PROJECT BRIEF

1. Identifiers

Project Number:	*[Implementing Agency Project Number not yet assigned]*
Project Title:	**Building Scientific and Technical Capacity for Effective Management and Sustainable Use of Dryland Biodiversity in West African Biosphere Reserves**
Duration:	4 years
Implementing Agency:	United Nations Environment Programme (UNEP)
Executing Agency:	Benin: MAB National Committee; CENAGREF (Centre National de Gestion des réserves de Faune) and ABE (Agence Beninoise de l'Environnement); Burkina Faso: MAB National Committee; CNRST (Centre de Recherche scientifique et technologique); Ministry of Environment. Côte d'Ivoire: MAB National Committee; Direction de la Protection de la Nature; Centre de Recherche en Ecologie. Mali: MAB National Committee; OPNBB (Opération Parc National Boucle du Baoulé). Niger: MAB National Committee; Faculté d'Agronomie de l'Université d'Abdou Moumouni; Direction de la Faune Pêche et Pisciculture (DFPP). Sénégal: MAB National Committee; Direction des Parcs Nationaux; Université Cheikh Anta Diop. and UNESCO-MAB
Requesting Countries:	Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger and Senegal
Eligibility:	The requesting countries have all ratified the Convention on Biological Diversity: Benin 30 June 1994, Burkina Faso 2 September 1993, Côte d'Ivoire 29 November 1994, Mali 29 March 1995, Niger 25 July 1995, Senegal 17 October 1994.
GEF Focal Areas:	Biodiversity
GEF Programming Framework:	Arid & semi-arid Ecosystems Operational Programme # 1

2. Summary:

The development goal of the project is to conserve and sustainably use biodiversity in six biosphere reserves in West Africa that are predominantly composed of savanna ecosystems. The project purpose is to systematically strengthen scientific and technical capacity for effective management of the biosphere reserves. This targeted intervention strategy has been designed to complement existing investments and projects within the

biosphere reserves. The project will improve the understanding of interactions between local communities and savanna ecosystems, identify and promote sustainable use of biodiversity in pilot demonstrations, strengthen stakeholder capacity at all levels, and more effectively integrate stakeholders into the management of each biosphere reserve. The project will make extensive use of the African Network of Biosphere Reserves, AfriMAB, and, in particular, the sub-regional AfriMAB network for West Africa for regional technical and scientific information exchange, capacity building, and sharing of lessons learned.

3. Costs and Financing (Million US $)

GEF:	Project	:	US$	2.400
	PDF - B	:	US$	0.350
	Subtotal GEF	**:**	**US$**	**2.750**
Co-financing:	PDF-B (all sources)	:	US$	0.131
	Governments : in cash	:	US$	0.064
	in kind	:	US$	1.200
	UNESCO (in cash & kind)	:	US$	0.431
	PNGT2 (in cash)	:	US$	0.557
	WWF (in cash)	:	US$	0.500
	ABE (in cash)	:	US$	0.286
	CERE (in kind)	:	US$	0.100
	FSP (in cash)	:	US$	0.274
	PACE (in cash)	:	US$	0.286
	Subtotal Co-financing	**:**	**US$**	**3.829**
Total Project Cost		**:**	**US$**	**6.579**

4. Associated Financing (Million US $)

CENAGREF (Bénin)	**:**	**US$**	**0.245**
GTZ/KFW (Bénin)	**:**	**US$**	**5.710**
FFEM/AFD(Bénin)	**:**	**US$**	**2.019**

5. Operational Focal Point Endorsement(s)

Bénin: M. Pascal Z. Yaha, Point focal opérationnel du FEM, Ministère de l'Environnement, de l'Habitat et de l'Urbanisme, 01 BP 3621, Cotonou. 22/04/2002

Burkina Faso : M. Jean Baptiste Kambou, Point focal Opérationnel du FEM, Ministère de l'Environnement et de l'Eau, Ouagadougou. 22/04/2002

Côte d'Ivoire : Mme Alimata KONE, Point Focal Opérationnel du FEM, Immeuble SCIAM 12ème étage, porte 27, Abidjan, Côte d'Ivoire. 21/06/2002.

Mali : M. Salif Kanoute, Secrétaire Technique Permanent, Point Focal FEM, Ministère de l'Equipement, de l'Aménagement du Territoire, de l'Environnement et de l'Urbanisme, Secrétariat technique Permanent du cadre Institutionnel de la Gestion des Questions Environnementales, Bamako. 10/04/2002.

Niger : M. Ali Badji Gamatie, Point focal FEM, Ministre des Finances et de l'Economie, Ministère des Finances et de l'Economie, Direction Générale des Programmes, Direction du Programme et du Plan, Niamey, Niger. 4/06/2002.

Sénégal : Mme. F. D. Toure, GEF Operational Focal Point, Ministère de l'Environnement et de la Protection de la Nature, Sénégal, Date : 03/28/2003

6. IA Contact: Mr Ahmed Djoghlaf, Executive Co-ordinator, UNEP/GEF Co-ordination Office, UNEP, Nairobi, Tel: 254-2-624166; Fax: 254-2-624041; Email: Ahmed.Djoghlaf@unep.org

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LIST OF ACRONYMS/ABBREVIATIONS

ABE	Agence Béninoise pour l'Environnement (Bénin)
AFD	Agence Française de Développement
AVIGREF	Association Villageoise de Gestion des Ressources de la Faune (Bénin)
CENAGREF	Centre National de Gestion des Réserves de Faune (Bénin)
CRE	Centre for Tropical Ecology Research (CRE) (Côte d'Ivoire)
CNRST	Centre National de la Recherche Scientifique et Technologique
CBD	Convention on Biological Diversity
CCD	Convention on Combating Desertification
ECOPAS	Ecosystème Protégé de l'Afrique Soudanienne et Sahélienne
FFEM	Fonds Français pour l'Environnement Mondial
GEF	Global Environmental Facility
GTZ	German Agency for Technical Cooperation
IUCN	World Conservation Union
MAB	Man and the Biosphere Programme
OPNBB	Opération Parc National Boucle du Baoulé (Mali)
PCGPN	Programme de Conservation et de Gestion des Parcs Nationaux (Burkina Faso)
PACE	Programme Panafricain de Contrôle des Epizooties (Bénin)
PAGEN	Projet de Partenariat pour l'Amélioration de la Gestion des Ecosystèmes Naturels (Burkina Faso)
PNGT2	Programme National de Gestion des Terroirs (Burkina Faso)
ROSELT	Réseau d'Observatoire et de Surveillance Ecologique à Long Terme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
WWF	World Wide Fund for Nature (Côte d'Ivoire)

PROJECT DESCRIPTION

BACKGROUND AND CONTEXT - BASELINE COURSE OF ACTION

IMPORTANCE OF SAVANNA ECOSYSTEMS IN AFRICA

1. Savannas are found in more than twenty countries on four continents. The savanna biome covers approximately 20% of the Earth's land surface, between 18 and 23 million square kilometres, and is home to 500 million people. In Africa, savannas cover 40% of the continent, approximately 560 million hectares.

2. The vast majority of the rural populations in Africa live in savanna areas, which provide the bulk of food production. Consequently, for the foreseeable future, the inhabitants of Africa's grass savannas and savanna woodlands are likely to remain agriculturists and pastoralists and will thus continue to depend on the savanna for the provision of essential food, medicines, energy, building materials, and other resources.

3. These ecosystems are notable for their within-species genetic diversity, but also with significant biodiversity at species level of plants, animals and microorganisms. Arid lands species exhibit notably restrictive geographical distribution of species (endemism) and a wide range of morphological, physical, and chemical adaptations to their harsh environment. Biodiversity at landscape level is also high, providing critical wildlife habitats, especially for migratory species.

