

GHANA  
Northern Savanna Biodiversity Conservation Project

## Project Appraisal Document

Africa Regional Office  
AFTR2

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| <b>Date:</b> January 2, 2002<br><b>Country Manager/Director:</b> Peter Harrold<br><b>Project ID:</b> P067685<br><b>Focal Area:</b> B - Biodiversity | <b>Team Leader:</b> Edward Felix Dwumfour<br><b>Sector Manager:</b> Joseph Baah-Dwomoh<br><b>Sector(s):</b> VY - Other Environment<br><b>Theme(s):</b> Environment<br><b>Poverty Targeted Intervention:</b> Y |
|---|---|

### Program Financing Data

Loan       Credit       Grant       Guarantee       Other:

#### For Loans/Credits/Others:

**Amount (US\$m):** GEF Amount: \$7.60 million; PDF Amount: \$0.3 million  
 Total Project Cost: \$8.51 million  
 Total Program Cost: \$28.1 million

| Financing Plan (US\$m):                                   | Source | Local | Foreign | Total |
|---|--------|-------|---------|-------|
| BORROWER/RECIPIENT  |        | 2.00  | 0.00    | 2.00  |
| DENMARK: DANISH INTL. DEV. ASSISTANCE (DANIDA)            |        | 0.00  | 2.10    | 2.10  |
| GLOBAL ENVIRONMENT - ASSOCIATED IDA FUND                  |        | 4.30  | 7.00    | 11.30 |
| GLOBAL ENVIRONMENT FACILITY                               |        | 4.00  | 3.90    | 7.90  |
| NETHERLANDS: MIN. OF FOREIGN AFFAIRS / MIN. OF DEV. COOP. |        | 0.00  | 4.80    | 4.80  |
| Financing Gap   |        | -0.20 | 0.20    |       |
| <b>Total:</b>   |        | 10.10 | 18.00   | 28.10 |

**Borrower/Recipient:** GHANA  
**Responsible agency:** MINISTRY OF LANDS, FORESTRY AND MINES  
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### Estimated disbursements ( Bank FY/US\$m):

| FY                | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |  |  |
|-------------------|------|------|------|------|------|------|--|--|
| <b>Annual</b>     | 2.70 | 0.96 | 1.05 | 0.94 | 1.03 | 0.92 |  |  |
| <b>Cumulative</b> | 2.70 | 3.66 | 4.71 | 5.65 | 6.68 | 7.60 |  |  |

**Project implementation period:** 6 years



## **A. Project Development Objective**

### **1. Project development objective:** (see Annex 1)

The project's development objective is to improve the livelihood and health of communities in the northern savanna zone of Ghana, and the environment through the conservation and sustainable use of natural resources including medicinal plants. Specific objectives are to: (i) develop a savanna resources management strategy framework as a complement to the National Forest and Wildlife Policy, based on improved capacity in the region; (ii) strengthen institutional capacities; (iii) improve the conservation and management of nationally and globally significant plant and animal species, and their habitats including the maintenance of field gene banks of threatened indigenous crop varieties and medicinal plants; and (iv) provide convincing technological and cultural justification for community involvement and enhance community awareness for adoption of improved biodiversity management plans and conservation measures.

#### **Global objective**

The global environment objective is to identify, monitor and conserve key components of the biodiversity of the northern savanna zone. This would be achieved by: (i) protecting the existing biodiversity in and around reserve areas; (ii) identifying habitats and 'hotspots' of endemic species in need of greater protection; (iii) developing a comprehensive strategy and action plans to manage and conserve the savanna biodiversity; (iv) adopting an integrated ecosystem management approach; (v) protecting sacred groves, other dedicated community reserves and other sources of biodiversity such as threatened medicinal plants through cultivation and conservation; (vi) preserving local knowledge of biodiversity management and use including traditional phytomedicines; and (vii) supporting the cultivation and protection of indigenous and threatened farmer crop varieties.

