ* conservation. Potential benefits of improved land use and tenure systems are also anticipated, and it thus fits also in GEF operational strategies and focus on land degradation.

4. Replicability of the project: The proposed project can be replicated in other regions of the country as well as in other countries. It is designed in such a way as to ensure that it is implemented in a flexible manner, maximizing learning and adjusting the sequence of activities to achieve maximum impact. The 9 years of project implementation is an adequate time-span to ensure that various approaches are experimented with and revised on the basis of lessons learnt. An important aspect of experimentation will be how to engage in partnership with the mining industry in such a way as to balance its economic interests with overall conservation goals of the project. Lessons learnt from this form of partnership will be crucial in promoting collaboration between conservation agencies and private industry.

Significant attention is to be devoted to building and sustaining memory of the project's implementation by periodically reviewing and documenting it. There is recognition of a range of policy, institutional and legal reforms that must be undertaken in order to achieve the overall objectives of the project.

5. Sustainability of the project: The project is to be implemented in nine years, a reasonable period during which the activities will be tested out, the necessary institutional reforms undertaken to give the CEGEN a clear mandate, enhance its authority and human as well as physical capacity. One important aspect of the sustainability of the project relates to build a strong political constituency for its implementation. The extent to which it will last and be effectively implemented in the nine years depends on the existence of socio-political stability in the region as well as the support of national and local politicians. This is recognized in the project design.

Financial sustainability of the project post-GEF funding is to be secured through the creation of an endowment fund with contributions from the mining company. The proposal makes reference to but does not elaborate on the idea of an endowment fund or any other mechanism to ensure financial sustainability. The other source of financial sustainability envisaged is government funding. There is however no discussion of how the project will leverage and sustain government support beyond/after the nine years. There is also need for the proposal to identify and describe specific measures that will be put in place to ensure that the mining industry continues to invest in the activities post GEF funding.

Secondary Issues Considered

1. Linkages to other GEF focal areas—The project has explicit links to land degradation, a focal area of the GEF. Its implementation may also contribute to achieving the objectives of the United Nations Framework Convention on Climate Change.

2. Linkages to other programmes and action plans at regional and sub-regional levels—The proposed project has linkages to several other projects and programmes at sub-regional and regional levels. For example, it has linkages to the proposed GEF-UNDP project on *Ín situ* conservation of endemic livestock in West Africa', and the World Bank supported Framework

Protected Areas Management Project in Cote d'Ivoire which also covers the protection of the Ivoirian Nimba Strict Reserve.

3. Other beneficial effects—In addition to the environmental and economic benefits, the proposed project will build new skills and social capital. The mobilization and involvement of various stakeholders in the project may generate new institutional arrangements between the mining industry and local communities, and may resolve any prior tensions and conflicts such as those over land and forest resources.

4. Degree of stakeholders' involvement—During the PDF-B phase major efforts were made to mobilize and engage various groups of stakeholders in the design of the project. There are specific measures being proposed to ensure that there is adequate stakeholders' participation in the implementation of the project. For example, local meetings are planned to disseminate information and various participatory forums where various government departments, private industry and local authorities will share views on the project's implementation will be organized.

5. Capacity-building aspects—This is the core focus and component of the project. There are three aspects of capacity building that the proposed project will focus on. These are (a) creating the necessary enabling conditions by reforming policies and laws such as those on land use, and building constituencies for biodiversity management through participatory approaches (b) provision of equipment to management agencies e.g. the CEGEN, and enlargement of CEGEN's legal authority (d) training and ensuring efficient utilization of staff.

6. Innovativeness of the project—The proposed project is innovative in a number of ways. First, it is aimed at creating incentives for private sector (specifically the mining industry) to participate in and contribute to national conservation efforts. It is intended to ensure that environmental and social considerations are integrated into mining activities. Emphasis is placed on voluntary compliance with environmental requirements, and ensuring that the mining industry has a direct economic stake in biodiversity conservation. Second, the project explicitly focuses on enlarging the range of economic opportunities for local people. Many conservation projects tend to either ignore or shy away from addressing economic needs of local people. The proposed project will harness and utilize local knowledge and skills to improve agricultural productivity while at the same time maximizing conservation of biodiversity.

ANNEX 4B. RESPONSE TO STAP REVIEW

The STAP review is a very positive endorsement of the project Design, and commends its innovativeness, potential for achieving global benefits and sustainability /replicability. The Reviewer has made very constructive comments on how to improve the terminology, as well as substantive comments, which are addressed below:

1. Definition of terms "integrated ecosystem management", "participatory management" and "mainstreaming". The former will be achieved through the integration of the different landscapes in the Reserve (montane, savanna, valley) and the integration of conservation and development activities. The second will be achieved through participatory development and implementation of the management plans for the core areas, as well as the Master Plan. The third will be achieved through integration of biodiversity concerns into both the Master Plan as well as the Refugee Contingency plan.

2. The design is essentially a programme , because of its long period (9 years) and integration of different packages of financing. The term project has been replaced with programme throughout.

3. The Overall Objective (paragraph 61) captures the issues of socio-economic development under the term "sustainable development". The term "protection" is used to include both conservation and sustainable use.

4. Sustainable use will contribute to sustainable development, and is fully captured in Component 3. This component focuses on fauna and not flora (trees) because the threats /root causes analysis has shown that local use of trees (fulewood) and non-timber forest products are not at such a high level as to constitute a threat. The threat to the forests comes from the illegal logging practices. The Presidential Decree has given a respite that will allow the programme to develop a viable system to address this issue. This is being addressed in several ways: participatory development of the management plans of the core areas, which will stipulate no-harvest zones; local patrolling to enforce the management plans; building capacity of CEGEN to monitor and enforce the plan (including incentive schemes for employees); and integrating sustainable logging needs into the Master Plan for the wider landscape (outside core areas).

5. The role of traditional knowledge is very important, and is already reflected in the participatory approach adopted by the project. Local knowledge will be utilized when developing a deeper understanding of conservation needs and the management plans for the Core Areas. Knowledge that is codified will be fed into the ecological monitoring data base. This knowledge will also be instrumental in shaping the management plans, and in developing sustainable use regimes for bushmeat and medicinal plants. This has been clarified in the revised Brief. However, no explicit taxonomic studies are envisaged at this time by the project. If additional funding is found for such an activity, then it will be done through integration of local knowledge.

6. There will be a potential for capturing global benefits from carbon sequestration, once the forest canopy is restored and stabilized. This will also contribute to reducing land degradation/deforestation. One of the indicators of the programme impact is reduced deforestation. Although, the programme does not intend to monitor carbon sequestered, the data it will generate on forest canopy can be used by GEF's and UNDP's M&E Units to calculate such global impact.

7. Leveraging and sustaining Government support beyond the nine years is an issue that requires careful consideration and safeguards. The government has committed itself to tripling the staff of CEGEN, using its own budget, in the life of the programme. It is understood that the recurrent costs of these will continue after the programme is ended. During the design of the Foundation, this issue will be considered so that mechanisms are found to ensure such government support beyond the life of the programme.

8. Similarly, the Mining Industry will commit itself , through the Convention, to providing support well beyond the life of the programme. The Convention covers the life of active exploration and mining, which goes well beyond the life of the programme.

Annexe 5: Stakeholder and Public Participation Plan

As stated throughout this document, the threats to the NMBR and it biological resources are intimately linked to the livelihoods of local residents, and any lasting solution necessarily entails the genuine collaboration of local villages, economic groupings/collectives, local authorities and the decentralised sectoral services and development programmes operating in the zone. Problem identification and the definition of solutions during the PDF B preparatory phase were highly participatory, being based upon extensive local consultations, several information-sharing meetings and a several-day 'ZOPP' workshop in which the problem analysis was reviewed and validated by a range of local actors and the programme's components were defined in response.

The strategy to be followed during programme implementation will be based upon detailed and site-specific information collection for any community assistance/development action (components 2-4), including consultations with intended beneficiaries (not only heads of RDCs or collectives), to design specifically tailored assistance projects. Under component 5, the programme will establish and run forums for communities to communicate their needs, perspectives and concerns related to the overall Reserve (Activity 5.1.2). A similar forum, but pitched at an appropriately different level, will be created to bring together CEGEN with representatives of local communities, local authorities, decentralised sectoral services, development programmes active or interested in the zone, the mining company, UNESCO and MAB representatives and any other relevant stakeholder to co-ordinate interventions, realise synergies and provide input into the NMBR development master-plan (Activity 5.1.3). Furthermore, in component 1, local communities will be involved in developing management plans for the three core areas and in protecting them through village-based patrols.

The participatory processes established during the programme should be able to continue after external support ends because they do not so much require significant resources but they need to be set up, run and prove their value to local stakeholders. Once their value is evident and a culture of dialogue and joint planning is established, this culture of participation can be continued with little external support.

The following tables present, first, the main stakeholders identified and, second, the stakeholders that will be involved in each activity and which actions will be carried out in the pre-programme, programme and post-programme periods. A separate annex (no. 10) describes the details of the mining company's part and future involvement with the programme.

List of stakeholders

- the Guinean State
- Ministry of Environment
- Centre for the Management of the Environment of the Nimba Mountains (CEGEN)
- Hired programme personnel
- Sectoral agencies/services (ERIB, NDWF, NDSTR, NDE, NDA, NDL, NDH …)
- Decentralised sectoral services (local authorities)
- Programme Steering Committee
- Rural collectives (RDCs)
- Local residents (farmers, pastoralists/animal breeders, hunters, traditional doctors …)
- Private sector (EuroNimba, Rio Tinto, Forestry companies, Traders …)
- Development partners (USAID, GTZ, AFD/FGEF, JICA, IFAD …)
- International organisations (UNDP, GEF, UNESCO, World Bank, FAO …)
- National and local NGOs (UVIDOZ, GSSIDSAH …)

?? International NGOs (FFI, Birdlife International, Conservation International …)

Component	Participants	PERIOD		
		Pre-programme	**Programme**	**Post - Programme**
1: Ecological integrity assured for the core areas of the Nimba Mountains Biosphere Reserve	- Guinean state (Ministry of Environment) - CEGEN (lawyers and researchers) - Decentralised sectoral services - Technical institutions - Development partners - Local populations/RDC - Private sector - NGOs - Hunters / farmers	Consultation at all levels for developing the draft law(s). Studies and inventories. Consultations with and surveys of hunters and farmers	- Preparation of the legislation - Boundary demarcation - IEC - Training of ranger-guards - establishment of a patrol system - Preparation of the environmental agreement - Design and execution of the management plan	Monitoring of law enforcement On-going patrolling of the core areas Monitoirng of the environmental agreement with the mining company
2: Agricultural revenues of local people increased on the basis of more productive practises	- CEGEN (researchers) - Development partners - Local residents - Farmers - Decentralised sectoral services - NGOs - Technical institutions - Private sector	- Collection of statistical agricultural data -Study of the land-tenure and ownership codes - Studies and data collection	Improvement of farming practices (works to permit irrigated agriculture in low-lying areas, improved seeds …) and extension services - Improvement of storage techniques - Marketing of products - Access to credit - - artisanal industries	- Continued research into new techniques - Extension services - Independent, self-management of rural collectives

3: Local needs for animal protein more fully met using practises that do not damage wildlife	- Animal breeders - Farmers and hunters - Local residents - CEGEN - Decentralised sectoral services - NGOs	- Information and statistical data collection on livestock & other animal hunbandry, and relations between animal breeders and farmers	- Organisation of animal husbandry activities - Improvement of pastures -Breeding trials for selected species - Promulgate/ raise awareness of and monitor the enforcement of hunting laws	- Continued extension efforts for animal breeders and independent, self-management of collectives Monitoring of the impact of this animal husbandry Successful enforcement of hunting laws and regulations
4: Improved health conditions, in particular among the neighbouring villages subject to constraints from the Nimba Mountains Biosphere Reserve	- Guinean State - CEGEN - Traditional doctors - Technical institutions - Decentralised sectoral services - NGOs	Studies on the state and the coverage of health care in the zone Consultations on the role and importance of traditional medicine Statistics on the coverage of improved water-supply	- Training of health care personnel and - Provide better access to primary health care- Construction of health stations - Improve the services provided by traditional doctors- Improvement of the network of wells and pumps	Continued training of personnel and monitor their services Monitor the evolution of local populations' access to health care and potable water
5: Strengthened capacity of the Reserve's management structures, in particular of CEGEN	- Guinean State - Ministry of Environment - CEGEN - Technical institutions - Local residents, NGOs - Decentralised sectoral services - Development partners - Private sector/ RDC	Information and awareness meetings	- Updating of the legal texts related to CEGEN Conception and execution of a staff training and a M&E programme Creation and management of a georeferenced database Creation of the Nimba Mountains Foundation Continue IEC	Proper implementation of relevant legal texts, and continuation of dialogue and planning Regular updating of the database and monitoring of its management Significant involvement of the national budget in the financing of natural resources conservation

Annex 6: Monitoring and Evaluation Plan

A systematic monitoring and evaluation process is required for the programme due to the number of desired programme partners, the need to ensure they work in harmony and realise synergies, and the need to manage programme assumptions and risks. From this process, programme managers will draw lessons to correct programme execution, involving a continuous cycle linking lessons, planning and action. Thus the monitoring and evaluation plan has been designed both as a means to monitor impact and progress towards achieving the programme's purpose, objectives and results, as well as a tools to build the capacity of CEGEN.

Programme monitoring and evaluation will be both internal and external. Internal monitoring and evaluation will consist of periodic (monthly or in some case quarterly) tracking of programme inputs and of progress towards realising individual activities. This will be compared to projected inputs and outputs from annual work programmes. Appropriate programme personnel will be responsible for tracking each component's staff, budget and technical and administrative matters. The National Administrator will oversee a national expert responsible for all tracking of programme progress.

Higher-level impact indicators for programme Results, Objectives and Purpose (see the Logical Framework, Annex 2) will be tracked and reported on comprehensively to the National Co-ordinator on at least a yearly basis. A summary table of such progress will be produced and circulated to programme partners. Monthly progress reports will be compiled and transmitted by the National Administrator to the National Co-ordinator; these will include a summary table of available information on activity-level indicators. An annual monitoring and evaluation report on the past year's activities will be produced that will also present the coming year's activities.