4. The six countries participating in the project are located in the West Sudano-Sahelian savanna biome and North Sudano-Guinean biome[1], which occupies a band across West Africa inland from the Guinean Forest biome. Relatively high human population densities (50 to 100 persons/km2) and a long history of human occupation characterise this region. West African savannas contain woodland areas with an understory of tall grasses, as well as shrubs and herbs. West Africa savanna is not particularly renowned for endemic or local richness of its fauna, especially in comparison with savannas in East and Southern Africa. It is better known for its endemic plants. Since the climate is tropical, but strongly seasonal, a significant migration of large vertebrates and birds occurs. The Sudano-Guinean savanna biome comprises a total of 105 Important Bird Areas (IBA). In Burkina Faso, Benin, Côte d'Ivoire, Mali, Niger and Senegal, 199 species restricted to the Sudano-Guinean biome have been recorded at the national level. A number of mammal species are threatened with extinction, and most of the remaining populations and savanna habitats are found in protected areas and in the six biosphere reserves of the project. Table One provides a summary of major ecosystems and biodiversity in each biosphere reserve.

[1] Corresponding to Udvardy Western Sahel biogeographical province and West African woodland savanna province.

Table One. Summary of major ecosystems and biodiversity in each biosphere reserve

Biosphere Reserve	Pendjari BR, Benin	Mare aux Hippopotames Burkina Faso	Comoé Côte d'Ivoire	Boucle du Baoulé Mali	Niokolo Koba Sénégal	Parc du "W" Niger
Ecosystems and habitat	Herbaceous savanna; woody and shrubby savanna; woodland savanna; open grasslands.	Open and gallery forests	Savanna woodland; open and gallery forest.	Wooded and bush savanna; *Butyrospermum paradoxum* savanna, herbaceous steppes and grasslands.	Herbaceous savanna; seasonally flooded grassland; dry forest.	Gallery forests, woodlands; scrublands; grasslands.
Birds and other vertebrates	Avifauna: Notable for large, conspicuous species such as *Anastomus lamelligerus, Ephippiorhynchus senegalensis;* 20 of the 37 species of the Sudan-Guinean savanna biome have been recorded in Pendjari BR. Other Vert. Various antelopes species (including African roan antelope); savanna buffalo (*Sincerus cafer aequinoctialis*), forest buffalo (*Sincerus cafer nanus*), and hybrid buffalo; elephants Mammals of global conservation concern include *Panthera leo, Damaliscus lunatus* and *Cephalophus rufilatus.*	Avifauna: 243 species recorded, waterbirds species. *Microparra capensis, Treron australis and Apaloderma narina*. 8 of the 32 species of the Sudan-Guinean savanna biome that occur in Burkina Faso. Other Vert. *Hippopotamus amphibius, Loxodonta africana, Cephalophus rufilatus.*	Avifauna: 494 species, including five species of global conservation concern: *(Circus macrourus, Falco naumanni and Gallinago media; Ceratogymna elata and C. cylindricus*. At least 26 of the 39 species of this biome known from Côte d'Ivoire have been recorded in Comoé BR. Other Vert. Buffaloes, Hippotragues (*Hippotragus equinus*), Bubales (*Alcelaphus buselaphus*), Defassa waterbuck; Uganda kob. Of 54 species of larger mammals that occur, 21 are of conservation concern.	Avifauna: 2 species characteristic of Sahel biome. 19 of the 35 species of this biome that occur in Mali have been recorded at this site. Other Vert. Small herds of elephants, giant eland, hippopotamus, buffalo, Defassa waterbuck, Bubale major (*Alcelaphus uselaphus*), African warthog.	Avifauna: 330 species. 23 of the 33 species of this biome that occur in Senegal have been recorded at this site. Two species of global conservation concern: *Marmaronetta angustirostris* and *Falco naumanni*. Other Vert. Elephants, lions, antelopes, Uganda kob, Defassa waterbuck, crocodile, hippopotamus.	Avifauna: 355 species of which at least 48 are intra-African wet-season migrants, 63 intra-African dry season migrants and 63 dry season migrants from Eurasia. Various aquatic habitats important for water birds. Key species include *Circus macrourus*. 21 of the 26 species of Sudan-Guinea Savanna biome that occur in Niger have been recorded at this site. Other Vert. Elephants, lions, antelopes, Uganda kob, Defassa waterbuck, crocodile, hippopotamus.

BIOLOGICAL SIGNIFICANCE AND CONSERVATION STATUS OF THE BIOSPHERE RESERVES

5. Six biosphere reserves were nominated to be part of this project by the respective countries. These sites have been selected along a gradient of biophysical and human cultural conditions: increasing aridity; increasing human pressure on grass savannas and savanna woodlands; and continuous land cover change from South to North. The project will focus on the following biosphere reserves: Pendjari (Benin); Mare aux Hippopotames (Burkina Faso); Comoé (Côte d'Ivoire); Boucle du Baoulé (Mali); Park du "W" (Niger); and Niokolo Koba (Senegal). The six biosphere reserves have been chosen with a view to enhance savanna conservation in a gradient from arid climate conditions (e.g. the Boucle du Baoulé Biosphere Reserve in Mali) to humid conditions (e.g. Comoé in Côte d'Ivoire). This will provide an opportunity to better understand savanna conservation and management problems under varied climate regimes.

6. Inherent to their international designation and recognition by MAB, biosphere reserves are recognised as repositories of globally significant biodiversity. Biosphere reserves are designed to contain protected “core” areas of representative ecosystems that have been recognised for their intrinsic and regional and/or globally significant value. These core areas also provide scientists and managers with the opportunity to understand ecosystem structure, functioning and dynamics, and to study the possibilities of managing these ecosystems in ways to improve biological performance while providing useful products and services. The ecosystems that are found in the core areas are, in general, resilient systems in complex equilibrium with biophysical driving forces, including episodic events such as extreme drought and extensive fires. These legally protected core areas are devoted mainly to biodiversity conservation, ecosystem monitoring and research (see annex H for schematic structure of a biosphere reserve).

7. These six biosphere reserves share a common legacy in that they were first established solely as national parks. Buffer and transition zones were established in a second step. The establishment and management of the biosphere reserves have resulted in limited conservation successes as these sites are still mainly managed as national parks without effective collaboration with local communities. As such, the reserve managers are challenged to balance the resource demands of local communities with the conservation imperatives of the reserve management plans. Socio-economic conditions, lack of access and clearly defined use-rights to natural resources have contributed to local communities compromising long-term environmental sustainability for the satisfaction of immediate needs, sometimes resulting in illegal exploitation of natural resources in the core areas. This longer-term threat to biodiversity within the six sites is compounded by the depletion of resources outside of the core areas, resulting in ever more pressure being placed on core and buffer zones as people seek available resources for their livelihoods.

8. Table One summarises basic biodiversity data of each biosphere reserve. In the paragraphs that follow key threats and constraints and barriers to effective reserve management are identified.

Pendjari Biosphere Reserve

9. Pendjari Biosphere Reserve (Benin) is located in Atakora province, Northwest Benin, on the international border with Burkina Faso and within the loop formed by the River Pendjari, 45 km north of Natitingou. It is composed of Pendjari National Park, Pendjari hunting zone, and Konkombri hunting zone and the total surface are is 623,000 ha.

10. Pendjari Biosphere Reserve lies within the Volta depression and contains a wide variety of herbaceous and woodland savanna habitats. It is characterised, in particular, by the diversity and richness of its fauna. Large mammals are present and easily visible, such as Uganda kob (Buffon), *Bubala major*, lion, elephant as well as forest and hybrid buffalo. The density of large mammals is relatively high compared to other areas of West Africa.