### **2. Key performance indicators:** (see Annex 1)

The project duration is six years, with PY1 beginning in 2002 and PY6 ending in 2008. The key performance indicators include:

- (i) number of policy frameworks and strategies aimed at sustainable savanna resource management (10 forest reserve management plans, two wildlife reserve management plans and two faunal corridors management plans) developed and implemented by end of project;
- (ii) increased public awareness on biodiversity issues through the design and implementation of targeted multi-media programs and increased capacity for biodiversity management through targeted investment programs within communities and public agencies at local and national levels;
- (iii) measurable reduction in poverty and improved health care and livelihood systems among the resource fringing communities attributed to improved ecosystem management and the development of alternative livelihood systems as measured by secondary information, the Ghana Living Standard Survey (GLSS);
- (iv) functioning Northern Savanna Biodiversity database including a herbarium and information on medicinal plants and their use, traditional healers' associations (THA) and traditional birth attendants (TBA) developed and integrated with Savanna Resources Management Information System by the end of the project;

- (v) number of hectares and areas of globally significant savanna biodiversity incorporated into the protected area system and effectively managed through *in-situ* conservation and management (with active involvement of the fringing communities) by the end of the project;
- (vi) number of hectares in six selected degraded areas fully rehabilitated through improved land and biodiversity conservation and sustainable use measures involving the communities (with active participation of women and youth groups) by end of project;
- (vii) a network of corridors (two) established and developed by end of project to ensure free movement of wildlife between Ghana, Togo and Burkina Faso using: (a) the Sisili Central Forest Reserve - Podo Forest Reserve, Chiana Hills Forest Reserve - Nazinga Game Ranch Continuum; and (b) the Red Volta River Forest Reserve, The White Volta River Gallery Forest - Morago River Forest Reserve Continuum; and
- (viii) number of communities actively participating in conservation and management of biodiversity resources (in and around forests, wildlife reserves and faunal corridors); and number of Wildlife Protected Area Management Committees (WPAMCs) and Forest Management Committees (FMCs) which involve representatives of the fringing communities established by the end of the project.

## **B. Strategic Context**

### **1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)**

**Document number:** 20185-GH **Date of latest CAS discussion:** June 29, 2000

The Bank's sector-related CAS goal aims at improving the performance of agriculture to reduce poverty by increasing productivity in food crops and expanding opportunities in commercial crops. In addition, to ensure the sustainability of growth, environmental concerns would also be addressed. The key natural resources management issues in Ghana are land and forest degradation and the loss of biodiversity associated with unsustainable harvesting levels in the high forest and savanna, and inappropriate farming practices. The Bank's main instrument to support the government's efforts to ensure sustainable development is the Natural Resources Management Program (NRMP) Adaptable Program Lending (APL) which the NSBCP would complement and overlap during the NRMP's Phases I, II and III. The NSBCP would support the sector-related CAS objectives through the promotion of sustainable use and management of Ghana's northern savanna zone. Specifically, the project would achieve this through: (a) improving livelihoods and health of the population in the northern savanna zone; (b) ensuring social and rural development by building capacity in communities to carry out environmental protection and sustainable natural resource management; (c) reducing poverty through better management of productive resources; and (d) increasing community participation and productivity, particularly in the more disadvantaged rural parts of the country.

#### **1a. Global Operational strategy/Program objective addressed by the project:**

The project's overall objective supports GEF's Operational Program Number 1 on "Arid and Semi-Arid Zone Ecosystems". Project activities also respond to GEF Council's approved document GEF/C.14/4 (December 1999), "Clarifying linkages between land degradation and the GEF focal areas: an action plan for enhancing GEF support." Whereas the main thrust of the project is biodiversity conservation in the savanna zone, the project has vital components and cross-links to land degradation and

desertification. In addition, the project is consistent with the GEF Operational Strategy for Biodiversity, as well as Article 8(j) of the Convention on Biological Diversity regarding the protection and conservation of medicinal plants, benefit sharing and protecting indigenous knowledge. No prior project of this type has been implemented in the savanna ecosystem and lessons learnt from this project could provide valuable insights into the design and implementation of projects in other savanna regions in the future. The anthropogenic threats facing this fragile zone, endemism and the increasing rarity of some species justify the modest resources that are required to find better ways of managing this ecosystem, sustaining local communities and reducing poverty. In addition, the project would provide valuable insights into the design and implementation of projects in other savanna regions worldwide in the future.