Tracking the higher-level, impact, indicators listed in the Logical Framework will involve both regular reporting within the programme team by thematic specialists, as well as analysis & interpretation of results from the ecological monitoring system (Activity 5.3) that will track such parameters as 'Forest cover restored in the core areas', 'Stabilisation or increases in populations of key indicator species' and 'Abundance of target species [wildlife species for local sustainable harvesting] stabilised and baseline level'. Therefore the design of the ecological monitoring system will be sure to consider the information needs of the M&E system.

In addition to tracking achievements against work plans, CEGEN will institute a system of institutional self-evaluation. Staff will develop training and performance goals, towards which progress will be measured regularly. At an organisational level, CEGEN's efficiency and effectiveness will be observed, and regular meetings of CEGEN staff will be held to review obstacles, solutions and lessons for making the institution as strong and effective as possible, with information flowing both upwards and downwards in the hierarchy. Within the programme lifetime, the goals of such an internal M&E system are to render CEGEN capable of operating independently and effectively after the programme ends, and to instill a culture of constructive internal communication and self-improvement.

Apart from the requisite yearly reports (including the combined APR/PIR report and audit), two external evaluations are planned, one at mid-term and a final evaluation. These will be conducted in line with GEF and UNDP procedures. They will focus on four main objectives:

- Measuring impact on globally significant resources and livelihoods;
- measuring the performance differences between what was planned and what was achieved;
- identifying problems related to executing the planned activities;
- proposing corrective measures and solutions; and
- extracting and documenting any more general lessons for this and other programmes.

In addition, the independent evaluations will extract lessons learned from this initiative that could be applied to other GEF projects, and similar initiatives.

The final evaluation will result in an exhaustive report as the programme ends on its achievements (programme performance, impact and lessons learnt). The total costs of monitoring and evaluation, including lessons learnt and exchange of experiences, is estimated at $200,000 and will be taken into account in the programme budget. Details will be provided at the time of Appraisal

Annex 7: Programme Indicative Workplan

Component 1: Ecological integrity assured for the core areas of the Nimba Mountains Biosphere Reserve

Results / Activities	Y E A R								
	1	2	3	4	5	6	7	8	9
1.1. Boundaries of the core areas recognised, legalised and demarcated									
1.2. Dynamics of the core areas' biodiversity known, threats precisely described and management actions identified									
1.3. Decrease in incursions and illegal activities in the core areas									
1.4. Strengthened compatibility with planned mining activities									
1.5. Management plan prepared and implemented for the core areas									
1.6. Impacts of refugees do not affect the core areas									

Component 2: Agricultural revenues of local people increased on the basis of more productive practises

Results / Activities	YEAR								
	1	2	3	4	5	6	7	8	9
2.1 Sustainable land use systems									
2.2. Increased agricultural yields									
2.3. Agricultural produce sold for higher prices									
2.4. Diversified income sources									

Component 3: Local needs for animal protein more fully met using practises that do not damage wildlife

Results / Activities	Y E A R								
	1	2	3	4	5	6	7	8	9
3.1. More productive animal husbandry, integrated with agriculture									
3.2. Breeding projects of wild animals tested and disseminated									
3.3. Wildlife resources co-managed with local populations in a sustainable manner									

Component 4: Improved health conditions, in particular among the neighbouring villages subject to constraints from the Nimba Mountains Biosphere Reserve

Results / Activities	Y E A R								
	1	2	3	4	5	6	7	8	9
4.1. Improved medical and para-medical health care									
4.2. Increased access to health care									
4.3. Increased access to potable water									
4.4. Improved hygiene practices									

Component 5: Strengthened capacity of the Reserve's management structures, in particular of CEGEN

Results / Activities	Y E A R								
	1	2	3	4	5	6	7	8	9
5.1. Synergy ensured between institutions and between interventions									
5.2. CEGEN's human and material resources strengthened and well managed									
5.3. An operational ecological monitoring system									
5.4. Guaranteed long-term funding for conservation									
5.5. Stakeholders better informed and aware of the issues and of resource conservation									
5.6 Contribution to a national protected area system									

Annex 8. Detailed Site Description and Socio-economic Profile of the Nimba Mountains Biosphere Reserve

Environmental context of the Nimba Mountains Biosphere Reserve. The conservation status of the core areas of the Nimba Mountains Biosphere Reserve has significantly worsened over the last years as a direct and an indirect consequence of the poverty of the local population, which is reaching critical proportions[2]. The two primary factors behind environmental degradation in recent years have been:

- forest exploitation (commercial), in consideration of its rapid rate[3];
- clearance of fertile land for cultivation, often in the Reserve's core areas, which at the same time facilitates forest exploitation.

A direct consequence of these two major factors is that some in local communities and authorities contest the very existence of the strictly protected areas which they see as obstacles to improving their lives and threatening the very survival of their families. From the start of the main programme, it will be necessary to produce tangible results that local populations understand.

Conservation of the Nimba Mountains World Heritage Site, the Déré Forest and the Bossou Hills / chimpanzees follows the philosophy and action plan envisioned for biosphere reserves by UNESCO's MAB Programme. As core conservation areas for the biosphere reserve, their boundaries were the subject of long negotiations (1991-93), beginning at the national level within the inter-ministerial Guinean MAB Committee. The management plan for the Nimba Mountains Biosphere Reserve was approved by the national MAB Committee during its extraordinary session of 1st June 1991, and later modified on 13th June 1993 in line with the comments made by the World Heritage Committee in its 15th Session in Carthage, Tunisia. The boundaries were debated also at the international level between affected stakeholders (international organisations, bilateral aid agencies, NGOs, private investors in the mining project). In this way the boundaries of the different core areas and other zones of the Biosphere Reserve were the result of a consensus that considered national economic development priorities, natural resource needs of local populations and the global imperative to conserve the biodiversity of the Nimba Mountains.

Regarding the status of the Reserve, in 1981 the Guinean government successfully proposed the creation of the "Nimba Mountains Strict Nature Reserve" as a world heritage site jointly with Côte d'Ivoire. One year earlier, in 1980, Guinean portion of the Nimba Mountains was gazetted as a biosphere reserve under the international MAB programme; however it did not fully follow the biosphere reserve concept of hierarchically nested land-use zones. In 1991, motivated by the Nimba Mountains Pilot Project (NMPP), the national MAB committee decided to develop this concept by extending the Reserve and zoning the Guinea Upper Cavally Basin. The former Reserve became a core protected area, except for the northern portion that was set aside for mining. With a part of the mountain removed from full protection, the strictly protected surface was expanded at a lower altitude with the addition of the Bossou Hills and Déré Forest core areas.

Then at its XVIth session in 1992, the World Heritage Committee included the Nimba Mountains on the list of World Heritage Sites in Danger. The threats mentioned were, first, the proposed mining project and second the massive influx of refugees from Liberia. Following consultations with concerned parties (Guinean government, UNDP, World Bank, UNEP, UNESCO, French Co-operation, the Guinean mining partners and national and international NGOs), the World Heritage Committee accepted the current

[2] See the final report of the Nimba Mountains Pilot Project RG/UNDP/UNESCO GUI/89/004 entitled "*Poverty: the Primary Constraint to the Rational Management of the Natural Resources of the Nimba Mountains*", and the final report of the UNESCO/WHC mission to Guinea of 24 August to 28 September 2000.

[3] However this has come to a halt recently as in late 2001/early 2002, the President of Guinea issued a decree banning all forestry permits in *Guinée Forestière* and thus log exports.

zoning during its XVIIth session in 1993 which restores a portion of the section removed in 1991. In contrast to the pre-1991 situation, the only part missing from the original Reserve is the area corresponding to the iron ore deposit, which had been damaged by earlier prospecting (Ledant, 2001; Pascual, 2001). Regardless of its prestigious international status, this zoning has not yet been legalised by statutory text in national Guinean law.

The Nimba Mountains World Heritage Site

This is the largest of the three core areas at 12,540 ha, or 8.6% of the Biosphere Reserve. In the northern half of the Nimba Mountain Chain, the peaks are covered with high-altitude savannah dominated by *Loudetia kagerensis.* There is hardly any soil cover and it forms only under thin mats of decaying vegetation around grassy tufts. These are stabilised due to the root system of the grassy cover and thus resist the constant strong winds and erosion during the rainy season. Soils are thicker on the rare flat surfaces such as seasonal ponds and near the tops of forested ravines. At lower altitudes, the ravines shelter tracts of remaining primary and secondary forest types such as:

- the montane forest dominated by *Parinari excelsa* (Sougué), above 900 metres, that covers the slopes of Mount Sempéré and Mount Pierré-Richaud up to 1600 metres in the Zié River ravine, but rarely ascending above 1300 metres on the slopes of Mount Leclerc ;

- Semi-deciduous forest, characterised by the relative importance of *Triplochiton scleroxylon* (Samba) found often in a degraded state near the base of the mountains, and in riparian formations in the mid-altitude parts of the ravines. In the central portion of the mountain range, from the Mount Richard-Molard to the Liberian border, geographically-specific vegetation types are found more frequently at the massif's peaks than on its slopes (Pascual, 2000).

This diversity of habitat types is characterised by equally diverse fauna. On the rocky mountain summits live an endemic population of hyrax *(Procavia capensis)*. All other mammals are forest-dwelling or live at the forest edges. Of note are the bushbuck *(Tragelaphus scriptus)*, the blue duiker *(Cephalophus monticola maxwelli)*, the forest buffalo *(Syncerus caffer nanus)* and the bushpig (or red river hog - *Potamochoerus porcus).* Carnivores occupy different habitats on the mountain and at its base. Of note are the civet *(Vivera civetta)*, the spotted palm civet *(Nandinia binotata)*, the golden cat *(Felix aurata)* and genets *(Genetta genetta, G. servalina, etc.)*. In terms of primates, mangabeys *(Cercocebus spp.),* cercopithicus monkeys *(Cercopithecus spp.)*, colobus monkeys *(Colobus spp.)* and chimpanzees *(Pan troglodytes verus)* are abundant, but their populations are decreasing due to poaching and habitat loss. Chimpanzees are found particularly in high-altitude valleys where they seek refuge in montane forest (Pascual, 2000 ; Bangoura, 2001).

The most abundant animal species tend to be small in size, notably insects but also rodents, insectivores, reptiles and amphibians. The high-altitude savannahs are home to an important number of high-altitude species. Certain among them are found elsewhere whereas more than twenty, including the viviparous toad (*Nectophrynoïdes occidentalis*), are endemic to Nimba. Because of its outstanding scenic beauty and density of endimic and unusual animals, the tourism potential of the site is tremendous.

The Bossou Hills

The Bossou Hills core area covers only about 0.22% of the surface area of the Reserve (320 ha). Its value is linked to the chimpanzee group *(Pan troglodytes verus)* that has lived there for centuries. These are of great scientific interest and have benefited from significant attention from Kyoto University researchers. These chimpanzees use stone tools and, according to oral tradition, live in harmony with the indigenous people of Bossou (the Manons). But this group, which is considered sacred by the residents of Bossou, is

threatened by forest clearance and human population growth. Nevertheless in the past few years its population has increased to 27 individuals, as of November 2001.

The Environmental Research Centre of Bossou is located adjacent to the core area. While local residents for centuries have lived in harmony with the chimps and respected their forest, misunderstandings with the non-local agencies officially responsible for managing the area have sparked encroachment on the forest itself. While ERIB, CEGEN and Bossou residents agree that the situation needs to be resolved in favour of a community-based co-management approach, a process of negotiating the details needs to be supported to realise this. The tourism potential of the area is very high given that the chimps are essentially habituated and easily seen. Benefit-sharing from tourism must form part of the co-management negotiations.

The Déré Forest

The Déré Forest core area covers a relatively large surface areas, equivalent to 6.1% of the Reserve's surface area (8920 ha). Its forest cover extends uninterrupted into Côte d'Ivoire to the classified forests of of Tiapleu and Niéton. The Déré Forest contains climax vegetation types of great botanical diversity that have been relatively well preserved for a long time (Von Droste *et al.*, 1993). The principal forestry species found include: Mansonia/Bete *(Mansonia altissima)*, Arbura *(Mitragyna ciliata)*, Ekki/Azobe *(Lophira alata)*, Niangon *(Tarrietia utilis)*, Acajou *(Khaya ivorensis)*, Lovoa *(Lovoa trichiloïdes)*, Danta/Kotibe *(Nesogardensia papaverifera)*, Angueuk/Ksin/Kouero *(Ongokea gore)*, *etc.*

Similar to the World Heritage Site, the Déré ecosystems provide refuge for numerous animal species: *Syncerus caffer nanus, Cephalophus spp., Cercocebus spp., Tragelaphus spp., Choeropsis liberiensis* (the last remaining pygmy hippopotami in the region), *etc.*

The specific threats facing the Déré Forest include illegal logging (now ceased), agricultural encroachment and hunting following along roads opened for (illegal) logging. The facts that the border with Côte d'Ivoire has been unclear and threats appear to come from both sides further complicate managing disturbances to the area. These international issues are starting to be addressed under the tri-national dialogue and planning initiative for the Nimba Mountains (Annex 12).

Socio-economic Profile of the Upper Cavally Basin.

In addition to its three core areas, the Nimba Mountains Biosphere Reserve consists of a buffer zone and transition area. Because pressures from communities in the buffer zone most directly impact the core areas, activities in this zone are to be strictly controlled so that they complement protection activities for the core areas rather than impact them negatively. The buffer zone is the area in which sustainable economic activities will first be tested and replicated; then they will be extended to the transition area. The transition area consists of the remaining part of the Guinean Upper Cavally Basin, between the buffer zone and outside the reserve, in which economic activities are to be controlled and sustainable alternatives actively encouraged, but at a less intense level than in the buffer zone (see map, Annex 15b). A profile of the buffer zone and transition area follows.

National context. In 1984, at the end of the First Republic, Guinea opted for a development model based upon liberal economic policy. As part of this policy, several economic forces and priorities appeared including the formation of farmer co-operatives/groupings, reforms specifying land rights, readjustment of prices, policies aimed at reviving agricultural research, an increase in agricultural production, collaborative management of biodiversity resources, improvement of sanitary conditions and poverty reduction (Letter of Agricultural Development Policy, 1997; Strategy for Poverty Reduction, 2000; Guinea, Vision 2010). Nevertheless, the economy's dependency on the primary sectors, raw materials

and natural resources remains very high. In order to diversify its sources of hard currency, the Guinean government envisages extraction of the rich iron ore deposits of the Nimba and Simandou Mountains.