11. Predominant land uses in the biosphere reserve transition area are agriculture, trading of plant species, and pastoralism. The main conservation threats are transborder poaching, drought and lack of watering points, and bush fires. Conflicts with local communities are linked to the zonation of the biosphere reserve and access to natural resources within the biosphere reserve.

Mare aux Hippopotames Biosphere Reserve

12. Mare aux Hippopotames Biosphere Reserve (Burkina Faso) covers an area of 186,000 hectares and is located in Bobo-Dioulasso District in the west of the country, 80 km north of the town of Bobo-Dioulasso. The reserve is roughly oblong around a north-south axis, and lies between the Black Volta River and the Bossora/Bala highway. The Wolo River forms the southwest limit.

13. The biosphere reserve is composed of open forests rich in species with Guinean affinities and gallery forests along the watercourses. Migratory birds and hippopotamus are the main wildlife species. Avifauna is rich with more than a hundred bird species recorded with a similar number of fish species in aquatic ecosystems.

14. Predominant land uses are agriculture, livestock husbandry, fishing, hunting and plant collecting. Tourism is not well developed. The main threats to biodiversity and constraints to effective management are: a) lack of alternative incomes for local communities living in the vicinity of the reserve; b) poaching inside the core area; c) illegal fishing and wood cutting; d) lack of trained staff in the biosphere reserve for monitoring; e) abandonment of sound community practices such as protection of fruit trees; f) reduction of soil fertility; and g) the lack of a co-ordination structure in the biosphere reserve.

Comoé Biosphere Reserve

15. Comoé Biosphere Reserve (Côte d'Ivoire) extends from 35-km southwest of Bouna, in the northeast prefectures of Bouna and Ferkessedougou, westwards across the Comoé River to the vicinity of Kong. The Biosphere Reserve covers an area of 1,150,000 hectares.

16. The biosphere reserve contains a remarkable variety of habitats and plant associations found typically further south, including woodlands savannas, forests, and riparian grasslands. Large mammals include Buffaloes, roan antelope (*Hippotragus equinus*), hantebeeste (*Alcelaphus buselaphus*), common waterbuck, Uganda kob.

17. Major land uses are hunting, agriculture (cotton) and pastoralism. The main threats to biodiversity and constraints to effective management are poaching, the lack of infrastructure and adequate co-ordination to support integrated management of the biosphere reserve, and the lack of alternative economic activities and income sources for the local communities.

Boucle du Baoulé Biosphere Reserve

18. The Boucle du Baoulé Biosphere Reserve (Mali) lies mostly on the left bank of the Baoulé River and covers an area of 2,500,000 ha. It is located in the West part of Mali and crosses the region of Koulikoro and Kayes. Boucle du Baoulé Biosphere Reserve is part of the ROSELT network.

19. This protected area complex crosses two biogeographical zones: the Sudano-Guinean zone to the south and the Sahelian zone to the north, which are often considered as the most important faunal assemblages within the country. Major habitats and savanna types are wooded and bush savanna, *Butyrospermum paradoxum* savannah herbaceous steppes and grasslands. Large fauna such as elephants are present.

20. Major land uses are agriculture and livestock husbandry, forestry, and crafts. Pressures on the core area of the biosphere reserve are increasing as local communities exploit resources therein given that they have few other viable livelihood options and fertile lands are scarce in areas surrounding the biosphere reserve. Scarcity of water points creates competition between fauna and cattle (for example, competition may be acute between Bubales, Kobs and the bovines (Peuls and Moorish zebus) while also leading to increased poaching in the environs of the water points. Large fauna is under heavy pressure from hunting as well.

“W” Biosphere Reserve

21. The “W” Biosphere Reserve (Niger) is situated in the southwestern region of Niger, the "W" region, and lies in an ancient peneplain with little altitudinal variation. Its diversity is primarily a result of the hydrographic regime in three different watershed basins. The total area of the “W” Biosphere Reserve is 728,000 hectares.

22. It is estimated that some 80% of the country's biological diversity occurs in this region. Main types of habitat are gallery forests, woodlands, scrublands and grasslands. The core area is mainly composed of savannas and gallery forest and it remains a sanctuary where the last giraffes of West Africa are found. Other wildlife species include elephant, lion, antelope, Uganda kob, common waterbuck, crocodile, hippopotamus, and giraffe.

23. In the transition area the main activities are agriculture, grazing and goat raising. Threats to biodiversity and constraints to effective management are the lack of adequate infrastructure

and staff personnel for monitoring purposes, lack of water points (which encourages the concentration of wildlife around the Mékrou and Niger rivers), increased grazing in forest lands, bush fires and poaching (particularly in the Anana area).

Niokolo Koba Biosphere Reserve

24. The Niokolo-Koba Biosphere Reserve (Senegal) straddles the border between the administrative regions of Senegal-Oriental and La Casamance, on the River Gambia, close to the Guinean border in southeastern Senegal and covers an area of 913,000 hectares.

25. Habitats include herbaceous savanna dominated by *Andropogon gayanus*, seasonally flooded grassland and dry forest, areas with bamboo, freshwater wetlands, and gallery forests. Niokolo Koba Biosphere Reserve provides a habitat for the Derby eland (largest of the antelopes), elephant, chimpanzee, lion, elephant as well as many bird, reptile and amphibian species.

26. Major land uses in the transition areas are agriculture, pastoralism, honey gathering and craft activities. Rural communities surround the Niokolo Koba Park and form the transition area of the biosphere reserve. The communities make claims on access to resources located within the buffer zone and the core area of Niokolo Koba Park resulting in conflicts between local communities and biosphere reserve management staff. Large mammals are threatened by poaching and the reduction of natural habitat threatens some migratory species. The lack of an institutional and co-ordination structure for integrated management of Niokolo Koba Biosphere Reserve remains a major constraint to effective management.

COMMON CHALLENGES AND BARRIERS TO EFFECTIVE BIOSPHERE RESERVE MANAGEMENT

27. During the course of the PDF B phase of the project[2], biosphere reserve managers concluded that although the biodiversity resources that they are managing are under different kinds and degrees of threats, that they faced similar constraints that prevented them from effectively managing the biosphere reserves. These common management problems are not adequately addressed by existing investments. The primary barriers or constraints that limit and in some cases prevent effective management are identified in Table Two below.

[2] During the PDF B, a participatory project design process that lasted 2 years, consultations were held within the biosphere reserves and at the national level. These stakeholder consultations had, as their primary objective, the design of this targeted intervention. A key to achieving this objective was to ensure that the proposed project would avoid duplication and be complementary with on-going or planned projects in the same sites such that the combined suite of interventions would contribute to sustainable management of the biosphere reserves. National scientific reports were developed, compiling the information/knowledge needs and capacity building in all six biosphere reserves. These proposals were synthesised at the regional level in Dakar, in February 2002. Each country was represented by the national scientific consultant, the MAB National Committee focal point, a representative of local communities and the biosphere reserve managers. All management information and training needs were therefore those needs identified by the participating countries, through consultations at the biosphere reserve level (local), national level, and regional level. The national reports and the regional reports are available in French (see list of reference materials in annex M). Annex L provides a schematic presentation of the consultation process at regional, national and local levels.