Savanna ecosystems cover about 50 percent of the land area of Africa. In Ghana, as in many areas in Africa, savanna woodlands provide valuable environmental services and provide critical refuge for native biodiversity, and protection for soil and water resources against degradation. The northern and coastal savanna zones support about 20 percent of the national population and supply about 70 percent of Ghana's total supply of firewood and charcoal estimated at 16 million m<sup>3</sup>. The area also provides medicinal plants, roofing grasses, fencing poles, and fruits (e.g., shea-nut, an increasingly important export commodity). Savanna bushmeat, including various indigenous rodents, antelopes, reptiles and gastropods, is an important source of animal protein (providing about 12 percent of the rural communities' protein consumption) and revenue for local impoverished communities. The savanna woodlands also have beneficial effects on the local climate and constitute a natural barrier to the desiccating harmattan winds from the Sahara, helping to maintain a favorable micro-climate for agricultural production in the south.

In the northern savanna region, the survival of indigenous land varieties of important food crops and an increasing number of medicinal plant species is being threatened. This is caused by the expansion of agriculture into savanna and arid and semi-arid areas, combined with over-grazing, bushfires, and inappropriate crop management which contribute to degradation of biological diversity. Under the NSBCP, strategies would be developed to ensure the sustainable use and propagation of threatened, indigenous crop varieties and medicinal plants, and to ensure that genetic stocks and knowledge on biological resources management and conservation would be preserved. NSBCP would also focus on the conservation, management and possible reintroduction on farmers' farms of indigenous crop varieties which are being replaced by high-yielding, high input crop hybrids and species.

During preparation activities for the NSBCP, funded by the PDF-B grant, it became apparent that management and conservation of agro-biodiversity and the maintenance of sustainability of medicinal plants use were critical for community welfare because of their role in food security and traditional health care. Safeguarding indigenous cultural resource management and conservation systems such as sacred groves can contribute to alleviating poverty at the community level. Indigenous knowledge represents the intellectual capital of local communities, and is a potentially cost-effective and sustainable resource in the development process. Because this knowledge is seldom documented or appreciated it is underutilized in project development and communities are constrained in their ability to shape and achieve development priorities. The NSBCP would enhance the capacity of community-based organizations to share and disseminate indigenous knowledge, and contribute to sustaining their cultural heritage.

## **2. Main sector issues and Government strategy:**

**Sector Issues.** About 60 percent of the total population in Ghana is rural. Poverty is highly concentrated in rural areas and among small farmers, particularly in the savanna zones. The incidence of poverty in the rural areas is high (36 percent) and accounts for 84 percent of total poverty in Ghana. Social indicators are also very low for these areas. Ghana's limited financial resources means that no

extensive programs of social protection are in place in these areas. To ensure that growth in Ghana benefits the poor, the Government has emphasized an improved performance in agriculture by increasing food crops production and expanding opportunities in commercial crops. Such initiatives place pressure on the environment and to ensure sustainability of growth, the environmental concerns would need to be adequately addressed. At the same time, the government's reform of the health sector through implementation of its Medium Term Health Strategy Towards Vision 2020 seeks to improve the health of Ghanaians by increasing access, quality, and efficiency of health services and forging linkages with other partners in health development.

***Environmental Issues.*** The key pervasive natural resource management issues in Ghana are land degradation and deforestation, and the loss of biodiversity associated with unsustainable harvesting levels in the savanna, compounded by inappropriate farming practices and annual wildfires. Also related are issues of lack of effective enforcement of institutional and policy framework for implementing ecologically and socio-economically sustainable management systems for savanna woodland and wildlife resources, in collaboration with local communities.

The major causes of loss of biodiversity and natural resource degradation in the savanna zones are related to tremendous pressure from growing human and livestock populations, agricultural expansion, inappropriate farming practices, deforestation, annual bush fires, and introduction of crop varieties that are replacing indigenous varieties. Loss of vegetative cover and inappropriate farming practices contribute increasingly to land degradation. Other contributing factors include: (a) a poorly developed market system that does not price exploited natural resources at their real economic value while providing easy and open access to dwindling but cheap natural resources; (b) inefficient public regulating agencies with overlapping responsibilities; (c) inadequate/negligible involvement of key stakeholders including local communities in natural resource management; (d) weak institutional capacity in the wildlife sector and little involvement of communities in the management and sustainable use of biodiversity resource; (e) weak inter-agency coordination in planning/monitoring natural resource use, especially at the district and community levels; and (f) unavailability of any effective national or local level policies, regulations or guidelines on issues related to land tenure and ownership, right of access to and use of resources by rightful owners, protection of indigenous knowledge, and intellectual property rights.