In 1998, the Guinea's debt represented 102% of GNP and its debt-servicing ratio was 19.5% of exports of goods and services (UNDP, 2000). A large portion of the country's budgetary resources and foreign exchange thus goes directly to servicing the debt. This situation does not make financing the poverty reduction strategy, prepared with World Bank support, easy (Republic of Guinea, 2000). Because constraints linked to debt payments and poverty increase pressures on natural resources, this debt has a major impact on the biological diversity of the Upper Cavally Basin.

The proposed iron-mining project. The major investment planned for the Upper Cavally Basin is the Nimba iron-mining project, worth nearly US$600 million. While iron mining appears socially beneficial, it is also ecologically dangerous. On the one hand it can provide the financial resources necessary for the country's development and create jobs (4,000 planned during the construction phase and 2,500 during the extraction phase), leading to an estimated influx of between 10,000 and 15,000 people. In this context, the changes in local agricultural production needed in the Upper Cavally Basin would be easier to realise. However according to current mining plans, this influx of resources and population would arrive well after the GEF programme is underway. In addition, iron ore extraction can have impact on the biological diversity and the high-altitude ecosystems that remain to be evaluated in the framework of a detailed Environmental Impact Assessment (EIA).

Demographics and key socio-economic indicators in the Upper Cavally Basin. Intense poverty persists in the Guinean Upper Cavally Basin. The NMPP estimated the Reserve's population at 59,000 inhabitants in 1992, or about 0.8%[4] of the Guinean population, most of them indigenous Manons and Konons living in 56 villages (1992 count), ranging in size from under 100 inhabitants to several thousand. Both the population and the number of villages has increased since then dramatically. Average population density is at least 97 inhabitants/km^2, taking into account the area of habitable land versus areas unsuited to cultivation such as the large areas of savannah dominated by lateritic hardpans, the Reserve's core areas and the remaining forest fragments outside the core areas (Pascual, 1993; Dore, 2001).

The region exhibits a high rate of infant and child mortality: nearly 50% of all registered deaths during the last 20 years involve children from 0 to 5 years of age (Pascual, 1993). Under-nutrition (insufficient caloric consumption) and malnutrition (insufficient protein, vitamins and minerals as iodine and salt) are some of the main reasons for this high level of mortality, especially among children. In addition, to this must be added kwashiorkor, measles, tetanus, yellow fever, malaria, whooping cough, diarrhoea resulting from a variety of parasitic infections, and meningitis.

The region has one water supply source available for every 1,370 people or 208 households[3]. Prophylactic and hygiene services are insufficient, which explains the proliferation of mosquitoes and prevalence of malaria (Diallo, 2001). Statistics for life expectancy are not available, but the national expectancy is estimated at 46.5 years for the period 1995-2000 (UNDP, 2000) and has increased by 10 years since 1970.

Regarding education, there are 95 primary schools for 17,277 pupils and 394 teachers, in other words one teacher for almost every 44 primary school pupils. There are 10 secondary schools for 3,234 pupils and

[3] Total population: 7.3 million inhabitants (UNDP, 2000)

[3] This ratio is well below the objective of NSSWS (National Support Service to Water Sources) which is to provide 10 litres of water per day and per person by 2005. The current shortfall relative to this objective is 261 water sources/wells.

118 teachers, i.e. one teacher for 27.4 secondary school pupils. Currently girls remain less educated than boys and school infrastructure remains inadequate (Diallo, 2001).

In spite of the preceding factors, population growth in the Upper Cavally Basin is high, about 4.1% per year, a rate higher than the national average of 3.1%. This high rate is due mainly to immigration (Diallo, 2001). The agricultural potential of arable land in the Upper Cavally Basin - including more than 50,000 ha - its good rainfall averaging 2,013 mm per year (Conde, 2001), along with the existence of forestry activities and iron-ore prospecting, have sparked the influx of immigrants from sahelo-sudanese regions, most of whom have settled, causing pressures on local natural resources and introducing new techniques, some of which upset the local ecological balance. The population of indigenous inhabitants appears fairly stable thus most of the population increase is from internal Guinean immigration. As elsewhere in Africa, the Upper Cavally Basin's population is very young: 40% is under 15 years of age (Dore, 2001).

Between 1990 and 1997, the wars in Liberia and Sierra Leone displaced approximately 40,000 refugees into the Upper Cavally Basin. A portion of this population still resides there, although most have returned. UNHRC played an active role in accommodating this population, and would need to continue if large population movements re-occurred in the area, to ensure food security as well as to minimise additional pressures on already limited natural resources like land, water and forests.

The indigenous peoples of the NMBR are the Manons and Konons. The Manons live in the west and south of the Reserve (principally the Bossou sub-prefecture) mostly along the Liberian border, while the Konons live in the north and east of the Reserve along the Ivoirian border and in the sub-prefectures of N'Zoo, Tounkarata and Gama-Bèrèma. While the two cultures are quite similar in fundamental ways, they speak different dialects and consider themselves distinct. As a result of the hostilities up to 2000 along the Guinean-Liberian border, the Manons, who are the dominant people along both sides of the border and drawing on many generations of open exchange across political divisions, agreed a non-aggression pact among themselves: they will neither engage in hostilities across the political boundary nor harbour rebels that may try to do so. This pact, in effect since early 2001, has succeeded in keeping the local area peaceful at a time when hostilities were plaguing the border zone to the west.

The Manons and Konons traditionally protect sacred forests which are used for adolescent initiation rites and for adult initiation into cultural practices related to religion, history and medicine to name a few. They are places where those undergoing initiation or another rite are "eaten and killed", in the depths of the forest removed from human civilisation, to re-appear later with new social status and knowledge. Forests and the Nimba Mountains are also the abodes of ancestors, spirits and deities, areas representing the ties between and thus unity of human civilisation, the natural world and the supernatural (Doré 2001). Before large influxes of peoples from elsewhere in Guinea and of refugees in the 1990s, and before the forestry industry blossomed, these traditions and beliefs helped to preserve large areas of forest in the Upper Cavally Basin.

The economy of the Upper Cavally Basin and impacts on natural resources. Generally speaking, the three principal internal variables characterising the evolution of the Upper Cavally Basin's economy are an increasing informal sector, trade with Côte d'Ivoire and social networks[5]. The increasing informal sector of the economy, especially tertiary occupations for basic survival, has a direct impact on natural resources. The majority of the population depends on agricultural production and, to varying degrees, on so-called 'informal activities' including micro-retail businesses, road services, restauration and transportation services. Certain services are rendered to individuals; others relate to the exploitation of fuelwood, hunting and the collection of medicinal plants. The structure of the local economy is explained

[5] Relations based upon kinship, ethnicity or religion (Hugon, 1999).

by the local lack of capital and the need to provide small quantities of goods to a clientele with low purchasing power.

Commercial exchanges with Côte d'Ivoire flip-flop depending on the season, on the prices of the commodities traded (coffee, cola nut, palm oil) and on foodstuffs (essentially rice). Agricultural products (rice, bananas, cola nuts, etc.) are the most widely traded, but imported goods (tools, hardware, cooking utensils, clothes, etc.) are traded as well. This trade and social networks have an impact on the conservation of forest resources, most notably through undermining sustainable local economic production and promoting conversion of forested land (the case of the Déré Forest ecosystem especially but also the World Heritage Site and the Bossou Hills) for cultivation. Because the price of a large part of a given harvest is negotiated at times of over-supply and at unfavourable prices in order to reimburse debts owed to traders by (Guinean) producers/farmers, these are perpetually indebted and seek short-term production gains from increasingly limited and depleted agricultural land (Pascual, 2001). Trade is linked principally to weekly markets (Lola, N'zérékoré, Gama-Béréma, Tounkara, etc.) and to sub-regional markets (in Côte d'Ivoire and Liberia).

In the Nimba Mountains Biosphere Reserve, agriculture is characterised by slash-and-burn techniques, the absence of fertilisers and mechanisation, and isolation/difficulty of access to production areas. In the past, when the fallow times were as long as 15 years, or when primary forest remained in the Upper Cavally Basin and could be cleared, yields of rain-fed, non-irrigated rice could reach 2.5 tons/ha. Today, with reduced fallow times, production is well under 1 ton/ha, although the same amount of work is required. This situation has led today to:

- degradation of the vegetative cover;
- signification increases in immediate run-off in riverways (reduction of water-retention capacity);
- impoverishment of soils due to erosion and increases in the sand content;
- decreasing soil productivity; and
- an overall advanced level of environmental degradation.

Land/environmental degradation occurs through the reduction of forest cover, the increasingly frequent use of seasonal bushfires, demographic pressures and the reduction of fallow periods from 15 years (distant past) to 5 years (recent past) to 3 and even 2 years (today). Of the 150,000 hectares in the Reserve, approximately 78,620 hectares of upland non-irrigated land were cultivated in the 2000-2001 growing season, not including irrigated rice and home gardens. In other words over 52% of the surface area of the Reserve was cultivated, covering the following percentages of the Reserve in the following RDCs: Bossou (13%), N'Zoo (6.4%), Tounkarata (5%), Gama-Béréma (7.65%) and Urban Commune of Lola (20%). While the exact state of degradation of these areas has not been systematically researched, much of it is in a state of moderate to advanced degradation, especially around villages adjacent to the core areas (Bossou, N'Zoom etc.) where land scarcity tends to be most acute.

The villages of the RDCs of Bossou and N'Zoo are subject to constraints because of their proximity to the Reserve's core areas. In several cases their land was expropriated when the three core areas were defined, a problem which has been aggravated by land-tenure issues and population growth. Land clearance, slash-and-burn agriculture, tree-felling, bush fires, uncontrolled hunting and fishing provoke ever intensifying land degradation. As the staple crop for the region, a family cultivates 1 to 1.5 hectares of upland rice with yields of 0.7-0.8 tons/ha. Seldom do rural families farm more than 2 hectares. This combined with population growth thus explain attempts to convert core areas of the Reserve to cultivation (Condé, 2001).

The development of low-lying or riparian zones for agriculture, specifically for irrigated rice cultivation, has been recent. This technology gives significant yields which can reach 6 tons/ha at peak efficiency, and has experienced success due to the support of UNHCR and the International Fund for Agricultural

Development (IFAD). But such low-lying sites are limited to the south-western part of the Biosphere Reserve and concern only a small proportion of the local populations (Pascual, 2001).

Traditionally hunting provided all the needed animal protein, and animal husbandry was practised essentially for cultural reasons. Today, in spite of the scarcity of game outside of protected areas, most domestic animals like sheep, goats and poultry are still bred for cultural purposes. In the Konon and Manon cultures of the Upper Cavally Basin, sheep, goats and poultry are destined to be burned in sacrifices of all sorts or to be offered to distinguished members of the village, clan or family. Therefore they have a "social value" that other animals, like pigs, do not have (Doré, 2001; Traoré, 2001; Mansare, 2001).

For almost 10 years, cattle have been raised in the savannahs surrounding the lowlands in the south-western region of the Upper Cavally Basin. Raising cattle is a source of conflict between pastoralists and farmers because cattle are not kept in enclosures and often destroy food crops. Pastoral activities impact the environment due to the trampling caused by cattle and fires set during the dry season to rejuvenate grassy pastures but which frequently burn out of control. Cattle-raising also favours the proliferation of insects, which are disease vectors (Pascual, 2001).

Unlike cattle raising, pig farming has been practised for several decades. With a low Islamic population, marketing of pork is not forbidden in local dietary customs and is a source of income for many households. Thus pig farming could be an important part of a strategy to combat poaching. The same is true for cane rat *(Tryonomus swinderianus)* breeding which is being tried in the region (Bangoura, 2001; Doré, 2001). It could succeed because the meat is a local delicacy.

Regarding forest utilisation, wood supplies about 90% of household energy requirements (cooking food, heating and light). It is gathered from plantations, fallow lands, land being cleared and forest undergrowth. In certain towns, it is sold commercially where the fuelwood market is substantial and organised, especially along roads (Sadio Sow, 2000; Diallo, 2001). Charcoal is produced in Lola. Rural inhabitants as well as recently arrived refugees tend to be the traders in bundles of firewood and charcoal.

Other than fuelwood cutting, forests are used for construction wood, small-scale village-level logging and industrial logging. They are used also for collection of secondary products (raffia, dyes, natural toothbrushes, medicinal plants…). Industrial logging in Guinea began in 1969 and has increased in recent years (Sadio Sow, 2000), reaching an official production of 6,354 m^3 in 1999 (Diallo, 2001). Today, natural dense forests outside the Biosphere Reserve's core areas have nearly disappeared, with the exceptions of a few isolated groves that are conserved near villages for sacred purposes, or of gallery forests along waterways. However with the decree halting forestry activities since early 2002, threats from commercial forestry have subsided for now.

Managing forestry is the responsibility of the Directorate of Water & Forests, which is part of the Ministry of Agriculture. A forestry company wishing to obtain a logging concession works with the local Water & Forest agents to identify an area and prepare the technical specifications (*cahier des charges*) the concessionaire must follow in carrying out any logging. This generally includes preparing an inventory and annual coupe plans, reforesting after logging or reforesting degraded areas, as well as constructing and maintaining infrastructure (roads and bridges) and possibly assisting local communities with schools, clinics and other support. The *cahier des charges* specifies the minimum diameters for particular species that may be cut, as well as the responsibilities if any of the logger to protect the area from encroachment during and following logging. All *cahiers des charges* must be consistent with the Forestry Act which specifies general responsibilities, rules and regulations concerning commercial forestry. Once a proposed forestry concession is agreed between the concessionaire and Water & Forests agents, the request is channeled up to the Minister of Agriculture for approval. A concessionaire is supposed to operate

according to the *cahier des charges* and under the supervision of a locally assigned Water & Forests agent.

Guinea has a Tropical Forestry Action Plan which was under implementation in Forested Guinea or *"Guinée Forestière"* at the time of writing. However its impact in the province has not been felt significantly.