Table Two. Common Barriers and Constraints Limiting Effective Management

Knowledge/Information Gap

- Local populations have been identified as essential in the management of the biosphere reserves but at the same time, they are perceived by many as being a "management problem". The impact on the ecosystem by local resource users is difficult to measure in the absence of baseline date and appropriate indicators on biodiversity. Thus, the lack of knowledge on the impact of human activities on the savanna ecosystems and on how to measure, compare, monitor and minimize any negative impacts is a limiting factor to effective management.
- Information and data available in the sites are not adapted to address management needs, to the objectives assigned to a biosphere reserve, the pressures on biosphere reserves, or the livelihoods needs of local communities.
- A major imbalance exists in available data and survey information in that much more information is available in natural sciences compared to social sciences and social science information is essential in biosphere reserve management.
- Lack of standard or inter-calibrated methods and research protocols to identify, measure and monitor biodiversity and the goods and services provided by the biosphere reserve.

Weak institutional co-ordination, co-operation, and communication

- Inadequate co-operation and co-ordination amongst agencies and institutions responsible for research, conservation and natural resources management.
- Absence of a co-ordination structure within each biosphere reserve limits opportunities for permanent dialogue between the various stakeholders to resolve conflicts between resource-user groups and national and local authorities, all of which undermines conservation efforts and sustainable and integrated management of the biosphere reserve.
- The importance of local knowledge was also mentioned as a tool to reduce conflicts between local communities and managers of the sites. Often traditional knowledge is neglected and considered pejoratively as "folklore". Thus, in all the six sites, these perceptions and the lack of communication and consultation between the various stakeholders living and working in the biosphere reserve make it difficult to establish management plans that are supported by local communities.

Limited capacity of all stakeholders

- Limited expertise and capacity at the individual and institutional level to manage the biosphere reserve *in collaboration* with local communities.
- Shortage of expertise in natural resources management.
- Absence of a systematic approach to building knowledge, expertise and institutional and managerial skills and capacities.
- Lack of knowledge and awareness amongst the local communities about the conservation and sustainable development objectives inherent to a biosphere reserve and how they can benefit from its successful management.

RATIONALE AND OBJECTIVES (GEF ALTERNATIVE STRATEGY)

28. The development goal of the project is to conserve and sustainably use biodiversity in six biosphere reserves in West Africa that are predominantly composed of savanna ecosystems. The project purpose is to systematically strengthen scientific and technical capacity for effective management of the biosphere reserves.

29. In order to achieve this purpose, project implementation will emphasise improving the understanding of interactions between local communities and savanna ecosystems, identifying and promoting sustainable use of biodiversity in pilot demonstrations,

strengthening stakeholder capacity, and integrating all stakeholders into the management of each biosphere reserve. The project will make extensive use of the AfriMAB network and, in particular, the sub-regional AfriMAB network for West Africa for technical and scientific information exchange and capacity building. The principles of the Ecosystem Approach as adopted by the Parties to the CBD in May 2000, the recommendations of the Seville Strategy for biosphere reserves, and the results of AfriMAB's thematic working groups will guide project implementation. In particular, goals II, III and IV of the Seville Strategy will inform project implementation[3].

30. All of the participating biosphere reserves are active in the AfriMAB, a continent-wide network that was formally created in 1996 in Dakar (Sénégal). The staff of the biosphere reserves already participate in thematic working groups on the following issues: 1) regulatory, legislative and institutional frameworks of biosphere reserves; 2) stakeholder/social-actor participation, and income sharing; 3) scientific research and capacity building; 4) management of transboundary biosphere reserves. The shared workplan of AfriMAB provides a framework for the harmonisation of data within and across sites and provides an institutional and structural consistency throughout the network.

31. Central to the project implementation strategy is to use the AfriMAB network to facilitate the exchange of experience and practices among sites. This institutional infrastructure will be central to systematically removing barriers to building knowledge, expertise, and institutional and managerial skills and capacities required for implementing integrated conservation and development approaches. The AfriMAB network provides the institutional framework whereby successful programmes and policies in one country can help set examples and precedents for other countries to emulate. The proposed project will help catalyse this process. The project pilot sites and the responses designed to mitigate the threats to biodiversity will reflect both the commonality and diversity of threats that the biosphere reserves face. The lessons learned from this experience will be shared amongst resource managers and communities throughout the region via the AfriMAB network and the MAB Secretariat.

32. The regional dimension of the project will add value to achieving the project purpose in the area of scientific and technical capacity and institutional strengthening as detailed below:

<u>Scientific and Technical Capacity</u>

- An increased understanding of ecological processes across a gradient of biophysical and human cultural conditions that are representative of West African savannas will support more informed management decisions within each reserve and, over time, in other protected areas outside the scope of this project. In addition, application of common impact indicators of human activity for comparison of the sites and tested at the regional level will enhance understanding of human impacts at the reserves and provide needed scientific input to management decisions.

[3]Utilise biosphere reserves as models of land management and approaches to sustainable development (Goal II). Secure the support and involvement of local people (Objective II.1). Use biosphere reserves for research, monitoring, education and training (Goal III). Improve knowledge on the interactions between humans and the biosphere (Objective III.1) Improve monitoring activities (Objective III.2). Improve education, public awareness and involvement (Objective III.3). Improve training for specialists and managers (Objective III.4). Implement the biosphere reserve concept (Goal IV). Integrate the functions of biosphere reserves (Objective IV.1).

- A functioning regional biodiversity information system supporting the exchange of data and information (including best practices in sustainable use) and a biodiversity expertise network will contribute to improved management throughout the reserves and the region. Expected contributions of case studies on biodiversity and on conflicts related to access and use of resources; and analysis of local and national institutions responsible for managing resources will permit comparative analyses of lessons learned and best practices.

Institutional Strengthening

- The reinforcement of the AfriMAB network will facilitate exchange of learning, skills and experience in similar ecosystems being managed under similar structures, i.e., biosphere reserves.
- A strengthened and more effective AfriMAB network will improve cooperation in the management of West African savanna ecosystems and will raise awareness of the importance of savanna ecosystems in the region.
- Improved communication and information-sharing among the six sites and the six MAB national committees will result in strengthening the management systems/institutions of the individual biosphere reserves.

33. The targeted intervention strategy has been designed to complement existing investments and projects within the biosphere reserves as is fully described in Annex J. As part of the project planning and design process, the focal point of each MAB National Committee established contacts with the leaders of other projects within each biosphere reserve. During the national stakeholder workshops that were held in all six countries at the start of the PDF B, a dialogue was initiated as part of a concerted effort to avoid duplication and to facilitate communication and exchange with ongoing projects. The concerns and priorities of the project leaders involved in the ongoing projects were taken into account along with the priorities expressed by the regional project's national-level executing agencies to ensure complementarity of the proposed regional intervention with national level projects. Most importantly, the targeted nature of the regional intervention was designed to add value to national level efforts and to contribute to the long-term sustainable management of the biosphere reserves. Hence, all key stakeholders validated the added value of the activities proposed within the regional project. During the implementation of the project, the same process will be implemented in each country. National seminars will be organized on thematic components of the Regional Project and all other project officers from existing projects will be invited to participate to ensure that complementarity is maintained during project execution and value is added to ongoing initiatives. Project coordination at the biosphere reserve level and at the national level will be the responsibility of the MAB National Committee. The Committee will be charged with convening national consultations and information seminars with the resource persons and national institutions in charge of the ongoing GEF and non-GEF national projects to facilitate continued cooperation.

34. The project meets the criteria of the GEF Operational Programme #1 on Arid and Semi-Arid Zone Ecosystems in that it aims to integrate biodiversity conservation and sustainable use objectives in land use planning and biosphere reserve management. It intends to set up pilot demonstrations that will validate alternative economic activities for local and indigenous communities residing in buffer and transition zones of globally important biological areas. It responds to country-driven national priorities by identifying components of biological diversity important for sustainable use, as well as understanding and analysing the processes and categories of activities that have or are likely to have significant adverse impacts on the sustainable use of biodiversity.