***Government Strategy.*** The Government of Ghana is implementing a country-wide, ten-year adaptable program, the Natural Resources Management Program (NRMP), whose objective is to protect, rehabilitate and sustainably manage national land, forest and wildlife resources and to sustainably increase the income of rural communities who own these resources. The full program is addressing issues of conservation, enhancement and sustainable utilization of Ghana's land, forest, savanna woodland and wildlife resources in full and active collaboration and consultation with rural communities and other rural institutions. Specific policy and institutional reforms to achieve these objectives are directed at four areas: (i) procedures for allocating timber utilization contracts, (ii) policies on the maximization of forest revenue and trade from natural resources trade in products and services, and (iii) the restructuring of forest and wildlife sector institutions. Technical and analytical studies to design a coherent sector-wide program of policy and institutional reforms have been undertaken, resulting in the adoption of a new National Forest and Wildlife Policy in 1994 based on three pillars of resource protection, sustainable production, and involvement of local rural people. Subsequently, a system-wide master plan, the National Forestry Development Master Plan (1996-2020), was developed to implement the policy. Companion Wildlife legislation is also being prepared. Other existing programs and policies related to natural resources management in the savanna zone include the National Wetlands Conservation Strategy (1999), the National Land Policy (1999), the Five-year (1998-2003) Wildlife Development Plan, the National Environmental

Action Plan (1991), the National Biodiversity Strategy and Action Plan (unpublished), the National Soil Fertility Management Action Plan (1998), the National Action Plan to Combat Drought and Desertification (in preparation), and the Traditional Medicine Practices Act (Act 575 of 2000). The draft National Biodiversity Strategy and Action Plan and the National Forest Protection Strategy seek to: (a) safeguard genetic diversity and diversity of indigenous species through an ecosystem approach to management within all ecological zones; (b) improve knowledge of the distribution and status of rare; threatened and endemic fauna and flora species through targeted surveys; and (c) enhance protection of critical areas for migratory species through improved monitoring and habitat management. The recently adopted National Land Policy (1999) seeks the application of the principles of sustainable resource development to the management of the country's land and water resources.

Government Health Posts, when present in rural communities in the northern savanna zone are poorly equipped and administered, and per capita allopathic drug expenditure is low. Rural healthcare in Ghana is provided partially by traditional healers and traditional birth attendants who are dependent on a sustainable supply of medicinal plants. To bolster their role in healthcare, the Traditional Medicines Practices Act was passed by Parliament in early 2000. The Act is the first of its kind in Africa and would legitimize traditional medicines and healers. In addition, it would provide the basis for regulating the practice of traditional medicine, register practitioners and license premises for practice. Furthermore, as the use of medicinal plants in health care is legitimized by the law there would be increased activity in the harvesting and use of plants thereby placing more pressure on rare or threatened medicinal plant species.

A further indication of the importance attached to medicinal plants and traditional health systems is evident in recent actions taken by the Government of Ghana to adopt MOH's Medium-Term Health Strategy (Revised August, 1999) one of whose important objectives is to integrate safe and regulated traditional medical practices into the national health system. This would be accomplished by strengthening the Traditional and Alternative Medicine Directorate (TAMD) of MOH to: (i) deal with policy and research issues; (ii) provide adequate information on phytomedicines; (iii) establish mechanisms for regulation and control of traditional medicines through associations at the district, regional and national levels; (iv) ensure safety of practices; and (v) facilitate regular interaction between traditional and allopathic systems. The passing of the law and adoption of the strategy by the Government of Ghana give added importance to the role traditional medicine plays in healthcare provision and points to the need for greater collaboration between public and private health providers and cooperation between specific key state institutions mainly the Ministry of Lands and Forestry (MLF) and the MOH.

The Plant Genetic Resource Center (PGRC) which operates under the auspices of the Ministry of Environment, Science and Technology (MEST) and based at Bunso with a basic assignment to collect, conserve, characterize and document plant genetic resources in the country. The Center maintains, beside the *ex-situ/in-vivo* facilities, an arboretum which contains timber species, medicinal plants, non-timber species and fruit trees. PGRC carries out collaborative studies with a number of research and academic institutions including the Crop Research Institute (CRI), Savanna Agricultural Research Institute (SARI), Forestry Research Institute of Ghana (FORIG), the Botany Department, the University of Ghana Legon, the Center for Scientific Research into Plant Medicine (CSRPM), and NGOs working with communities to preserve biological resources and natural habitats including sacred groves. PGRC has an important role to play in *ex-situ* management of farmer crop varieties and medicinal plants and the proposed national plant genetic resources conservation and management strategy.