In *Guinée Forestière*, commercial forestry began in earnest in the 1980s and was a major industry of the region throughout the 1990s. Some of the production was for local consumption while a very large proportion was destined for export, usually as round logs but also as planks, through Liberia and Côte d'Ivoire. Exports have fluctuated, however, as a result of the opening and closing of international borders. In 2002, the forestry industry in *Guinée Forestière* has suffered the set-backs of a presidential decree banning all commercial tree-cutting in the province, and the closure of the borders with Liberia and Côte d'Ivoire. However logging continues, although illicitly, with the complicity of some authorities.

Despite the emergence of commercial forestry as a powerful force in the regional economy in the 1980s, historically forest loss and degradation in *Guinée Forestière* and the Nimba region is due largely to subsistence agriculture, followed by livestock raising and settlements. Commercial forestry is not directly responsible for much forest loss. However over the past decade it is responsible for opening up many of the last remaining forest blocks to slash-and-burn agriculture and hunting, fragmenting, degrading and reducing their ability to recover from disturbance.

While the Forestry Act is sound, enforcement of its provisions and of *cahier des charges* by the Directorate of Water & Forests has been seriously undermined by lack of logistical means, low motivation and loopholes allowing loggers to operate outside of normal concession agreements. For example, concessionaires can enter into agreements with communities to provide them roads and other infrastructure, cutting trees between 500-1000 meters on either side of the road. This kind of social service provision is not managed in the same way as normal concessions, and some loggers have taken advantage of the lack of supervision to direct roads through forest patches rich in commercial species, cutting several kilometers on either side of the road, and even directing roads through protected forests.

Were all legal texts applied carefully, forest cover in *Guinée Forestière* would be greater, forest blocks would be significantly more intact and forests would represent a far greater economic resource for the future than they currently do. Reforestation and enrichment plantings of logged-over areas would cover substantial areas of the province. Until the early 2002 presidential decree banning logging, *Guinée Forestière* was rapidly selling short a major component of its future economy.

In the 1990s, the GTZ, KfW and Directorate of Water & Forests launched the Rural Resources Management Project and established the N'Zérékoré Forestry Centre. This support has helped to strengthen management of the Diécké, Ziama and Mont Béro Classified Forests of *Guinée Forestière*. In 2003 parts of the programme will be extended to three additional classified forests, but not in the Nimba Mountains Biosphere Reserve.

With respect to the proposed programme, the baseline in the NMBR consists of ensuring that the presidential decree is effectively enforced and that loggers do not escape through loopholes, with local collusion. Logging by commercial foresters is not a problem for the Nimba Mountains or the Bossou Hills, but has been highly damaging to the Déré Forest, and parts of the Buffer Zone and Transition Area. As the Directorate of Water & Forests is CEGEN's main partner for managing the Déré Forest and forests outside the core areas, responsibility falls to it to ensure the baseline is met, with CEGEN's oversight through the planning committees and preparation of the Reserve's development master-plan, described under activities 1.5.2-4.

The GEF option would not change the baseline in any appreciable way as far as commercial logging is concerned. The only difference would be that forestry is programmed according to a regional land-use plan, improving its integration with other economic activities.

Hunting is one of the most widespread traditional activities, game being the main local source of protein. It is practised in many ways and in all seasons: snares, flushing animals from hiding places and shotguns are the most common hunting methods. The cane rat is the most prized prey. Game is destined for both household consumption as well as for sale (Dore, 2001; Bangoura, 2001). In addition to hunting, collection of snails, caterpillars, termites and frogs is commonplace.

Additional socio-economic details on the Upper Cavally Basin, and on particular towns and sectors, are available in the national consultants' reports.

Annex 9: Lessons learned from other programmes

In the Nimba Mountains region, especially in the Upper Cavally River Basin, there are numerous and varied completed projects or projects under implementation that have or could have relevance to the current programme. Numerous other projects elsewhere in the country can inform execution of the current programme to conserve the biodiversity of the Nimba Mountains. Notable among these are the Rural Resources Management Project (RRMP), the Palm Oil and Rubber Company of Guinea (SOGUIPAH) and the Haut Niger National Park.

1. The Nimba Mountains Pilot Project.

At the initiative of the Guinean Government, the Nimba Mountains Pilot Project (NMPP) was financed by UNDP, UNESCO and the World Bank (with a grant from the Japanese Government) and executed from 1989 to 1993. Because of the context in which it was conceived and its implementation strategy, the Pilot Project intended to address the Government's concern of reconciling mining of the iron ore deposits of the Nimba Mountains and protection of the exceptional bio-genetic resources that were the impetus for inscribing the Guinean part of the mountain chain on the list of World Heritage Sites.

Specifically, the Pilot Project permitted :

- Establishing a management plan for the Biosphere Reserve that today consists of a zoning plan composed of three core conservation areas, a buffer zone and a transition area;
- Improving understanding of the socio-economic and environmental contexts of biodiversity conservation at the Nimba Mountains;
- Preparating recommendations aiming at limiting impacts of the mining project on the environment and implementing a series of actions to support local residents, whose extreme poverty had become apparent;
- Obtaining consensus on the present boundaries of the World Heritage Site and the mining concession;
- Installing infrastructure (a network of signs of the zoning of the Reserve, ranger outposts, a network of meteorological and hydrological monitoring stations); and
- Creating the autonomous agency responsible for managing the site: the Centre for the Management of the Environment of the Nimba Mountains (known by its French acronym *CEGEN*).

In close collaboration with the NMPP, the following activities were carried out:

- The environemntal impact assessment study of 1990 by the Central Office for Overseas Studies (BCEOM) of France; and
- The multidisciplinary mission of May 1993 organised jointly by the World Heritage Centre of UNESCO and the Guinean Government.

Numerous activities were undertaken during the Pilot Project that were not completed and should be pursued in the context of the present Nimba Mountains Biodiversity Conservation Programme. Furthermore gaps in the NNMP and successful and unsuccessful approaches were very strongly considered in the preparation of the proposed programme, as much of the NNMP team participated in PDF B activities.

2. The Rural Resources Management Project.

Financed by the World Bank and the KfW (German Technical and Financial Co-operation), the RRMP is essentially a forest resources management project working in the classified forests of Ziama, Diécké and Mont Béro, with an important component focusing on related community outreach and support for

residents living around these forests. Project activities include planning and conservation of forest resources as well as treaining of personnel.

The management plan of these classified forests, prepared in 1995, includes biodiversity protection, improving forest resources and long-term provision of construction and carpentry wood.

The Ziama Classified Forest is located about 150 km north-west of the Nimba Mountains Biosphere Reserve. In the particular case of the Ziama Forest, which has been protected since 1942 and covers 112,000 hectares of dense forest, the Forest's present management plan contains a protected zone (36% of its area), a sustainable use zone (41%) and a rehabilitation zone (23%). The protected zone is located in about the centre of the Forest and serves as a genetic reservoir for fauna and flora where no activity beyond research and eco-tourism is permitted. In the sustainable use zone, permitted activities include firewood collection, collection of non-timber forest products and medicinal plants, timber improvement fellings and timber harvest only with the authorisation of the N'Zérékoré Forestry Centre.

The forest inventory in the sustainable use zone includes the collection of seeds for nurseries of local species.

From 1997 to 31st December 2001, 1105 seed-producing trees were visited in the protected zone and more than 2280 hectares of of the rehabilitation zone were consequently reforested.

Local populations are more and more involved in these activities and private nurseries belonging to local residents were supplied by the stocks at the Forestry Centre.

In addition, the Ziama Reserve boasts ten ranger stations around its boundary, with two rangers per station, responsible for patrolling, maintaining the boundaries and collecting seeds.

The biodiversity division of the Ziama Reserve is responsible for monitoring dynamics of animal and plant species present. For this, the division prepared 15 transects and trails in the forest to ensure faunal and floral monitoring, in collaboration with local hunters.

The success of the RRMP in combining classic forest management and protection measures with community outreach has been a model for the Nimba Mountains programme, in terms of both the activities chosen and the process followed to identify and plan activities.

3. The Palm Oil and Rubber Company of Guinea.

A product of Franco-guinean development aid, the Palm Oil and Rubber Company of Guinea (SOGUIPAH) is a mixed public-private company located at Yomou in Forested Guinea, not far from the Nimba Mountains (about one hundred kilometres as the crow flies).

The climatic, socio-cultural and enviornmental conditions where SOGUIPAH is active resemble those of the Nimba Mountains region.

SOGUIPAH is of interest to the present biodiversity conservation programme in its (SOGUIPAH's) innovative types and methods of land-use by participants. SOGUIPAH's swamp-land agricultural systems consist of irrigated rice on the floodable lowlands surrounded by trees planted on the banks and higher areas. In this way, the rural farmer or grouping of rural farmers receiving support produces rice in the bed of the wetland and oil palm, rubber or coffee on the surrounding slopes.

In addition to protecting against erosion, damaging floods/currents and siltation, this approach allows farmers to settle in lowland areas, and to diversify and improve their income. This experience is desirable

for the rest of Forested Guinea because is has proven itself successful and fruitful for rural farmers of the Yomou region. The proposed agricultural system is for 0.5 hectares of rice, 1 ha of oil palm and 1 ha of rubber per family of about 10 people, of whom 4 can work.

The average yield is approximately 3.8 tonnes/ha with fertiliser use. The average income comes to about 150,000 Guinean francs (GF) per month, assuming 400,000-450,000 GF/ha-year from palm oil, 1.2 million GF/ha-year from rubber with all rice for family consumption.

The cost of preparing one hectare comes to 2.5 million GF with rural farmers contributing 15% of the cost which they reimburse with in-kind payments of rice.

Due to the success of this system at Yomou, which has resulted in spectacular increases in local populations' incomes in one decade, the residents around the base of the Nimba Mountains wish to see this programme transferred to their region.

4. The Haut Niger National Park.

Straddling the prefectures of Faranah and Kouroussa in the province of Upper Guinea, Haut Niger National Park is benefitting from European Union financial and technical assistance in the context of a programme to protect and regulate hydrological flow of rivers in West Africa originating in Guinea.

The programme's objectives include:

- conserving the watersheds of the Upper Niger River, protection of the Mafon Classified Forest and other fragments of dry forest, which represent the last remnants of this forest type in Guinea and probably in West Africa;
- conserving biological and inanimate resources of the Park, biodiversity and ecosystems;
- promoting sustainable use of resources through controlling hunting, pishing, bush fires and limiting wood-cutting;
- raising awareness of, involving and empowering local populations in the management and protection of resources;
- promoting scientific research to improve knowledge of plant and animal resources in the Park, and cultural, social and religious dimensions to resource use; and
- supporting the emergence of a policy of supporting resource conservation in Guinea, based on legal recognition of the roles of local populations in resource management.

The Haut Niger National park has a management plan specifying a strictly protected area or core area, corresponding to the Mafon Classified Forest, and a buffer zone. This latter area covers approximately 80% of the total area of the Park, and is composed of a primary buffer zone that entirely surrounds the core area, and a second buffer zone that surrounds the first.

Because the strictly protected area (554 km^2) represents a very small part of the Park (6,470 km^2), strictly protecting it necessitated close collaboration with the local population whose traditions of warfare and hunting put pressure on this core area.

By gradually increasing conservation activities and thus reducing free exploitation of resources, this more or less concentric zoning permitted a gradual reduction in human impacts on the strictly protected area. Leaving from the strictly protected area, where all activities are forbidden, one arrives at the first buffer zone whose primary objective is sustainable resource use, and then at the second buffer zone where the principal objective is promoting and improving integrated agriculture, tree crops and livestock raising.

From the standpoints of it management plan, its community empowerment-based natural resources management programme and its development master-plan, the Haut Niger National Park has much to offer the Nimba Mountains Biodiversity Conservation programme. Already during the preparatory phase of the Nimba programme, useful information and approaches have been gleaned from the managers of the Haut Niger National Park programme, such as on the legal bases for community management of natural resources. There is every reason to hope for fruitful collaboration and exchange of lessons during the Nimba programme.

More generally, the Nimba Mountains Biodiversity Conservation programme has benefitted and will continue to benefit from experience gained from the many projects and programmes, at home and internationally, in the same manner as it must contribute its lessons and experience to numerous national projects and programmes in the future.

Annex 10: Summary of negotiations with the mining partner.

The Earth does not belong to us; we borrow it from our children. Antoine de St Exupéry, quoted by André Papon, president of the Board of EuroNimba, to the Ministry of Mines, Geology and Environment, 11-02

For several decades, Guinea has shown its desire to utilise the iron ore deposits of the Nimba Mountains in order to diversify and increase the foreign exchange needed to modernise the country and develop *Guinée Forestière*, better linking it to the rest of the country. Although the quality of the ore among the highest in the world (hematitic ore in sheets containing 67% iron), launching the Iron Mining Project faces two principal difficulties. The first relates to environmental concerns and the need to protect natural habitats in the Nimba Mountains region in light of their global significance and their international "biosphere reserve" and "world heritage site" status. The second concerns attracting investors to the Mining Project, in particular mobilising funds to construct the industrial complex before mining can begin.

The Principal Actors. The Nimba Mountains Mining Project is supported by the European iron-steel company EUROFER, in particular the French iron-steel company USINOR-SACILOR and the Italian company FINSINDER, who see the potential to establish a competitive, high-quality iron ore production industry near Europe and to escape the current monopoly controlled by Australian and Brazilian mines.

In 1987, international iron markets were strong and provided the impetus to the Guinean Government to re-start the Nimba Mountains Mining Project. In order to take advantage of the niche offered by world iron ore markets, the Guinean Government contacted the French BRGM[6] to assist it to launch this Mining Project. A new international company was created in 1990 to implement the Project, NIMCO, bringing together Guinea and Liberia with a consortium of private investors. This consortium, EuroNimba, was composed of different industrial companies of various nationalities - SUMITOMO[7], AMCL[8], BRGM - and took over the assets (mining rights) and liabilities (debt related to the earlier prospecting work) of MIFERGUI.