35. The project is supportive of two of the Strategic Objectives of the UNEP GEF Action Plan on complementarity agreed to by the 20th Session of the UNEP Governing Council of UNEP and the 13th session of the GEF Council. First, through a targeted capacity building intervention, the project will assist countries to make informed strategic and operational decisions on scientific and technical issues related to biosphere reserve management and, in so doing eliminate a fundamental barrier to effective biosphere reserve management identified by the countries during the project design process. Second, global environmental benefits will be achieved in six globally significant sites through regional and multi-country implementation and cooperation and the added value this brings to the work of each participating biosphere reserve.

36. The project is consistent with the findings and recommendations of the Second Overall Performance Study of the GEF for the biodiversity focal area. In particular, extensive stakeholder consultations were held at national level and within each biosphere reserve, the funding patterns of the project are compatible with absorptive capacity, targeted objectives are established that are achievable within the project time frame, and allowances are made for establishing baselines in the first year of the project to measure project impact.

37. The project design reflects ongoing discussions related to the biodiversity focal area of the GEF and observations made during the GEF Biodiversity Program Study. The project will support sustainability of protected area management through a targeted intervention to increase scientific and technical capacity at the individual and institutional levels to improve management of biosphere reserves. Strengthening existing institutions and biosphere reserve management structures will enhance sustainability of protected area management within these reserves particularly when seen in complement to existing investments. Building on the broad stakeholder consultation initiated during the PDF B, the project will improve opportunities among local communities to sustainably use biodiversity. A key aspect of the project is to enhance collaboration and coordination between government agencies at the national level responsible for research, conservation and natural resources management and other stakeholders within each biosphere reserve. Establishment of a permanent dialogue between the various stakeholders to resolve conflicts between resource-user groups and national and local authorities will support conservation efforts and sustainable and integrated management of the biosphere reserves.

38. Through executing the project at the regional level in combination with strengthening AfriMAB, an indigenous and existing knowledge network for improving protected area

management in West Africa, a synthesis and dissemination of best practices and lessons learned at the regional level will be achieved.

PROJECT ACTIVITIES/COMPONENTS AND EXPECTED RESULTS

Component One: Generation of Management Information to Improve Conservation and Sustainable Use of Biodiversity

39. The primary objective of Component One is *to improve the understanding of the impact of human activities on savanna ecosystems.*

40. The six countries have agreed to collaborate in a common programme to generate management information to improve conservation and sustainable use of biodiversity. Each biosphere reserve will conduct the following activities:
    a) Analysis of the dynamics of human settlements and their impact on ecosystems through:
        i) study of the evolution of demographic pressures in the biosphere reserve;
        ii) analysis of impacts of agriculture and human settlements on biodiversity;
        iii) analysis of the impact of fishing, hunting, plant collecting, pastoralism and firewood collecting on the ecosystems. Each site will conduct these studies and common indicators will be developed which will allow for comparisons of impacts of these activities across sites and biosphere reserves;
    b) Local economies will be analysed and studied;
    c) Perceptions of local communities on nature, and local knowledge about biodiversity will be examined.

41. The MAB National Committee, the scientific community that will participate in the Project implementation phase, the manager of the biosphere reserve, and the representatives of local communities all validated these priority activities identified at the national level during the PDF B phase.

42. Activities within this component will acknowledge and make use of existing know-how and local and national capacity, including local community practices and perceptions of their environment and the biosphere reserve. The outputs of this component will provide information to address the management needs identified by the managers of the biosphere reserves and livelihood needs of local communities expressed during the PDF B phase. These results will be applied in Component Two at the demonstration sites as the sustainable practices of local communities identified in Component One will be promoted in Component Two. Accordingly, this may lead to modifying the management plan of the biosphere reserve.

43. National and local universities and research institutions will assist in the execution of the proposed activities within this component. National PhD and Masters students will

undertake their field studies in the biosphere reserve in collaboration with the MAB National Committee and the management staff of the biosphere reserve. Publications such as scientific and popular articles, biodiversity guidelines for biosphere reserves, etc. will be produced during the Project and disseminated through the internet and the AfriMAB network.

44. The purpose of this component, which will be the first step of a long-term effort, is to provide information to managers of the biosphere reserves on the impact of identified land-use practices on biodiversity and on the sustainability of specific plant harvesting strategies. Biosphere reserve managers, in collaboration with local communities and other stakeholders, can then promote and implement those practices that provide the greatest biodiversity and human development benefits. Results/outputs will be collated and synthesised in a database that then can be used for scientific and management purposes.

45. Biological indicators will be designed to allow for comparison among the six sites and for monitoring purposes. Such indicators will also relate to other global efforts including, *inter alia*, GTOS (Global Terrestrial Observing System), ROSELT and BRIM (Biosphere Reserve Integrated Monitoring). In addition, appropriate indicators for studying socio-economic impacts on the ecosystem will be identified. These indicators will be used and tested in Component Two at the demonstration sites for alternative economic activities and resource uses in the buffer and transition zones.

Component Two: Conservation and Sustainable Use of Biodiversity

46. The primary objective of Component Two is to *identify and promote viable activities that conserve and sustainably use biodiversity.* The identification and piloting of alternative economic activities and sustainable resource uses in biosphere reserves will build on the existing management and conservation plans of the six biosphere reserves and the information outputs generated in Component One. During the PDF B, the six countries identified the demonstration sites where alternative economic activities and sustainable resource uses would be tested in the buffer zones and transition areas. These activities are identified in the project logframe for each biosphere reserve.

47. This component will test and use the information generated and the impact indicators developed in each country in Component One. Local communities will work with the scientists on designing sustainable land use practices and alternative activities and will test them in demonstration sites with the biosphere reserve staff and the scientific team. The testing of indicators will help the biosphere reserve managers to monitor changes, impacts and best land use options in the biosphere reserve. These results will be discussed with all the stakeholders and could be integrated into a revised management plan of the biosphere reserve.

48. The establishment of monitoring plots in the core area of each biosphere reserve will allow comparison within the biosphere reserve of impacts of some human activities on the ecosystem. The impact of human activities taking place in the transition zone will be monitored through the use of impact indicators as developed in Component One. These indicators will be tested in the core areas, where the monitoring plots will be established. The

work of ROSELT will be used and complemented in Boucle du Baoulé Biosphere Reserve, Comoé Biosphere Reserve and Parc du "W".

Component Three: Strengthening Capacity and Institutional Co-ordination to Effectively Manage Biosphere Reserves

49. The primary objective of Component Three is to s*trengthen the managerial skills and technical capacities of stakeholders* (biosphere reserve managers and their staff, local communities, NGOs, government agencies, universities, etc.) involved in the management of the six biosphere reserves through the establishment of appropriate learning and training mechanisms. The capacity building strategy and training plan for the project can be found in Annex K.

50. This objective will be achieved by:

a) Implementing training identified in the PDFB phase that is targeted specifically to local communities and biosphere reserve managers and their staff. Sites in each biosphere reserve will also provide field study opportunities for national university students. Identified training needs per target group are as follows:

i. Local communities: Enhancing capacity to access existing microcredit programs to create microenterprises and training in microenterprise development as appropriate for each BR (e.g., ecotourism including the training of guides and the development of ecovillages such as in Côte d'Ivoire[4]; etc.)
ii. Reserve managers: Application of GIS and database management in resource use planning;
iii. University personnel: National PhD students will be members of the scientific team responsible for the implementation of Component One and will conduct their field surveys and research in the biosphere reserve.

b) Providing basic equipment (laboratories, access to internet and email) to facilitate training and research, exchange of information, and improved communication among the six biosphere reserves and the AfriMAB network.

c) Implementing education and awareness-raising programmes in each biosphere reserve in collaboration with ministries concerned using a variety of media appropriate for each stakeholder group.

d) Establishing a co-ordination mechanism for the integration of community participation in project decision-making at each biosphere reserve (based on results from Components One and Two). This mechanism will include integration of indigenous technical knowledge into the management plan.

e) Disseminating information generated, best practices and lessons learnt in Components One and Two through the AfriMAB network.