Animal diseases constitute a serious constraint to poultry and livestock production. It is estimated that if livestock parasitic worms and Newcastle disease of poultry were adequately controlled, small ruminant and village chicken production would increase at least 60 percent. The Animal Research Institute,

MEST, in collaboration with CSRPM, is examining ethno-veterinary practices as a means of reducing the cost of imported orthodox veterinary drugs. It is speculated that expensive antibiotics can be replaced, partly or wholly with preparations from locally available medicinal plants. The Ministry of Food and Agriculture has supported agricultural extension and NGO projects that assist communities to identify non-burning strategies in the northern savanna zone. A program in Nandom, Upper West Region has successfully been implemented resulting in improved livestock husbandry, increased incomes from non-timber forest products (NTFPs), regeneration of local tree and medicinal plant species, and a morale booster to local people.

**Forestry Policy.** In recent years, the Ministry of Lands and Forestry and the departments and agencies under it, especially the Forest Services Division and the Wildlife Division, have become increasingly aware of the need for development of the savanna woodland management strategy for the three northern regions. Within forest reserves of the High Forest zone, the Forest Services Division of the Forestry Commission is implementing a comprehensive set of forest protection strategies based on an extensive plant diversity survey undertaken in 1990 to 1992 with the support of the Department for International Development (DFID) (UK) under the Forestry Inventory and Management Project. These strategies are to ensure that the genetic diversity of the forest and its environmental protection functions are not eroded further. Although the plant diversity survey did not cover the savanna areas, it could serve as a starting point for development of other strategies for the savanna. The Government of Ghana is also currently implementing four schemes of priority species protection (species restrictions, complete protection, restricted usage and seed tree and provenance protection) plus a set of comprehensive general forest protection strategy for the high forest zone. Such measures would also be needed for the Savannah zone.

In Ghana, forest and woodland reserves were set aside for various reasons - sustained timber and non-timber forest product extraction, watershed protection, habitat (landscape) and genetic conservation. Environmental and biodiversity imperatives are considered in forest management and specifically in the working plans. The Gambaga Scarp East Forest Reserve, for example, in past management plans, addressed the issues of encroachment by farmers and identification of medicinal plants peculiar to the scarp environment and their silvicultural regimes.

NTFPs are an important resource in the livelihood systems of many rural households and communities in Ghana. Many rural communities in the northern savanna zone depend on NTFPs to varying degrees. Like in many developing countries, Forest Policy as it relates to NTFPs in Ghana has historically been absent, overlooked or inadequate. However, recent trends and awareness have elevated the issue of NTFPs at both local and national levels. The draft National Forest Protection Strategy seeks to ensure sustainability and preserving genetic diversity within non-timber forest species that are collected by rural populations for medicinal and consumptive uses through improved data collection, regulation of harvesting, and proactive management. The NSBCP would support and strengthen activities that concretize these policy and strategic goals on the ground.

### **3. Sector issues to be addressed by the project and strategic choices:**

The project would address key sector issues as follows.

- Limited institutional capacity to manage biodiversity and natural resources and sustainable use practices would be addressed through strengthening the foundation and processing capacity for conservation strategies, including empowerment of women and youth, and enhancing their access to productive resources and services.



- Habitat degradation, inadequate conservation efforts and unsustainable resource collection practices would be addressed through the establishment of reliable and state-of-the-art technology management systems on savanna resources management with active involvement of the fringing communities.
- Inadequate quantitative data on economic benefits and long-term sustainability of savanna resources would be addressed by collecting and documenting baseline data obtained through a socio-economic assessment of the three northern regions. Data would be collected on the number of people depended on savanna resources, in particular non-timber forest products, sources of supply, volumes and values purchased, conditions of use, and sustainability of supplies. The database would include a savanna resources database and a full-scale management information system on savanna biodiversity issues.
- Active participation of rural communities in the conservation and management decision-making process through WPAMCs and FMCs would be developed, along with community-based actions to implement sustainable natural and biodiversity resources management, in particular with communities living in and around the parks and reserves.
- Inadequate facilities for education and awareness, limited levels of communication between communities, and the need to increase expertise in formulating public resource management programs would be developed through collaboration between government and private sector organizations to develop radio and video presentations for broadcasting and/or travelling videos to outlying rural communities.
- Community-based management actions and the development of alternative livelihood system would be enhanced by building on indigenous knowledge to protect indigenous crop varieties, manage medicinal plant resources and implement sustainable in-situ and ex-situ resources management programs.