Environmental Concerns. Re-starting the Nimba Mountains Iron Mining Project next to such a prestigious (World Heritage) site sparked worries in the international community that it would lead to environmental degradation. Numerous national and international meetings were organised to study the possible disturbances, to inform national and international stakeholders, and to reconcile ecological and mining concerns. Stated otherwise, the discussions focused on reconciling Guinea's development needs with its obligations to conserve world heritage. Eventually consensus was reached. The most important of these meetings included:

- the 1991 Paris seminar to present the "environmental evaluation of 1990" which brought together representatives of the Guinean Government, international organisations (the World Bank, UNDP, UNESCO), international NGOs (IUCN, WWF), representatives of the French Government (ministries of international development and environment), and Guinea's partners in the Mining Project;

- the planning meeting between Guinea and Côte d'Ivoire at the Nimba Mountains in July 1992 with the participation of the principal national authorities of the two countries, which prepared the bases for a bilateral agreement for protection and conservation of the Nimba Mountains;

---

[6] BRGM = '*Bureau de recherches géologique et minière*', or Geological and Mineral Research Bureau, a French para-statal company with several subsidiaries such as SOCOMINE, COFRAMINES, etc., whose mining activities were taken over by LA SOURCE, a mining company linked to the Australian group NORMANDY.

[7] This is an important Japonese industrial company known in particular for its tyres.

[8] African Mining Consortium Ltd, a holding company that acquired LAMCO's activities in the 1990s in the context of a bridging project intended to maintain operations for the Libeiran mining infrastructure further south at Yekepa.

- the December 1992 planning meeting at UNESCO headquarters (Paris) between representatives of the Guinean Government, international organisations, international NGOs, representatives of the French Government and the international partners in the Mining Project. This resulted in proposing recommendations to the inter-governmental World Heritage meeting of Santa-Fé, New Mexico (USA);

- the inter-disciplinary mission organised and financed by the World Heritage Centre, 15-30 May 1993, bringing together at Nimba representatives of relevant Guinean national authorities, NGOs, UNDP, UNEP, IUCN and UNESCO experts. This meeting resulted in definitive resolution of the problem of the World Heritage Site's boundaries.

Many other meetings, planning sessions and information debriefings were held to address the different repercussions of the Guinean Government's actions in the Nimba Mountains. Each meeting was able to resolve a particular point, overcome misunderstandings concerning development of the Nimba region, and agree precautionary or environmental engineering measures for the Mining Project and to protect the World Heritage Site.

Minimizing the impact of the Mining Project would be achieved through the strict environmental protection measures spelled out contractually between Government and the mining company, and reinforced by the transparency and moral presence from the proposed programme and later the Nimba Foundation (or similar) to be created (see Annex 11). Several important restrictions to potential environmental disturbances from mining and important mitigation measures were negotiated, compared to how the Mining Project had been proposed in the early 1990s. Among these are:

- reduction of the size (surface area) of the industrial complex at and near the mining site,

- avoiding mining the crest of the mountain chain so not to disrupt local climate patterns, and foregoing mining the deposit at Grands Rochers, which is kept as part of the World Heritage Site,

- dumping mine wastes in only one valley (the upper Zié River valley) and equipping the site with a decanting system, whereas originally mine wastes were planned to be spread across all across the mountain chain,

- siting of the railway terminal and loading station 8 km from the boundary of the WHS, and siting the ore conveyor system from the mine to the loading station in such a way as to avoid unnecessary ecological disturbance and destruction of natural forest patches and other habitat, and

- having all stakeholders examine an 'environmental convention' for the Mining Project.

In addition, the Mining Project proponents accepted to set aside US$500,000 per annum from ore sales for the protection, sustainable development and scientific monitoring of the Nimba Mountains Reserve. With respect to this contribution, the out-going Minister of Mines, Geology and Environment suggested that an advance on the first 5 years of the Mining Company's contributions be made just after the signature of the mining convention between Government and the Investors, in order to address the urgent problems of conservation of the core areas and development in the surrounding areas of the Reserve.

The Mining Project's Financial Viability – a Question of Transportation. Resolution of the environmental aspects of the Mining Project and the commitments made jointly by all stakeholders have reassured potential investors in the Project. However other concerns must be addressed in order for the Project to be feasible including, in first place, its financial viability. The required investment costs for mining to begin were estimated at US$700 - 1,500 million in 1990[9], given the solution agreed for transporting the ore and the schedule for its amortisation assuming an annual production of 12 Mt (megatons) per annum and revenues

[9] Sums taken from Kaiser's 1978 feasibility study. These figures must be revised and will likely increase significantly in the context of the current project between Guinea and EURONIMBA .

estimated at about US$240 million. Secondly one must consider the security of the Mining Project and the sustainability of peace and stability in the sub-region so that mining is not interrupted for reasons outside the control of the Mining Company. From this perspective, the "national [transportation] solution" - which involves constructing or upgrading the trans-Guinean railway and transporting the ore to port entirely within Guinea – is the most reassuring to potential investors.

Recent Developments in the Mining Project and the Mining Agreement. Aside from the environmental questions that have been resolved consensually by concerned stakeholders, different successive events have slowed realisation of the Nimba Mountains Iron Mining Project, including:

- ??the destructive civil war in Liberia from end-1989 until 1996;
- ??a deterioration in relations between Guinea and Liberia due to uncontrolled rebel groups in Guinean border villages;
- ??restructuring of BRGM, the French partner of Guinea in NIMCO, via EuroNimba, the privatisation of of its mining activities and the addition of the mining company GENCOR in LASOURCE (a recently created mining company resulting from the privatisation of BRGM); and
- ??the need to create a new entity to take over the assest of NIMCO, namely SMFG (*Société des Mines de fer de Guinée*, the Guinean Iron Mines Company).

No field activity for the Mining Project with any significant impact on the environment of the World Heritage Site has been undertaken since the mid-1970s at the end of the detailed prospecting of the Pierré Richaud deposit by KAISER.

While it is still being created, SMFG would bring together the State of Guinea with the group of investors known as EuroNimba, which is currently made up of BHP-Billeton, Normandy-LaSource, AMCL, Sumitomo and Comincor. After having been discussed for several months between the partners, an Agreement (or "Convention") for the mining concession has been prepared in 2002 presented to the Government for signature. It would be a requirement of creating SMFG. This Agreement intends to increase ore production from 12 Mt/year, as initially planned by Nimco, to 20 Mt/year. The Convention also incorporates the principle of contributions from the Mining Consortium of $500,000 per annum to a fund or foundation for the NMBR. Finally, the Convention incorporates a clause that these funds would be advanced as soon as the Convention is signed, even before prospecting starts in the area, so that the enabling environment in the NMBR can be strengthened.

The agreement mentions also the Project's different legal, administrative and financial terms and conditions. It emphasises several options to transport the ore on a transguinean railway that cuts across the north of Sierra Leone and that facilitates exporting ore also from the Simandou Mountains, currently being prospected in co-operation with the mining company Rio Tinto. The Mining Project's economic feasibility study should determine the most profitable option for Guinea and its partners.

Environmental Aspects of the Convention. As witnessed by their open and collaborative particiaption in negotiations on environmental issues over the past decade, the Mining Company has accepted that the major points agreed from these negotiations be included in the overall Mining Agreement. Thus environment is mentioned as early as article 2 of the agreement, entitled **Objective of the Agreement**:

> "2.3 In consideration of the particular location of the deposits of the Nimba Mountains, near to a reserve included on the list of World Heritage Sites, the current Agreement considers, in the greatest detail possible, questions and measures for protecting the environment…"

Article 29 of the Agreement, 'Framework for commitments related to the environment', reads as follows:

> "29.1 Environmental obligations:

"Remembering that the State [Guinea] and the Investor [EuroNimba] wish to develop and exploit the iron ore deposits of the Nimba Mountains in the interest of all concerned parties, and considering the environmental matter that the deposits are located within a region whose ecological and scientific value is universally recognised,

"In the realm of environment, in order to have a positive effect on the environment and by creating significant economic activity in the region, exploiting the iron ore deposits of the Nimba Mountains by the Company will take a double approach:

- of taking all necessary measures to protect the site(s) from all industrial pollution, by realising the civil works and engineering needed and relying on the most effective scientific and technical means in systematic and permanent fashion to monitor and control disturbances to forests and grasslands, reducing and limiting disturbances to these; [and]

- of contributing to setting up an eco-development project. This will be will implemented thanks to the economic opportunities brought by mining and to related social and health improvements. Such activities will improve the means and living conditions of the local population and will lead them to limit the pressures that degrade local habits (fauna and flora).

"1. The two Parties recognise that the deposits are adjacent to a core area of the Nimba Mountains Bioshpere Reserve that is listed as world heritage.

"2. The two Parties will take all necessary measures to preserve and protect the environment and in particular the area listed as world heritage.

"3. The two Parties re-confirm their commitment to adhere to the eighteen recommendations prepared by the World Heritage Committee in December 1993.

"4. In particular the two Parties commit to ensure that international institutions and non-governmental organisations who participated in revising the boundaries of the World Heritage Site take part in preparing the 'Convention on the Environment between the Investor and the State'. It is agreed that the 'Environmental Convention' must be signed before submission of the final feasibility study.

"The international institutions and non-governmental organisations include:

the World Heritage Centre (UNESCO),
the United Nations Development Programme (UNDP),
the United Nations Environment Programme (UNEP),
the World Conservation Union (IUCN),
the CEDI, and
Guinée Ecologie.

"The Centre for the Management of the Environment of the Nimba Mountains (CEGEN), which was created as a result of the above recommendations, will also be invited to prepare the Environmental Convention in its capacity as the governmental agency responsible for overseeing the correct implementation of the Convention between the State and the Investor.

"5. As part of preparing the impact studies for the full range of activities to be conducted within the Mining Project, the Investor commits to follow:

- the legal and regulatory standards in effect in Guinea for protecting the environment, notably the Environmental Legal Code, the Public and Private Property Legal Code, and the Water Legal Code,

- its own standards for protecting the environment, and

- internationally accepted standards by mining companies.

> "As indicated in paragraph 4 above, the international institutions and non-governmental organisations concerned with environmental issues at the Nimba Mountains will be consulted when these documents are drafted, and a recognised expert consultant on the topic will be chosen by the Investor and agreed by the State to undertake these studies.
>
> "6. The Investor will not begin the various works and studies at the site until after submitting to Government the impact studies, and after each of these impact studies is approved by the State."

During and following the PDF B phase, both CEGEN/MMGE and consultants participating in the PDF B-supported activities (most notably Fauna & Flora International) have held discussions with certain partners of the EuroNimba consortium. BHP-Billeton will be responsible on behalf of EuroNimba for executing and managing all field activities, and including implementing the Environmental Convention and interacting with CEGEN and other partners in the Programme for Conservation of the Biodiversity of the Nimba Mountains through Integrated and Participatory Management.

As one of the largest trans-national and publicly owned mining groups in the world, BHP-Billeton is keenly aware of environmental and social concerns as they affect their on-site operating environments, their national relations and reputation, and their international reputation and share price. In October 2002, the company released an expanded 2002 Health, Safety, Environment and Community Report outlining its policies and performance related to these topics. This publication states that:

> "Wherever we [BHP-Billeton] operate, we will develop, implement and maintain management systems for health, safety, environment and the community that are consistent with internationally recognised standards and enable us to identify, assess and manage risks to employees, contractors, the environment and communities, …support the fundamental human rights of employees, contractors and the communities in which we operate, respect the traditional rights of indigenous peoples, care for the environment and value cultural heritage…
> "[W]e are committed to contributing 1 per cent of our pre-tax profit to community programs, based on a three-year rolling average. Our contributions during the [2002 financial] year represented 1.4 per cent of our pre-tax profit, significantly exceeding our target."

The report specifically mentions biodiversity:

> "We recognise that our activities as a resources company may impact on the natural environment, including the diversity of flora, fauna and their habitats. To this end, we require our sites to consider the preservation and conservation of biodiversity in existing and new projects, and also in the closure of the operations."

With such explicit policies related to biodiversity and local social concerns, and through its public 'exposure' via the stock market and relations with international organisations, BHP-Billeton has expressed its strong desire not to be seen as responsible for the destruction of a world heritage site or globally significant biodiversity by international opinion, and in particular by global environmental organisations and NGOs. Furthermore the President of the Board of EuroNimba, Mr André Papon, stated in November 2002 to MMGE that "Expenses related to the environment are an integral part of production costs, as much as extraction of the ore, its processing and transportation." For all EuroNimba partners, their corporate practices and reputation/share risk-management are concerns that far surpass the Nimba Mountains; in today's market, given their exposure and the size of the investors, it is in EuroNimba's business interests to act responsibly with respect to environment (and social issues too).

Within the context of the UNDP/GEF-supported programme, BHP-Billeton commits to funding US$30,000 in the year 2003, as stated in the attached letter from Mr. K. Olivier. This initial contribution would be for actions falling under proposed Activity 1.2.2 “Develop a deeper understanding of the impacts of mining activities, including those related to introduced species.” This contirbution would help establish or reconfirm baseline information to be used in the detailed EIA and in developing guidelines for the Environmental Convention.

Annex 11. Concerning an International Nimba Foundation and sustainable financing mechanism

Objectives and legal bases. In order to ensure adequate support available to the Nimba Mountains Biosphere Reverse's management structures after the proposed UNDP-GEF programme ends, beyond the contributions of the Guinean Government through its support to CEGEN and the decentralised sectoral agencies working in the Nimba region, it is envisaged to set up a sustainable financing mechanism and an institution responsible for ensuring its effective and efficient management.

The idea of a foundation or similar entity to support management of the Nimba Mountains, at least the portion in Guinea, appeared in the 1990s. The presidential decree of 1995 creating CEGEN mentions this 'foundation':

> Article 7 states that "The Centre for the Management of the Environment of the Nimba Mountains is to be assisted by a Foundation to fulfil the international obligations of its mission and receive funds from abroad for its functioning."
>
> Article 52 specifies that "The creation of the Foundation will be the subject of an agreement between UNESCO, represented by the World Heritage Centre, and the Government represented by the Ministry responsible for Environment and the Ministry responsible for Mines, as well as between donors."[10]

The Environmental Management Programme for the Nimba Mountains, prepared in October 1995 by CEGEN and the Ministry of Energy and Environment, proposes that CEGEN "can be assisted by a Foundation to realise its international obligations under its mission." This Programme assigns the Foundation the responsibility "to seek, raise and centralise external funds needed for CEGEN's activities and functioning, to provide needed technical assistance and to strive to strengthen scientific co-operation and CEGEN's capacity."