[4] Local communities are hosting tourists in their villages, following the Bed and Breakfast concept.

51. In addition to the specific training listed above, training will be provided at the regional level on common themes that were identified by the six countries during the project planning phase: a) conflict management and mediation; b) environmental education and awareness raising; c) multidisciplinary research and diagnosis; d) informatics. The AfriMAB network will facilitate the regional training, organise cross-site visits between the six sites for managers, local populations and scientists in order to exchange experience and information, and will disseminate the knowledge generated in Component One, best practice and success stories through the region via the network. Agreed procedures and protocols for information exchange will be agreed by the six reserves.

52. Based on extensive studies of local institutions and coordination structures within each biosphere reserve initiated in the PDF B phase, conflict mediation mechanisms will be established in all six biosphere reserves for conflict-management and resolution amongst biosphere reserve managers, local communities, scientists, and national and local government agencies. The expected outcome from this activity will be a reduction of conflicts for access to and use of natural resources in the six sites. The organisation of training for conflict resolution in each site and at the regional level will also facilitate the identification of local and national mediators. In each biosphere reserve, individuals are called upon for solving conflicts between groups of villagers or between the villagers and the staff of the biosphere reserve. The projects intend to identify these local mediators and provide them with further training. In addition, those with the right aptitude and capacity will be trained to train others in mediation and conflict resolution. This process will help legitimise local mediators in each biosphere reserve at the end of the project. A roster of recognized mediators for each biosphere reserve will be developed and they can then also be called upon as experts for conflict resolution at the regional level.

53. In sum, the project aims to build long-term conservation and sustainable use of biodiversity on the foundation of sound scientific information and will emphasise both strengthening stakeholder capacity and the integration of stakeholders into biosphere reserve management. Activities carried out in Component One will provide inputs for conservation of the core area and sustainable use of biodiversity in buffer zones and transition areas, as targeted in Component Two. The training and exchange activities planned in Component Three will help to build capacity of a wide array of stakeholders and establish better communication and understanding between the various stakeholders on the objectives assigned to a biosphere reserve and the role it can play in conservation, sustainable land management and development of a region. The regional nature of the project will allow exchange of information and experience on a regional scale and will ensure the wide dissemination of the results and lessons learned from the conservation management information generated, sustainable use, and biodiversity monitoring activities.

54. Table Three demonstrates the linkages between the three components and Annex J outlines the added value the regional project provides to ongoing initiatives in the biosphere reserves.

Table Three. Linkages Between Generating and Applying Conservation Management Information, Capacity Building and Dissemination of Results

All biosphere reserves	Conservation Management Themes (Component One)	Activities to Generate Conservation Management Information	Expected application (Component Two and Three)	Dissemination strategy for results for the six biosphere reserves (Component Three)
Pendjari (Bénin) **Mare aux Hippopotames (Burkina Faso)** **Comoé (Côte d'Ivoire)** **Boucle du Baoulé (Mali)** **W (Niger)** **Niokolo Koba (Sénégal)**	1) Analysing dynamics of land occupation and their impact on ecosystems; 2) Analysing the impact of fishing, hunting, collecting, pastoralism and wood collecting on ecosystems; 3) Analysing interactions between local communities and ecosystems.	1.1) Evolution of demographic pressure in each biosphere reserve. 1.2) Agriculture and biodiversity: study spatial dynamics of agriculture and impacts on biodiversity. 2.1) Fishing and biodiversity (organisation, fish activities and commercialisation) 2.2) Impacts of pastoralism, collecting of plants, firewood gathering, hunting, tourism and biodiversity 3.1) Study of local economies (standard of living, incomes, social rules and institutions); 3.2) Perceptions of local communities on ecosystems and the biosphere reserve; 3.3) Local knowledge on biodiversity	1.1.1) Recommendations on access to lands and resources in the site. 1.1.2) Proposals of new techniques for soil fertility maintenance. 2.1.1 and 2.1.2) • Indicators will be tested and a hierarchy of most threatening impacts will be designed. Modelling of the dynamic of ecosystems will be done to test the long-term effects of these studied uses on the ecosystems. • Alternative economic activities and sustainable resource uses will be identified and tested in the six sites. 3.1.1 and 3.2.1) Testing of indicators and design of modalities for conflict management adapted to local rules and practices and testing of alternative activities for local communities which will provide incomes. 3.3.1) Substantiation of technical know-how and participation of local communities in the management of the biosphere reserve	Local communities will convene local workshops and/or national day; use local communication means (radio programmes, Tam Tam music instrument, such as in Comoé Biosphere Reserve, the Speakers Tree in Niger, etc). Publications will be produced by the MAB National Committee in co-operation with the scientific team and materials for the wider public will be produced and translated into main local languages (scientific articles, local and national newspapers, national TV programmes). Major results will be put on the Biosphere Reserve website and in the MAB National Committee web site. MAB National Committees will conduct national seminars in each country and invite relevant key actors in the field of environment and scientific research. MAB National Committees focal points and selected scientists will participate in scientific workshops related to biodiversity issues.

RISKS AND SUSTAINABILITY

55. Participation and long-term support of local communities is essential for the effective and sustainable management of a biosphere reserve and this will be achieved through building co-ordination mechanisms and institutional platforms of credible and legitimate institutions for permanent dialogue and management of resources in each of the biosphere reserves. In addition, reserve managers must demonstrate that effective management of a biosphere reserve can provide tangible benefits to local people. To decrease the dependency of the six sites on external funding, financial instruments to cover the costs of reserve management will be investigated starting with the current study being conducted by the Pendjari Biosphere Reserve on the creation of a trust fund for the reserve. Results of this analysis will be shared with the five other reserves and options evaluated.

56. The planned activities are designed to ensure long-term sustainability of biodiversity conservation management through the following actions: (a) reinforcing the MAB National Committees, and establishment of working arrangements for the co-ordinating structures of biosphere reserves that involve communities. This institutional structure will conform to existing governance structures (co-ordination with local governments; recognition of traditional leaders) and serve as a forum for conflict resolution, negotiation and for establishing a permanent dialogue between the different stakeholders involved in biosphere reserve management; (b) linking the project initiatives with national government programmes to ensure consistency as well as continuity of operations beyond the project's life (e.g., ensuring that counterpart government contributions are set up to support the activities of local communities; development of Memoranda of Understanding between local and national universities and the biosphere reserves in order to ensure the continuity of priority research as identified by the managers of the biosphere reserves); (c) designing and implementing local resource mobilisation strategies, including livelihood initiatives such as ecotourism, and securing financial support from other funding sources including the establishment of trust funds; and d) training in sustainable natural resources management. The main resource uses that will be addressed in the project, i.e., eco-tourism, hunting, collecting, pastoralism, etc., are crucial socio-economic activities that the countries consider an essential element of the sustainability of each site. Local and national stakeholders have identified these issues as being at the heart of the sustainability of the sites.

57. Sustainability of the project's outcomes will mainly rely on individual and institutional capacity building to secure the long term support of local stakeholders for the conservation and sustainable development of the biosphere reserve, and to guarantee the support of national authorities for the use of biosphere reserves as demonstration sites for sustainable development activities and conservation of savanna ecosystems. Socio-economic sustainability will rely on a comprehensive understanding of the interests of all actors involved in the management of the site. Benefits and socio-economic alternatives which will be examined and demonstrated in the project in Components One and Two.