## C. Project Description Summary

### 1. Project components (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

The project would consist of four main components: (a) formulation of a policy framework; (b) capacity building and awareness raising of key government, private and civil society and institutions playing a key role in the project's implementation; (c) biodiversity conservation, research and development; and (d) project management, monitoring and evaluation.

**(a) Formulating the Policy Framework.** This component would support the development of a policy framework and strategies for the conservation and management of biodiversity in the northern savanna zone. The component would also support development of specific plans and strategies for ten forest reserves, two wildlife reserves and two faunal corridors. In addition, the component would support the finalization and publishing of the National Biodiversity Strategy and Action Plan, which would contain a section on a strategy on bio-prospecting and biosafety development. Some of these policies are expected to have global implications and application regarding the use, conservation and management of biodiversity as well as rare, or threatened medicinal plants and farmer crop varieties. For that reason, the process would be consultative and would involve reaching agreements with all key stakeholders including communities, farmers, associations and groups, healers, and others involved in the project. The component would also support the development of policies and guidelines on Intellectual Property Rights (IPR) for regulating bioresources collection and prospecting and for protecting and sharing indigenous knowledge and benefits

accruing from conservation and management. Region-wide and community specific biodiversity conservation education and awareness campaigns would be supported by the project and implemented by EPA and Non-Governmental Organizations (NGOs) with expertise in animation, and participatory techniques.

**(b) Capacity Building and Awareness Raising.** The project would strengthen the capacities of central government agencies (MLF, MOH, MLGRD, MEST/EPA, MOFA, SRMC) at the national, regional and district levels, private sector organizations, research and academia, rural NGOs and community-based organizations (CBOs), women and youth groups, environmental and social associations, and local communities for implementing project activities and ensuring sustainability of biodiversity management, utilization and conservation. The project would provide financing and technical assistance support to strengthen TAMD and improve collaboration between MLF and MOH. TAMD would also provide the link between MOH and key non-governmental traditional medicines and healer associations in the country (e.g., the Ghana Association of Traditional and Alternative Medicines (GHATRAM), TBAs, THAs, and the Federation of Regional Healer Associations). The project would also fund a geographic information system database and develop a biodiversity management information system to provide reliable and easily accessible information for use by resource managers, researchers, conservationists, private sector, communities and policy and decision makers. A biodiversity monitoring and evaluation system, which would be built into the MIS, would afford resource managers tools to monitor changes in the ecosystem and socio-economics of the project areas. NSBCP would establish a herbarium in Tamale, which would be linked with other research institutions (e.g., the University of Development Studies and the National Herbarium at the University of Ghana, Legon). The project would support local communities and civil societies and develop an education and public awareness programs on natural resources and biodiversity conservation throughout the northern savanna zone. Formal and non-formal education and awareness raising programs would be supported by the project. A comprehensive, community-based public education and awareness would focus on the following: general biodiversity conservation and natural resource use, codification and dissemination of best land management practices, sustainable development in the traditional renewable energy sector through intensive woodlot development, wildfire prevention and management, and production of training and information materials, etc. This component would build on indigenous knowledge in sustainable use and conservation of natural resources through community-based initiatives.

**(c) Biodiversity Conservation, Research and Development.** This component would support: (i) development and implementation of biodiversity management and conservation systems in 12 protected areas, (ii) improvement of land management, and restoration of degraded lands in six pilot areas; (iii) sustainable development of biodiversity in wildlife corridors; (iv) sustaining medicinal plant resources; (v) *in-situ* germplasm development and conservation; and (vi) *ex-situ* germplasm development and conservation. Under this component, management plans would be developed and implemented for 10 pilot priority areas of protected forests, two wildlife reserves and two faunal corridors. These pilot protected area systems were selected based on the degree of biological diversity in the area, main threats to biodiversity, and net global benefits. Selection of the six degraded pilot off-reserve areas would be done before the project becomes effective. In addition, to protect indigenous crop varieties, the component would fund documentation and identification of threatened varieties, establishment of gene banks with abandoned indigenous crop varieties and medicinal plant species, and cultivation and propagation of reintroduced farmer crop varieties. Taking lessons from the EU-funded Protected Area Development Project (PADP I), which is field testing community collaborative resource management in the high forest zone of the country, as well as from experiences gained by the Resources Management Support Center of the Forestry Commission in instituting collaborative/joint forest resource management in the high forest zone, the component would support the formation and strengthening of WPAMCs and FMCs. Through this