The Foundation. During the PDF B, the need was identified for an entity through which the relevant Guinean authorities, other Guinean stakeholders (scientific and technical institutions, representatives of local authorities and communities, others) and international experts and donors can participate in planning and programming financial resources for the Nimba Mountains. Furthermore the need was cited also for a trustworthy and effective interlocutor with donors of all sorts, including international development agencies, foundations and international NGOs, the private sector, research institutes and others.

Thus the envisaged Foundation will play roles in (i) fund-raising and financial management, (ii) planning, participation and transparency, and (iii) provision of technical assistance to CEGEN. It will be supported presumably by the funds it secures internationally. It is also possible that the Foundation will liaise between CEGEN and local communities for support to sustainable development.

Characteristics of a sustainable financing mechanism. During the PDF B, several ideas were explored concerning an eventual sustainable financing mechanism to receive contributions from the Mining Company and others. The design of the financing mechanism(s) will be prepared under project activity 5.4.1 as the post-programme needs are more precisely identified, as will creation of the Foundation. The Guinean Government wants the mechanism to:

?? assure an adequate and long-term source of funds after the presently proposed programme ends;

[10] Articles 39 and 40 state furthermore that "The Centre is subject to inspection by all bodies and institutions under the control of the State, notably the General Inspectorate of the State. The Accounts Court will supervise its jurisdiction and financial management.
"Funds obtained via international cooperation or private companies, in particular those provided by the Foundation and the Mining Company, will be managed according to the procedures of these agencies."

?? accept and manage annual contributions from the Mining Company, as well as other donors, for the conservation of the NMBR's core areas and for compatible development activities in the buffer zone and transition area; and
?? channel external funds rapidly, efficiently and effectively to the field.

Whatever the precise solution chosen, it will probably include some sort of endowment and/or sinking fund. However the exact formula remains to be determined when it is clearer what will be: (a) the basic recurrent costs of CEGEN in the post-GEF period, (b) the need for non-recurrent interventions to manage the NMBR, (c) the likely annual contribution of the Mining Company, (d) the willingness of the Mining Company to make a large up-front contribution to capitalise an endowment, and (e) the likelihood of other donors providing funds to either an endowment or for immediate expenditure. GEF Good Practice reports on endowments and other types of financing mechanisms will be carefully analysed when carrying out the evaluation of the needs at the NMBR.

In order to prepare thoughtful proposals for a Foundation and sustainable financing mechanism, international good practice for such institutions will be reviewed and a study will be carried out of the legal context in Guinea for public-interest, non-profit foundations or similar entities, supported by and responsible for a fund based either in Guinea or off-shore. Guinean law already recognises the existence of 'foundations' but the international structure of such an institution could require that it be established to respond to other legal codes, such as the place where the fund is located.

In parallel, the recurrent financial needs for the post-project period will be studied, as well as the possibility to respond to these needs with interest from an endowment, Governmental contributions and additional external contributions. The study will identify the capitalisation levels needed to generate adequate income required under different spending scenarios. Issues and options papers and planning meetings for creating the financing mechanism and associated institution (the Foundation or other) will define the details of both.

The International Dimension of the Nimba Mountains. As a tri-national ecosystem shared by Guinea, Liberia and Côte d'Ivoire, effective environmental management of the Nimba Mountains requires a minimum degree of transboundary planning and co-ordination, in particular in the fields of ecological monitoring, information-sharing, and control of threats (fire, poaching, pollution) across international boundaries (see Annex 13). Therefore the design of the Nimba Foundation (or similar) should not limit itself necessarily to the Guinean portion of the massif[11]. This is all the more important given that Côte d'Ivoire is prepared to implement its Framework Protected Area Management Programme (PCGAP), supported by the GEF and World Bank, among others. PCGAP involves creating an Ivoirian Foundation for National Parks and Reserves (IFNPR) that is supported by a fund allowing resources to be channeled to the country's protected areas, including the (Ivoirian) Nimba Strict Nature Reserve (see maps, Annex 15).

Not only should the lessons learned during the preparation of PCGAP, which began in 1995, leading to the creation of the IFNPR, inform the Guinean deliberations on a Foundation and sustainable financing mechanism, but Guinea and Côte d'Ivoire should seek to encourage synergies, minimise duplication and costs, and explore how the tri-national ecosystem can be managed in a coherent fashion, involving Liberia as appropriate[12].

[11] However it may be possible to make contributions, administered by the Foundation, to specified activities in a specified country, if the donor so desires.

[12] The tri-national meetings on Nimba (Annex 12) recommended bringing the three countries together to develop a proposal for a funding mechanism to support transboundary actions.

ANNEX 12. Tri-National Initiative for Transboundary Environmental Management of the Nimba Mountains

The biological richness of the Nimba massif has been recognised since the early part of the 20th century. In 1999 a group of over 150 experts, led by Conservation International and with the support of the GEF and UNDP, led a conservation priority-setting exercise for the Upper Guinean Forest Ecosystem in which the Nimba region was identified as one of the highest priority sites in all of humid West Africa. According to some, Nimba is the single highest priority. While that is debatable, its importance is uncontested.

The Nimba mountain chain was divided politically about a century ago between three countries - Guinea, Liberia and Côte d'Ivoire – without respect for either its ethnic homogeneity and divisions, or its ecology. The Ivoirian portion of the massif is 'tucked in the belly' of the Guinean part, and together they form the northern 60% or so of the massif. This mountain chain then descends south-westwards into Liberia.

Because nature does not recognise international boundaries, the only rational means to manage the Nimba mountains' natural resources and fabulous biological diversity is to co-ordinate activities internationally. For this reason, for a long time the three countries have wanted to initiate tri-national planning and dialogue for concrete transboundary management of the region's environment. However each of the three countries has its own history and system of government, and its own possibilities and constraints.

In Côte d'Ivoire, the Ivoirian segment of the massif has been a strict nature reserve since 1944, as is the case also for the Guinean portion. Together, these reserves constitute the Mount Nimba World Heritage Site, declared in 1981. Because of the iron mining underway in the Liberian portion of the massif, and because Liberia did not become party to the World Heritage Convention until 2002, the World Heritage Site stopped at the Liberian border. However in Liberia, the forest covering the eastern slopes of the Nimba massif was classified as a national forest, reserved largely for timber production. Since the early 1980s, creation of a strict nature reserve was recommended in Liberia too, a proposal that was under serious consideration in late 2002.

Since the early 1980s, and possibly earlier, discussions have been underway to co-ordinate management of the mountains. Draft international agreements were discussed in the 1980s and one was prepared in 1992 between Guinea and Côte d'Ivoire. However due to mining and political considerations, as well as the lack of resources allocated to such matters, the three countries were never able to make significant progress towards transboundary collaboration until recently. Visits of local field technicians and authorities occurred across international boundaries but they were not enough for comprehensive and effective planning and collaboration to start.

In 2000, the appropriate authorities of the three countries - the Ivoirian Nature Protection Service, CEGEN and the National Environmental Commission of Liberia and the Liberian Forestry Development Authority - agreed a plan to initiate transboundary dialogue and planning on environmental management and conservation of the Nimba mountains with three international environmental NGOs - Fauna & Flora International, BirdLife International and Conservation International. The following concerns of these authorities and NGOs, as well as of other concerned agencies such as the World Bank (Abidjan) and WWF-West African Regional Programmes Office, were incorporated into the final plan:

? ? Tri-national collaboration at the field level must be preceded by initiating dialogue in a neutral and technical context, facilitated by one or more independent organisations,
? ? What has been lacking for decades has been funds rather than the desire for tri-national dialogue and collaboration,

? ? The medium-term objective should be to establish a shared vision and common declaration for the Nimba massif, as well as a series of management and co-ordination principles to harmonise initiatives which are getting started on different sides of the borders, and
? ? The recent histories of the three countries are all quite different, the countries have different development plans and programmes for their portions of the mountain chain, and their conservation initiatives are at different stages of development. Thus all 3 countries plus donors and NGOs active at Nimba agree that it is not presently advisable to join the three countries together in a tri-national project. However the best way to ensure transboundary synergies between three countries for the time being is through pursuing national-level initiatives and launching a process of harmonising management across international boundaries and undertaking limited collaborative activities at the field level as part of national initiatives.

In 2001 FFI secured approximately US$45,000 from the World Heritage Fund of the World Heritage Centre (UNESCO), the head office of Rio Tinto Mining Plc. and the Netherlands Committee for IUCN for a series of two tri-national workshops and background studies, the overall goal of which was to catalyse transboundary dialogue, planning and field activities for environmental management of the Nimba Mountains. Specific objectives of the process were:

?? to establish contact between technical staff from Guinea, Côte d'Ivoire and Liberia responsible for managing the Nimba Mountains specifically, if relevant, or protected areas, wildlife and forests generally, and to establish contact between these technicians and local community representatives and relevant politicians,
?? to share information, identify information gaps and research needs, and identify incongruities and the potential for harmonisation and collaboration in management practices of the area,
?? to explore practical means of international co-operation for the conservation of the Nimba Mountains and development of a common strategy for managing them,
?? to establish a long-term forum for dialogue and joint planning between the three nations, if possible, and
?? to involve and motivate the governmental and corporate sectors as well as local inhabitants, who are the major stakeholders in the overall scheme.

Technical-level participants, directly responsible for management of the Nimba massif, were requested to participate in the two initial workshops to devise techncial recommendations with the understanding that these would filter up in the three governmental hierarchies to political levels where they will clearly show the potential for and benefits of transboundary collaboration.

The first workshop took place in Man, Côte d'Ivoire, in September 2001, during which each country delegation presented its portion of the massif to the others. Next participants broke into tri-national working groups in which they analysed the problems facing the Nimba mountains zone. They concluded by proposing possible solutions leading to improved environmental management of the Nimba Mountains, distinguishing between activities which must be undertaken on an individual country basis and those which require an international response.

On the basis of the problem analysis done at Man, focused studies and reports were prepared in the interval between the two workshops.

The second workshop was held in N'Zérékoré (Guinea) in February 2002. After each country provided updates on developments in conservation programmes related to Nimba, which were considerable, participants broke into multi-national working groups to discuss those environmental problems requiring international collaboration. The following agenda items were addressed:

- Ecological monitoring,

- Transboundary conservation management of the Massif,
- Transboundary management of the Déré-Tiapleu forest block, and
- Identification of necessary actions to undertake after the N'Zérékoré meeting.

Relatively detailed prioritised plans were prepared for each of the above topics, and responsibilities were assigned for following up on the recommendations of the workshop. A committee made up of the contact agency from each country and the international NGOs who facilitated the workshops was formed to oversee continuation of the process, with FFI responsible for organising activities. The results of both workshops are available in French and English on FFI's website (www.fauna-flora.org). In addition, the reports contain detailed background information on each country's part of the massif, as well as representative ecological monitoring protocols followed in each country which could serve as models for harmonising monitoring tri-nationally.

Participants also prepared the Declaration of N'Zérékoré (follows below) on transboundary environmental collaboration at the Nimba Mountains. A working group furthermore prepared a draft tri-national framework agreement to provide a formal legal context for transboundary collaboration in environmental management of the Nimba Mountains. As of late 2002, this was under review in all three countries.

The process of transboundary collaboration was launched without really knowing where it would lead. However the momentum created in the initial year is being integrated into each country's management programme for its part of the Nimba massif. With support from each of the national initiatives, collaboration will develop organically, starting at the field-level, and freed as much as possible from political constraints. All three countries agree this is presently the preferred way forward for maximum conservation impact and synergies in the field, and to build political support. Its effectiveness will be monitored as part of the Guinean programme's monitoring and evaluation.

Annex 12 -A
DECLARATION OF N'ZEREKORE ON THE TRI-NATIONAL MANAGEMENT OF THE NIMBA MOUNTAINS

The participants of the tri-national workshop of N'zérékoré on the sustainable management of the Nimba Mountains, held from 12 to 15 February 2002 in N'zérékoré on the topic "Tri-national programme for the integrated conservation of the Nimba Mountains", noting:

- the Convention on Biological Diversity,
- the authoritative but not legally binding Declaration of Principle on a world-wide consensus on the management, conservation and ecologically viable utilisation of all types of forest, adopted during the United Nations Convention on Environment and Development in June 1992 in Rio de Janeiro, known as the Forests Declaration,
- the Declaration of Paris of the Tenth World Forest Congress (September 1991),
- the Forest Declaration of Delhi (Forestry Forum for Developing Countries, September 1993),
- the inclusion of the Mount Nimba World Heritage Site on the list of World Heritage Sites in Danger by the World Heritage Committee during its meeting held in Santa Fe (USA),
- the Declaration of Seville (1995) strongly emphasising developing international co-operation for the effective management of transboundary biosphere reserves,
- the need to strengthen cordial relations and a climate of peace and harmony between the three nations concerned with the Nimba Massif, in accordance with the UNESCO programme on the Culture of Peace,

Publish herewith this Declaration of N'zérékoré on the tri-national management of the Nimba Mountains, whose principal objectives concern the following points :

- Establishing contact on the one hand between the technical teams in Côte d'Ivoire, Guinea and Liberia responsible for the management of the Nimba Mountains, and on the other hand between these technicians and local communities,
- Sharing information, identifying research needs and identifying gaps and possibilities with a view to develop practical means for international co-operation for the conservation of the Nimba Mountains and to prepare a common management strategy,
- Involving and motivating the governmental and private sectors, as well as local communities, who are the principal stakeholders in any management masterplan for the Nimba Mountains, and to create a tri-national biosphere reserve of the Mountains.

This Declaration concerning the Nimba Mountains follows from the afore-mentioned Declarations. To this end, the participants propose :

1. that the relevant nations, namely the Côte d'Ivoire, Guinea and Liberia, support natural resources conservation actions through co-ordination and harmonisation of their interventions in their Nimba Mountains conservation programmes and through mobilisation of supplementary financing from donors;
2. that the nations include the development of socio-economic and scientific infrastructure for the Nimba Mountains in national development priorities;

3. that the nations prioritise, encourage and create the conditions for partnerships with international organisations for improved preservation of natural resources;
4. the participation of local populations, and in particular women and youth, in planning, utilisation and management of the Nimba Mountains, which is today an incontrovertible social, cultural, ecological and economic reality;
5. that the international community and NGOs become more involved in projects supporting the protected areas by providing increased and permanent support to national and tri-national institutions;
6. setting up a tri-national steering mechanism for undertaking actions for the sustainable conservation of the Massif;
7. the submission for approval of a draft framework agreement to the respective governments.