58. The regional dimension of the Project aims to reinforce the national capacities of the stakeholders at the six sites to communicate and exchange results and experience amongst themselves. The strengthening of the West Africa Sub-regional AfriMAB network will help ensure that the project will continue the activities initiated during the four-year project.

59. The Project will also initiate a regional approach that will allow each site to develop the required technical and institutional tools to work together (access to e-mail and internet for each biosphere reserve, establishment of a network connection between the six sites) and to install a permanent platform for exchange of information and experience after project termination.

60. The Logframe matrix presented in Annex B details the project-related risks and assumptions.

61. Risk reduction in conservation and sustainable use activities has been a key consideration in the design of the project. Lessons learned from other projects have been brought to bear on the design of the project. Main project risks include failure of countries to stay in line with the regional aspects of the project, i.e. some countries become more advanced in one component, and co-ordination efforts will be made to ensure smooth harmonisation between the six countries to respect the common schedule and workplan. Another risk is political and institutional stability, which can vary from one country to another. Changes in the designation of biosphere reserve managers and MAB focal points could result in creating some delays in the implementation of the work plan as well as in creating some changes in the working relations between the various stakeholders inside a country. However, the project relies on existing and respected established institutions such as MAB National Committee and Park management bodies and this risk is therefore minimised. Another risk is the inadequate representativeness of the stakeholders who will be trained in Component Three. Careful consultations were held during the project planning process, which helped to identify the main needs in training and the main target groups. Local communities have been informed about the objectives of the project through national workshops. Representatives of local communities participated in the Dakar regional meeting and were able to express their needs for training and alternative economic activities. Participation of local community representatives during the regional meeting was seen as a very positive output of the project planning phase and the representatives of local communities received support to inform the villages in their biosphere reserve about the main results of the Dakar regional meeting. The implementation of the project will be based on a participatory process involving local community councils and structures.

STAKEHOLDER PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS

62. The UNESCO/MAB Secretariat works in close collaboration with MAB National Committee and biosphere reserve managers in each country. MAB National Committees are responsible for the activities that comprise the national contribution of a country to the international Man and the Biosphere Programme (MAB) in the field of biodiversity

conservation, sustainable development, capacity building and information sharing, and in particular in promoting the biosphere reserve concept, the World Network of Biosphere Reserves and the AfriMAB regional network. They have direct links to the appropriate ministries responsible for protected area management, other line ministries, environment agencies, and scientific and technical institutions.

63. The government-designated MAB National Committees will act as focal points at the national level for the implementation of project activities in close co-operation with the management institution responsible for the biosphere reserve. At the cross-site level the UNESCO-MAB Secretariat will provide the necessary human and logistical infrastructure for planning and co-ordination. The MAB National Committees will be charged with co-ordinating the scientific and institutional activities in close collaboration with the biosphere reserve institutions and national universities. An international steering committee will be established to oversee the execution of the project. This international steering committee will meet three times, at the beginning of the project, in the middle of the project and once before the end of the project.

64. A project manager will be appointed and will work under the supervision of the Secretary of the MAB Programme. They will be in regular contact with MAB National Committees, biosphere reserves manager, and other UN and non-UN project co-ordinators (using electronic means, fax and meetings).

65. The UNESCO/MAB Secretariat and the project manager will ensure that all relevant stakeholders are informed about the outputs of the project. With the collaboration of MAB National Committee, the project manager will ensure that main results will be translated into local languages, through local media (radio), television and newspapers to inform the wider public of main outputs of the Project.

66. Annex E provides a full description of the implementation arrangements for the project at the regional and national levels and within each biosphere reserve.

INCREMENTAL COSTS AND PROJECT FINANCING

67. GEF resources will be used to strengthen biosphere reserve management through technical training, generation of conservation management information, biodiversity monitoring, and the development of regional co-operation mechanisms for technical information exchange. Design and extension of alternative economic activities and sustainable resource uses within each biosphere reserve and investigations designed to support the evaluation of the sustainable use of biodiversity will generate some domestic benefits and co-financing has been secured to support these project activities.

68. Under the GEF alternative, an expanded programme will be implemented, focusing on those activities that generate global benefits. These include initiatives for biodiversity resource assessments and on-the-ground inventories in demonstration sites in the six biosphere reserves of high global significance; promotion of alternative livelihood options in globally important and threatened savanna areas as models that may be

replicable in other biosphere reserves in the continent and world wide; development of conservation management information relying on community-based management approaches to supplement government park enforcement by engaging local communities, private sector bodies and NGO in sustainable management of biosphere reserves; and strengthening capacity of local and national stakeholders to manage the biosphere reserves in a co-ordinated way and with reduced conflicts. This alternative scenario aims to avert continued biodiversity degradation by strengthening the management of each biosphere reserve.

69. Table Four provides a summary of baseline and incremental costs by output/component and Table Five provides information on Component Financing and Cofunding. The three components complement the existing baseline within each country and at the regional level for the regional level activities. Details of incremental costs, an incremental cost analysis, and global and domestic benefits are presented in Annex A.

70. Adopting a regional approach to concerted action incurs minor transaction costs since the six countries are already linked through the AfriMAB network. The countries of the region are clearly committed to a regional approach as made evident through their active participation to the PDF-B process and their adoption of a regional workplan. The costs of actions that result in direct national benefit are those associated with the demonstration activities where the countries concerned will undoubtedly derive national benefits.

71. Table Five presents the project budget and component financing. The total cost of the project is US$6,098,000 million dollars of which US$1,264,000 are the anticipated costs to the government in cash and in kind. Co-financing is assured from a number of sources for a total amount of US$3,698,000. The remaining amount, US$ 2,400,000, is being requested from the GEF.

Table Four. Baseline and Incremental Costs in US$

Component	Partner	Baseline	Alternative	Increment
Output 1	Bénin	165,000	450,000	285,000
	Burkina Faso	370,000	620,000	250,000
	Côte d'Ivoire	245,000	375,000	130,000
	Mali	130,000	260,000	130,000
	Niger	310,000	450,000	140,000
	Senegal	150,000	280,000	130,000
	UNESCO	40,000	130,000	90,000
Total		**1,410,000**	**2,565,000**	**1,155,000**
Output 2	Bénin	7,260,000[5]	7,500,000	240,000
	Burkina Faso	550,000	800,000	250,000
	Côte d'Ivoire	425,000	545,000	120,000
	Mali	400,000	670,000	270,000
	Niger	820,000	970,000	150,000
	Sénégal	720,000	830,000	110,000
	UNESCO	40,000	160,000	120,000
Total		**10,215,000**	**11,475,000**	**1,260,000**
Output 3	Bénin	590,000	890,000	300,000
	Burkina Faso	355,000	605,000	250,000
	Côte d'Ivoire	180,000	330,000	150,000
	Mali	150,000	335,000	185,000
	Niger	375,000	515,000	140,000
	Sénégal	420,000	550,000	130,000
	UNESCO	30,000	200,000	170,000
Total		**2,100,000**	**3,425,000**	**1,325,000**
Regional Project and Co-ordination	Bénin	25,000	305,000	280,000
	Burkina Faso	20,000	270,000	250,000
	Côte d'Ivoire	25,000	285,000	260,000
	Mali	40,000	200,000	160,000
	Niger	55,000	220,000	165,000
	Sénégal	40,000	200,000	160,000
	UNESCO	33,000	1,116,000	1,083,000
Total		**238,000**	**2,596,000**	**2,358,000**
GRAND TOTAL		**13,963,000**	**20,061,000**	**6,098,000**

[5] Bénin's baseline figures for conservation are high compared to other countries due to the support of many international funding institutions such as GEF, European Union and the GTZ contributing almost $US 6 million for conservation of the Pendjari Park.