component and these committees, communities would participate in the management of forest and wildlife reserves and national parks and become co-managers of biodiversity resources. The component would support the protection of sacred groves which are important indigenous and traditional mechanisms for protecting biodiversity. Sacred groves are being threatened by changes in religion, beliefs and practices in addition to uncontrolled burning and agricultural expansion. The component would also support the development and implementation of community resource management action plans and the establishment of community dedicated reserves.

**(d) Project Management, Monitoring and Evaluation.** This component would establish a project management unit and strengthen SRMC which would be responsible for supervising and monitoring the implementation of the project. Looking at the specialized nature of the project and that the biodiversity of the savanna zone is being considered for the first time on such a scope and level, a project coordinator would be hired locally to coordinate implementation for a period of six years. Working under the SRMC and the SRMC Steering committee, the NSBCP coordinator would be directly answerable to the NRMP Program Director. There would be no need to establish at the project level another steering committee solely for NSBCP coordination. The NSBCP would support capacity building of the project management unit and that of key stakeholders at all levels to monitor progress in implementation of project activities and policies on savanna biodiversity resource conservation and management as well as achievement of project outputs and objectives. Under this component, NSBCP would provide support for evaluating the environmental, social and economic impacts of the project (at local, regional, national and global levels) on intended beneficiaries and natural resources system. The component would also support the establishment of monitoring and evaluation systems to mitigate any adverse environmental and social impacts that would emanate as a result of project implementation.

**Table 1: NSBCP Incremental Costs**

| Component   | Sector                              | Indicative Costs (US\$M) | % of Total | Bank financing (US\$M) | % of Bank financing | GEF financing (US\$M) | % of GEF financing |
|---|-------------------------------------|--------------------------|------------|------------------------|---------------------|-----------------------|--------------------|
| Formulating the Policy Framework                    | Institutional Development           | 0.50                     | 5.9        | 0.00                   | 0.0                 | 0.48                  | 6.3                |
| Capacity Building and Awareness Raising             | Institutional Development           | 3.07                     | 36.1       | 0.00                   | 0.0                 | 2.76                  | 36.3               |
| Biodiversity Conservation, Research and Development | Institutional Development           | 3.64                     | 42.8       | 0.00                   | 0.0                 | 3.25                  | 42.8               |
| Project Management, Monitoring and Evaluation       | Public Sector Management Adjustment | 1.30                     | 15.3       | 0.00                   | 0.0                 | 1.11                  | 14.6               |
| <b>Total Project Costs</b>                          |                                     | 8.51                     | 100.0      | 0.00                   | 0.0                 | 7.60                  | 100.0              |
| <b>Total Financing Required</b>                     |                                     | 0.00                     | 0.0        | 0.00                   | 0.0                 | 0.00                  | 0.0                |
|   |                                     | 8.51                     | 100.0      | 0.00                   | 0.0                 | 7.60                  | 100.0              |

Note: Indicative incremental costs for the NSBCP include taxes, physical and price contingencies.

The development of NRMP Phases I, II and III would link with this project and address activities which will have more local and national benefits. The activities under the NRMP will build on the general planning processes developed and test and implement specific action programs to enhance global benefits in the savanna zone. These overlapping interventions over the next six years of the NSBCP are funded under

IDA and are estimated to cost about US\$11.3 million in total. These costs are not included in the NSBCP's incremental project costs of US\$8.51 million in order to avoid double counting. IDA's contribution by component is shown separately in Table 2 below:

**Table 2: NRMP and NSBCP Overlapping Activities - Incremental Costs by Component**

| <b>Component</b>                                    | <b>Sector</b>                       | <b>Bank Financing<br/>NRMP (US\$ M)</b> | <b>GEF Financing<br/>NSBCP (US\$ M)</b> | <b>Total Incremental<br/>Costs (US\$ M)</b> |
|---|-------------------------------------|---|---|---|
| Formulating the Policy Framework                    | Institutional Development           | 1.20                                    | 0.48                                    | 1.68  |
| Capacity Building and Awareness Raising             | Institutional Development           | 1.20                                    | 2.76                                    | 3.96  |
| Biodiversity Conservation, Research and Development | Institutional Development           | 7.10                                    | 3.25                                    | 10.35                                       |
| Project Management, Monitoring and Evaluation       | Public Sector Management Adjustment | 1.80                                    | 1.11                                    | 2.91  |
| <b>Total Program Cost</b>                           |                                     | <b>11.30</b>                            | <b>7.60</b>                             | <b>18.91</b>                                |