The Centre for the Management of the Environment of Mount Nimba (CEGEN), the Directorate for Nature Protection (DPN), and the National Commission for the Environment (NECOLIB) will be responsible for carrying out the activities in points 6 and 7 of this Declaration in Guinea, Côte d'Ivoire and Liberia, respectively.

Prepared in N'zérékoré, 15th February 2002

Annex 13: Institutional capacity of CEGEN and plans to strengthen it

Introduction. One of the recommendations emanating from the Nimba Mountains Pilot Project was to create an agency responsible for the management of the Nimba Mountains Biosphere Reserve, which covers a wide spectrum of responsibilities including all environmental management and conservation, rural development actions and inter-sectoral co-ordination. This recommendation was acted upon in Presidential Decree 95/007/PRG/SGG creating the Centre for the Management of the Environment of the Nimba Mountains (CEGEN), which assigns to it the following objectives:

> "ARTICLE 3: The mission of the Centre for the Management of the Environment of the Nimba Mountains is the co-ordination and promotion of activities to protect the World Heritage Site and the rational use [*valorisation*] of the biological resources of the Nimba Mountain chain and its area of influence (temporary transition zone).
>
> "To this end, it is responsible specifically for:
>
> - ensuring active protection and scientific monitoring of the core areas of the biosphere reserve (notably the World Heritage Site) and strictly controlling all activities in the buffer zone;
> - strengthening and co-ordinating patrol and guard systems;
> - ensuring monitoring of the state of recipient environments [*milieux récepteurs*] (air, water, soils, sub-soil, etc.) and making technical reports and other studies available to concerned national agencies;
> - overseeing the environmental impact study for the project to mine the iron ore deposits and the correct application of the environmental convention between Government and the Mining Company;
> - providing information on requests for new projects undertaken in the areas of influence of Nimba for which it must be consulted;
> - carrying out scientific and technical studies required for monitoring the evolution of societal practices, land-use, wildlife populations, botanical associations and populations, climate, hydrology, water quality and soil property changes;
> - carrying out, in collaboration with the relevant government agencies, studies and control measures for the implementation of the integrated development master-plan of Nimba's area of influence (agriculture, forestry, animal husbandry, local collective infrastructures, road network, etc.);
> - promoting technical assistance, notably in the areas of demonstration trials and extension work;
> - contributing to preparing a framework for discovery tourism, bearing in mind the requirements of mining activities and protection of the core areas of the biosphere reserve;
> - maintaining close planning and consultation with the company responsible for mining the iron ore deposits;
> - informing the international community and strengthening scientific and technical co-operation in different topics related to natural resources management for the Nimba Mountains.
>
> "ARTICLE 4: It is envisaged that the Centre will strive to reconcile the objectives of its mission with the national needs to exploit the iron ore deposits of the Nimba Mountains."

The CEGEN was created a semi-independent agency attached to the Ministry responsible for environment, which currently is the Ministry of Mines, Geology and Environment. The Decree specified the bodies and divisions within the agency, while its organigram was later defined in a supporting law.

Preparation of an institutional strengthening plan. The PDF B made specific mention of the need to strengthen CEGEN's institutional capacity to ensure success of the programme and the sustainability of its accomplishments in the post- programme period. The PDF B therefore supported developing a plan targeting the many aspects included under 'institutional capacity-building.' These are grouped together mostly in Component 5 'Strengthened capacity of the Reserve's management structures, in particular of CEGEN'.

The process consisted of assessing CEGEN's current strengths and weaknesses, and then of identifying the capacity needed by CEGEN to fulfil its mandate as expressed in principle in Decree 95/007/PRG/SGG and in detail in the present 9-year programme. This included an assessment of needed staff, in-house skills, information needs, institutional links, material resources, legal and policy context and means to achieve financial security.

The staffing and skills assessments were written up in two detailed reports (see Ledant 2001a, Ledant 2001b, under the auspices of FFI). They identified CEGEN's staffing needs, especially in light of the currently proposed programme, and made precise recommendations for adjusting CEGEN's organisational structure and staffing, and for recruiting missing staff. Specifically CEGEN's current staffing, including personnel on leave, consists of 16 persons. By recruiting 50 additional staff, 33 of whom would be rangers, the total would come to 66, which is recommended for CEGEN (Ledant 2001b). The recommended break-down of this staff according to level would evolve from programme start to closure as follows:

	Year 0	end-Year 9
Senior and mid-level technical staff	11	24
Rangers	0	33
Administrative and lower-level technical personnel other than rangers	5	9
TOTALS	16	66

These recommendations will be addressed as much as possible in Activity 5.2.1 'Amend and complete the legal texts related to CEGEN'. Likewise the programme's implementation arrangements will ensure that CEGEN has the personnel available to execute the programme and that it is fully staffed by the end of the 9-year programme.

Weaknesses of CEGEN were observed in many areas. These included inadequate staffing, inadequate skills of existing staff, unmotivated staff, duplication of responsibilities between certain posts in CEGEN's organigram and lack of posts to address other needs, duplication or at least confusion of roles between CEGEN and other Government agencies working in the Reserve[13], lack of synergies between

[13] The reports define the extent of CEGEN's responsibilities in relation to local government's and sectoral agencies' (Directorates of Water & Forests, Livestock, Health, Agriculture, etc.) as follows:

"The fundamental role of CEGEN is to serve as manager for the Biosphere Reserve, which is zoned into three areas: the core areas, the buffer zone and the transition area. CEGEN is responsible for this geographical area to the extent that it constitutes a nature reserve, thus for nature protection, in principle, with the effect that CEGEN is considered to substitute beither local governmental authorities nor institutions responsible for economic and social development.

"CEGEN's responsibilities can be divided into the following:

CEGEN and other sectoral agencies and no effective means by which to improve synergies, lack of acceptance of the role and authority of CEGEN in the Reserve, an incomplete ecological monitoring system that does not respond to many of the agency's data needs, weak inability of CEGEN to use ecological information, an incomplete legal framework in which CEGEN is supposed to operate, inadequate operating resources and infrastructure leading to lack of presence in the field, and unfamiliarity with the bottom-up participatory approaches needed to address the problems of the Biosphere Reserve.

After presenting what a fully strengthened CEGEN would look like, capable of fulfilling its mission, the Ledant/FFI reports went on to design a series of 27 training modules for specific skills needed by CEGEN, recommended specific staff from the revised organisational structure to be trained in each topic, and suggested priorities for training given that financial resources and CEGEN staff time are limited. On the basis of indicative monthly costs for *in situ* training (i.e. learning-by-doing, on-the-job training at the Reserve) and *ex situ* training (formal courses, theoretical studies, classroom training), overall costs were determined for different budget scenarios, which informed the budgeting of the proposed Activity 5.2.1 'Implement a staff training programme.' This programme can always be expanded with additional (non-GEF) donor support. The reports furthermore envisage for CEGEN to have a resource centre with training and reference materials available for individual study and consultation, and recommended that CEGEN staff be required to spend a modest portion of their time pursuing individual study.

The following table shows the training topics envisaged, main objectives (defined as 'Personnel able to __'), targeted staff positions and priorities assigned to each topic (A = highest priority, B = medium priority, C = lower priority but still important). The topics have been organised below into 8 thematic groups.

Topic	***Main objective – Staff person able to ____***	***Targeted staff positions***	***Priority***
Biosphere Reserve management			
Environment and sustainable development policy	Define and implement coherent policy related to environmental management in partnership with relevant agencies	Director, section heads	A
Integrating conservation and	Propose development activities	Director, head of the	A

- In the Core Areas, in particular in the Nimba Mountains which are subject to requirements from the international World Heritage Convention, CEGEN, supported and advised by UNESCO, has or should be granted authority over all other local actors in order to ensure protection and monitoring and to implement all measures in support of biodiversity conservation.

- In the Buffer Zone, CEGEN, the RDCs and other relevant institutions are co-managers. CEGEN negotiates the guidelines and eventual restrictions aimed at protecting the core areas (or the species visiting the buffer zone that must be protected) accompanied by direct or indirect compensation. CEGEN furthermore proposes, encourages and supports interventions that incite behaviour with a favourable impact on the Core Areas and biodiversity.

- In the Transition Area, CEGEN will play the role of environmental monitor, advisor, proponent (including of specific environmental standards/guidelines), and implementer/ overseer of the Environmental Protection and Utilisation Code. Because the Transition Area corresponds to the Upper Cavally River Basin, CEGEN will pay particular attention to protecting the ecological and hydrological integrity of the river which will benefit the ecosystems influenced by it, including the Déré Forest, and will reduce transboundary impacts in Côte d'Ivoire."

Topic	***Main objective – Staff person able to ____***	***Targeted staff positions***	***Priority***
Biosphere Reserve management			
development	beneficial to the environment and to conservation	Regional Development Section	
Protected area management	Prepare, adapt, monitor, implement management plans with participation of all stakeholders	Director, assistant director, section heads	A
Institutional and programme management			
Programme planning and implementation	Prepare and execute a plan, a programme or a project	Director, assistant director, section heads	A
Institutional management	Manage a budget and funds correctly, manage physical and human resources, manage internal and external relations, fund-raising	Director, assistant director	A
Monitoring and evaluation	Define and track a coherent, powerful and feasible system of objectively verifiable indicators Implement an internal institutional monitoring and self-improvement system	Assistant director, Heads of the Environment & Protection and Research & Monitoring Sections, Water monitoring technician	B
Ecology, ecological and environmental impact monitoring			
Ecology and biodiversity	Orientate ones' actions to be supportive of biodiversity Contribute to management planning by proposing relevant measures for biodiversity conservation	Director, section heads, personnel responsible for environmental education	B
Ecological monitoring systems	Manage and utilise an on-going environmental monitoring system	Personnel in charge of ecological monitoring (head of Research and Monitoring Section)	A
Ecological data collection	Collect data accurately	Rangers	A
Impact studies	Monitor environmental studies of the mine, oversee their correct execution and implementation of their recommendations Monitor the impacts of all other projects, including agricultural ones	Head of Environment Section	C
The Nimba Mountains Conservation Programme, information, communications and tourism			
The Nimba Mountains and their Management and Conservation Programme	Understand and communicate effectively the objectives of the different parts of the NMBR and its long-term management programme	All members of CEGEN and partner agencies	A
Communication, information, education	Prepare and carry out information, awareness and education programmes	Head of Regional Development Section	B
Receiving and guiding tourists	Receive and guide visitors in the Reserve	Rangers (selected ones)	C
Rural development, participatory approaches, intervention strategies			

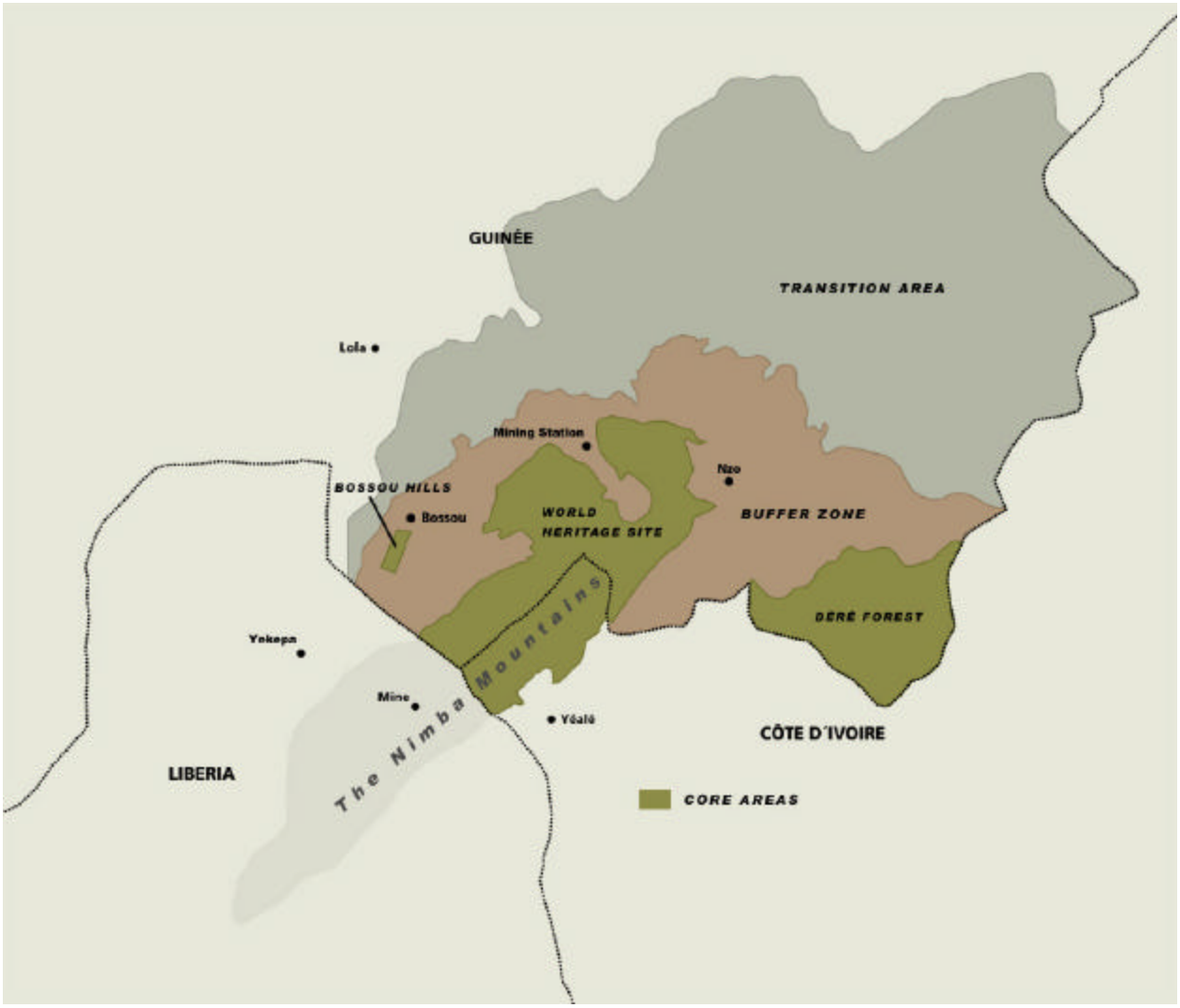
Topic	***Main objective – Staff person able to ____***	***Targeted staff positions***	***Priority***
Biosphere Reserve management			
Rural development	Propose development interventions that are favourable to the environment and to conservation Propose relevant options related to micro-finance/credit, participation, gender equity, landscape management, rural collectives Collaborate with external specialists in rural development	Head of Regional Development Section	B
Participatory approaches	Work in constructive, partnership-orientated ways	Director, assistant director, section heads, technical staff responsible for external relations	A
Intervention and support strategies	Choose appropriate methods to support rural development groups/ collectives Encourage and support development approaches consistent with sustainable development and conservation objectives	Director and section heads	A
Conflict management and negotiations	Prevent conflicts Facilitate conflict resolution Negotiate impartially with partners Engage partners constructively and collaboratively	Director, assistant director, section heads, technical staff responsible for external relations	B
Agriculture-forests-biodiversity	Identify agricultural and sylvicultural techniques that are economical in terms of resources and favourable to biodiversity in order to propose pertinent technical development options and to evaluate the impacts of agricultural and forestry projects	Head of Regional Development Section Specialist to be recruited (forester)	B
Small animal husbandry	Analyse technical and economic constraints to small animal husbandry Orientate efforts to reduce hunting pressures and local protein deficiency	Staff person in charge of animal husbandry	B
Protected area patrols and law enforcement			
Organising patrols/law enforcement	Supervise rangers	Staff person overseeing rangers	B
Patrols	Carry out patrols, handle law infractions	Rangers	B
Administrative management, linguistic and computer skills; independent study skills			
Basic computer skills	Execute computer-based accounting	Administrative and	A