TABLE FIVE. COMPONENT FINANCING							
Component	**Partner**	**Increment**	**Co-funding**				**Requested from GEF**
			Governments		**Other Sources in Countries**	**International Partners**	
			In-kind	**Cash**			
ONE	Bénin	285,000	25,000	0	186,000 ABE		74,000
	Burkina Faso	250,000	20,000	0		200,000/PNGT	30,000
	Côte d'Ivoire	130,000	35,000	0	30,000/CRE		65,000
	Mali	130,000	25,000	0			105,000
	Niger	140,000	15,000	0			125,000
	Sénégal	130,000	27,000	0			103,000
	UNESCO	90,000				20,000/MAB 50,000 WWF	20,000
Total		**1,115,000**	**147,000**	**0**	**216,000**	**270,000**	**522,000**
TWO	Bénin	240,000	60,000	0	100,000 ABE		80,000
	Burkina Faso	250,000	45,000	0		157,000/PNGT	48,000
	Côte d'Ivoire	120,000	50,000	0			70,000
	Mali	270,000	55,000	0		200,000/FSP	15,000
	Niger	150,000	60,000	0			90,000
	Sénégal	110,000	42,000	0			68,000
	UNESCO	120,000				20,000/MAB 50,000/WWF	50,000
Total		**1,260,000**	**312,000**	**0**	**100,000**	**427,000**	**421,000**
THREE							
	Bénin	300,000	18,000		186,000/Pace		96,000
	Burkina Faso	250,000	20,000			150,000/PNGT	80,000
	Côte d'Ivoire	150,000	30,000		20,000/CRE		100,000
	Mali	185,000	15,000			74,000/FSP	95,000
	Niger	140,000	13,000	64,000			65,000
	Sénégal	130,000	35,000				95,000
	UNESCO	170,000				25,000/MAB 100,000/WWF	45,000
Total		**1,325,000**	**131,000**	**64,000**	**206,000**	**349,000**	**576,000**
Regional Project and Co-ordination	Bénin	280,000	110,000		100,000Pace		60,000
	Burkina Faso	250,000	120,000			50,000PNGT	80,000
	Côte d'Ivoire	260,000	130,000		50,000/CRE		80,000
	Mali	160,000	100,000				60,000
	Niger	165,000	70,000				95,000
	Sénégal	160,000	80,000				80,000
	UNESCO	1,083,000				366,000/MAB 300,000/WWF	426,000
Total		**2,358,000**	**610,000**	**0**	**150,000**	**716,000**	**881,000**[6]
GRAND TOTAL		**6,098,000**	**1,200,000**	**64,000**	**672,000**	**1,762,000**	**2,400,000**

[6] The funds requested from GEF for project coordination of regional activities will meet costs of full time project manager, direct administration charges, project manager's travel, regional training and the work of the International Steering Committee.

MONITORING, EVALUATION AND DISSEMINATION

72. An information baseline on savanna ecosystem structure in the core area of the six biosphere reserves will be established during the first year to provide the basis for future monitoring and evaluation. Project progress will be monitored by: 1) measuring the population dynamics of key species; 2) conducting comparative ecological surveys in the biosphere reserve (monitoring plot in the core area and monitoring plot in transition area); 3) surveying the impacts on the livelihoods and participation of local communities, and their level of support for conservation efforts, using a set of indicators which will be developed during project implementation (Component One). Since three biosphere reserves participating in the Project sites are also ROSELT or associated sites, indicators and monitoring structures used by the OSS (Observatoire du Sahara et du Sahel) will be integrated into the Project monitoring efforts.

73. Additional monitoring and evaluation procedures will be established during project implementation with BRIM (Biosphere Reserve Integrated Monitoring) supervised by the MAB Secretariat. BRIM undertakes abiotic, biodiversity, socio-economic and integrated monitoring in the World Network of Biosphere Reserves. Its goal is to provide a platform for the integration of the resulting information/data, thus contributing to a better understanding of the changes that take place in the areas being studied and of the factors triggering these changes. BRIM is planning several workshops on building indicators on socio-economic aspects. The most recent workshop on social aspects of monitoring of biodiversity was held in December 2002. MAB National Committees focal points and scientists participated in this workshop. The results of this meeting will be used in the elaboration of indicators for monitoring biodiversity and impacts of resource use in the biosphere reserves. The *Seville Strategy* presents implementation indicators at the local, national and international levels for the World Network of Biosphere Reserves. These implementation indicators will also be used within the Project process. The IUCN/WB Protected Area scorecard will be used as appropriate for the core area of each biosphere reserve.

74. Monitoring of project performance will be undertaken following UNEP's guidelines for project monitoring and evaluation and will include analysing project impact per the indicators developed in the project logframe. This process will include a mid-term assessment and end-of-project assessment undertaken by external review teams arranged by UNEP. In addition, the UNEP project task manager will conduct annual project supervision missions in collaboration with the project manager of UNESCO/MAB to review project progress and to amend the work plan and intervention strategy accordingly, subject to the approval of the Project Steering Committee.

75. The international Project Steering Committee will monitor progress on an annual basis and will approve adjustments to the workplan and timetable required as a consequence of unforeseen events.

76. Dissemination of results will take place through local, national and regional initiatives. At the local level, local communities will receive support to convene local seminars, using the Speaker's tree approach, as normally practised in West African villages. Local media,

such as radio and the Tam Tam musical instrument will also be used for dissemination of information within each biosphere reserve. MAB National Committees and the scientific team will assist the local communities in the preparation of popular materials, which will present the main results of the project activities. Translation into main local languages will be a key part of the communication strategy. Representatives of local communities will be invited to participate in the national and regional meetings and consultations planned periodically throughout the project.

77. Biosphere reserve offices will be connected to internet and will create their own web site. The six biosphere reserves will be intra-connected and will be able to exchange emails and information. MAB National Committees will also be connected to internet and will design national websites. These websites will provide information on the national activities implemented during the project and will present the main results achieved, as well as the contact persons and projects involved in the biosphere reserve. Meetings between project staff, other project staff involved in the biosphere reserve, government ministries, and the press will be organised as appropriate and necessary. MAB National Committees will be responsible for the preparation of materials such as leaflets, wallcharts, and pedagogical kits with the assistance of scientific and education resource persons.

78. Training sessions and thematic workshops will be held at the regional level. Representatives from local communities, MAB National Committees, representatives from scientific institutions, managers of the biosphere reserves and project leaders will be invited to participate. Exchange visits amongst the biosphere reserves are planned between the park staff, local communities' representatives, MAB National Committees and national research students. Main activities will be presented in the AfriMAB network in French and English. Publications will be prepared (scientific articles, pedagogical kits, wallcharts, leaflets) and will be distributed via the MAB National Committees, the UNESCO National Commissions and UNESCO national and regional Offices.

79. The AfriMAB Network promotes the use of harmonised methodologies within the sub-region, fosters and facilitates collaboration among the participating countries and the teams of each site, and develops co-operation with other countries facing similar challenges for improving the protection of threatened savanna ecosystems. The project will demonstrate the role of biosphere reserves as sites for conservation and sustainable use of biodiversity, monitoring, environmental education and developing scientifically-based information for conservation management. Since the project sites include representative areas of arid lands, the results and lessons learned should be applicable in a wide range of drylands throughout Africa and globally. To this end, replication of the results will be facilitated through the AfriMAB network and the World Network of Biosphere Reserves.

ANNEXES

REQUIRED ANNEXES

OPTIONAL ANNEXES