Topic	***Main objective – Staff person able to ____***	***Targeted staff positions***	***Priority***
Biosphere Reserve management			
	Use a computer to prepare reports Manage quantitative data	technical personnel (except for the one already trained person)	
GIS and databases	Manage a geographical information system (GIS) and database	Specialised environmental monitoring personnel	A
English	Communicate internationally, use English-language scientific documents, communicate with refugees, collaborate with Liberians	Any relevant staff person	C
Use and management of supplies and physical capital (equipment, infrastructure, etc.)	Utilise and care for physical capital correctly, manage supply stocks	To be determined during programme implementation	B
Independent study	Utilise a documentation centre, utilise the internet, develop effective work/study habits, take advantage of available opportunities to continue one's training independently	All members of CEGEN and relevant partner agency staff	A
Legal and policy skills			
Legal and institutional frameworks	Propose improvements to CEGEN's legal and institutional frameworks Propose relevant actions/ amendments to existing laws and institutions	Director and section heads	B

With respect to other institutional strengthening needs, the ZOPP workshop participants, and the Ledant/FFI reports to a more limited extent, defined CEGEN's needs related to inter-institutional arrangements, ecological information, material resources (infrastructure, equipment, recurrent supplies, etc.), legal/policy gaps and post-project financial security. The needs are summarised in the problem tree (Annex 1) and addressed in the Objectives, Results and Activities of the logical framework analysis (Annex 2). The budget details CEGEN's needs in terms of infrastructure, equipment and supplies, while Activity 5.4.1 and Annex 11 explain in detail the issues surrounding and proposed solutions to post-project financial security.

Annex 14: Endorsement letter(see separate file)

Annex 15: Map of the project site



Annex 16: Acronyms

AFD	:	French Development Agency
AGIR	:	Support Programme for Integrated Resource Management
AHSP	:	Animal Husbandry Support Programme
AIDS	:	Acquired Immune-Deficiency Syndrome
AMCL	:	African Mining Consortium Limited
BRGM	:	*Bureau de recherches géologiques et minière* (Geological and Mining Research Company)
CIDA	:	Canadian Agency for Development International
BCEOM	:	Central Office for Overseas Studies
CBD	:	Convention on Biological Diversity
CEDI	:	Collective for Environment and International Development
CEGEN	:	Centre for the Management of the Environment of the Nimba Mountains
CI	:	Conservation International
CITIES	:	Convention on the International Trade in Endangered Species
CRBREIG	:	Cane Rat Breeding, Research and Extension Institute of Guinea
CTA	:	Chief Technical Assistant
ECOFAC	:	Programme for the Conservation of Forested Ecosystems in Central Africa
EIA	:	Environmental Impact Assessment
ERIB	:	Environmental Research Institute of Bossou
FGEF	:	French Global Environment Facility
FFI	:	Fauna & Flora International
FIBA	:	French Institute for Black Africa
FRMP	:	Forest Resources Management Project
GDP	:	Gross Domestic Product
GEF	:	Global Environment Facility
GIS	:	Geographical Information System
GNP	:	Gross National Product
GoG	:	Government of Guinea
GSSIDSAH	:	Guinean Society for Support to Integrated Development of Small Animal Husbandry
GTZ	:	German Technical Co-operation
HIV	:	Human Immuno-deficiency Virus
IEC	:	Information-Education-Communications
IFAD	:	International Fund for Agricultural Development
INFPR	:	Ivoirian Foundation for National Parks and Reserves
IMF	:	International Monetary Fund
IUCN	:	World Conservation Union
KfW	:	German Financial Co-operation Agency
LADP	:	Letter of Agricultural Development Policy
LISP	:	Local Initiatives Support Project
M&E	:	Monitoring and Evaluation
MAB	:	Man and the Biosphere
MMGE	:	Ministry of Mines, Geology and Environment
MIFERGUI	:	the Guinean Iron Mining Company
MSF	:	Doctors without Borders

Mt	:	Megatonne
NC	:	National Co-ordinator
NDA	:	National Directorate for Agriculture
NDE	:	National Directorate for Environment
NDH	:	National Directorate for Health
NDL	:	National Directorate for Livestock
NDSTR	:	National Directorate for Scientific and Technical Research
NDWF	:	National Directorate for Water and Forests
NEAP	:	National Environmental Action Plan
NGO	:	Non-Governmental Organisation
NIMCO	:	Nimba Mining Company
NMBR	:	Nimba Mountains Biosphere Reserve
NMPP	:	Nimba Mountains Pilot Project
NPRI	:	National Project for Rural Infrastructure
NRMP	:	Natural Resources Management Project
NSSWS	:	National Support Service to Water Sources
OP	:	Operational Programme (of the GEF)
OVI	:	Objectively Verifiable Indicator
PCGAP:		Framework Project for the Management of Protected Areas in Côte d'Ivoire
PDF-B	:	Project Development Facility - Block B grant
PDIR/FG	:	Project for the Development of Irrigated Rice in Forested Guinea
PDSFI/FG	:	Project for the Development of Small-scale Forest Inhabitants in Forested Guinea
RAHFFG	:	Regional Animal Husbandry Federation of Forested Guinea
RDC	:	Rural Development Commune
RRMP	:	Rural Resources Management Project
SMFG	:	*Société des Mines de fer de Guinée* (Guinean Iron Mines Company)
SOGUIPAH	:	Palm Oil and Rubber Company of Guinea
UNCCD	:	United Nations Conference on Commerce and Development
UNDP	:	United Nations Development Programme
UNECA	:	United Nations Economic Conference on Africa
UNEP	:	United Nations Environment Programme
UNESCO	:	United Nations Educational, Scientific and Cultural Organisation
UNF	:	United Nations Foundation
UNHCR	:	United Nations High Commission for Refugees
UNOPS	:	United Nations Operational Service
USAID	:	United States Agency for International Development
UVIDoZ	:	Union of Volunteers for the Integrated Development of Zantompiézo
VCSP	:	Village Community Support Programme
WAPSE	:	West African Priority-Setting Exercise
WFP	:	World Food Program
WWF	:	World-Wide Fund for Nature
ZOPP	:	Ziel Orienttierte Project Planung (German abbreviation for Planning of Interventions by Objective)

Annex 17: Bibliographic References

?? Bangoura A. M., 2001.- Conservation de la biodiversité des Monts Nimba. Faune sauvage des Monts Nimba. CEGEN and UNDP, Conakry, PDF-B Project.

?? Barry M. A., 2001.- Conservation de la biodiversité des Monts Nimba. Etude d'aménagement hydro-agricole pour la conservation de la diversité biologique des Monts Nimba. CEGEN and UNDP, Conakry, PDF-B Project.

?? Borrini-Feyerband G., Farvar T., Nguiguiri J.C. and Ndangang V., 2000.- La gestion participative des ressources naturelles, IUCN and GTZ.

?? Camara D., 2001a.- Conservation de la biodiversité des Monts Nimba. Problématique de l'exploitation minière. CEGEN and UNDP, Conakry, PDF-B Project.

?? Camara D., 2001b.- Personal communication.

?? Camara L., 2001.- Conservation de la biodiversité des Monts Nimba. Aspects légal et institutionnel. CEGEN and UNDP, Conakry, PDF-B Project.

?? Condé B., 2001.- Conservation de la biodiversité des Monts Nimba. Etude agricole et forestière. CEGEN and UNDP, Conakry, PDF-B Project.

?? Conservation International.- West African Regional Conservation Priority-Setting Exercise, 2000.- Workshop held at Elmina, Ghana, 6-10 December 1999.

?? Diallo M. Y., 2001.- Conservation de la biodiversité des Monts Nimba. Analyse socio-économique. CEGEN and UNDP, Conakry, PDF-B Project.

?? Dore K., 2001.- Conservation de la biodiversité des Monts Nimba. Sociologie rurale. CEGEN and UNDP, Conakry, PDF-B Project.

?? ERIB, 2001.- Institut de Recherche Environnementale de Bossou, Guinean Directorate of Scientific Research.

?? Hamel, 2000.- Biodiversité et gestion durable des ressources. CERE-7180, Gamal Abdel Nasser University, Conakry.

?? Hugon, 1999.- L'économie de l'Afrique, Paris, La Découverte.

?? International Monetary Fund (IMF), 2000. Guinea : Statistical Appendix, IMF Staff Country report no. 00/13.

?? Lamotte, 1993.- The Value of the Nimba Mountains as a World Heritage Site (in French) Annex 1, Mission report (May 1993).

?? Lamotte and Roy, 1998. Cited in Bangoura, 2001.

?? Ledant J.P./FFI, 2001a.- Contribution à la formulation d'un programme de renforcement des capacités du CEGEN. Report for the PDF B Project 'Biodiversity Conservation of the Nimba Mountains'.

?? Ledant J.P./FFI, 2001b.- Renforcement des capacités du personnel du CEGEN. Prospections consécutives à la première identification du Programme de conservation de la biodiversité des Monts Nimba. Report for the PDF B Project 'Biodiversity Conservation of the Nimba Mountains'.

?? Mansare J.B., 2001.- Conservation de la biodiversité des Monts Nimba. Programme d'appui aux activités d'élevage. CEGEN and UNDP, Conakry, PDF-B Project.

?? Pascual J.F., 2001.- Personal communication.

?? Pascual J.F., 2000.- Site du Patrimoine mondial des Monts Nimba. UNESCO, World Heritage Centre. Mission report from 24 August to 28 September 2000.

?? Pascual J.F., 1993.- La Pauvreté : contrainte majeure de la gestion rationnelle des ressources naturelles des monts Nimba, *Final report for the Nimba Mountains Pilot Project (1st part)*, UNESCO-UNDP, 234 pp.

?? Republic of Guinea, 2001.- National Development Plan, Conakry.

?? Republic of Guinea , 1994.- National Environmental Action Plan, Conakry.
?? Republic of Guinea, 2000.- Interim Strategy for Poverty Reduction, October 2000, Conakry.
?? Republic of Guinea, 2000.- Guinea Vision 2010. Socio-economic Development Strategy for the Horizon 2010, Conakry.
?? Republic of Guinea, 1997.- Lettre de Politique de Développement Agricole, Conakry.
?? Republic of Guinea, PDF-B., 2000.- GUI/00/G41-GUI/00/004 Conservation of the Biodiversity of the Nimba Mountains through Integrated and Participatory Management, Conakry.
?? Republic of Guinea, UNDP and GEF - National Biodiversity Action Plan, 2001.- National Strategy for Conserving Biological Diversity and Sustainable Utilisation of its Resources. Volume 1.
?? Republic of Guinea, UNDP and GEF. - National Biodiversity Strategy and Action Plan, 2001.- Action Plans for the Conservation of Biological Diversity and Sustainable Utilisation of its Resources. Volume 2.
?? Sadio Sow B.,2000.-Monographie forestière de la préfecture de Lola, Minsitry of Agriculture and Livestock, GTZ, RRMP, February 2000.
?? Touré S., 2001 Personal communication.
?? Traoré L., 2001.- Situation agropastorale et participation des communautés à la conservation des écosystèmes des Monts Nimba en vue d'un développement intégré et durable du site. CEGEN and UNDP, Conakry, PDF-B Project.
?? UNDP, 2000.- Human Development Report, De Boeck University, Paris, Brussels, New York.
?? UNESCO-UNDP.- Final Report from the Nimba Mountains Pilot Project RG/UNDP/UNESCO GUI/89/004, «*Project Results and Recommendations*», edited by UNESCO in December 1993.
?? Von Droste, Lamotte M., Pascual J.F., Koechlin J., Vernet E., Mankoto S., Taal B.-M., Touré S., Koné S., Dore G., Dore C., Traoré I.-S., Cissé A. Diallo M-B. and Sylla M. Mont Nimba (Guinée). Site du Patrimoine mondial. World Heritage Centre, UNESCO, July 1993.
?? World Bank, 1999.- Human Development Report - 1998 .
?? ZOPP, 2001.- Activities Planning Workshop for the Full GEF Project. Nimba Mountains. 23-24 October, 2001. Report prepared by FFI.
?? Bishop, T and Garnett, T. March 2000. Civil Conflict and the Environment in the Upper Guinea Forests of West Africa,. Biodiversity Support Program Disasters and Environment Project, Washington DC.