## **2. Key policy and institutional reforms supported by the project:**

Through the project and through the work under the NRMP, a general regional policy for conserving savanna biodiversity would be developed. This would provide a framework for a sustainable natural resources and biodiversity management. The project would build on the community-based management planning processes set up under the NRMP I to formulate and initiate specific programs to improve the savanna zone's local and national living benefits. The project would aim to establish the global benefits relating to the forest reserves, wildlife protected areas, savanna woodland, and integrated community based watershed management.

The draft National Biodiversity Strategy and Action Plan which is concentrating mainly on the high forest zone, neither addresses land degradation issues in the northern savanna regions nor the different ethnic and cultural perspectives of the savanna zone. Specific suggestions and revision of the biodiversity strategy and action plan would be developed and incorporated into the final version of the plan. The project would develop a policy framework to address such problems as community rights over natural resources under open access regimes using a consultative process with traditional authorities, District and Regional Assemblies, Government agencies (such as EPA, MLF, MOFA, MOH and MEST) and NGOs. The role of women, youth and other vulnerable groups would also be taken into account.

A savanna biodiversity committee/consultative group, when appropriate, would be established under the general leadership of the NSBCP, supported by the SRMC, and would include relevant government institutions, NGOs, and political and traditional authorities as well as community representatives. It is envisaged that SRMC and NSBCP would be linked and networked for the sustainable management and conservation of natural and environmental resources.

### **3. Benefits and target population:**

The benefits from the proposed project are expected to accrue to people at local, community, district, regional, national and global levels. The project would target the communities of the northern savanna zone as the primary beneficiaries. Benefits would also accrue to the population in other regions from improved management of savanna resources and biodiversity.

At the *local/community* level, the project's primary beneficiaries would be the people and communities of the northern savanna zone. Rural communities would benefit from improved biodiversity management in which they would directly participate and from sustainability of threatened natural and agro-biological resources. The health and nutrition of communities and livestock would be improved through using appropriate and sustainable harvesting and cultivation systems that allow for the systematic use of proven crop and medicinal plant products.

At the *national and regional* levels, secondary benefits would accrue to people in other regions of the country from the improved use of savanna resources and their contribution to the national economy. The environmentally sustainable use of woodland and wildlife reserves and adjacent lands would preserve global biodiversity and enhance rural incomes in addition to benefiting from enhanced environmental, soil, water and wildlife habitat management. Improvement of degraded lands would have similar effects. Improved management and conservation of biodiversity would ensure a continued supply of non-timber savanna resources (e.g., livestock fodder, honey, fruits (such as dawadawa, Shea nuts), firewood, dyes, thatch, bushmeat, gums, straw and fiber, teak leaves (for wrapping products), decorative plants and animals, insects (e.g., termites for poultry feed, caterpillars for human consumption), live birds as pets (e.g., doves and canary birds)) including medicinal plants and animals which would differentially impact the poorest segments of the population. The replicable lessons learned through conservation of indigenous agro-biodiversity would also potentially benefit people in the entire African savanna environment.

At the *global* level, the main benefits of the project would be the conservation, management and sustainable use of Ghana's northern savanna ecosystems and their unique biodiversity with increased participation of the local communities. The identification, conservation and propagation of medicinal plants would also enhance global knowledge and understanding of these resources.

### **4. Institutional and implementation arrangements:**

The Project would be implemented over six years as part of the broader NRMP with the MLF acting as the Government's main implementing agency. At the project's governing level overall coordination would be handled by the NRM Program Coordinating Committee (PCC) under MLF in collaboration with MOFA, MEST/EPA, MOH, MLGRD, and representatives from the private sector and civil society. The project would utilize existing mechanisms developed under NRMP I (i.e., PCC, the Project Coordinating Unit at MLF, SRMP Steering Committee, Coordination Meetings of Government of Ghana and Donors, Meetings of Multi- and Bilateral Donors, Joint Project Support Missions of Government of Ghana and Donors) to ensure effective donor coordination and collaboration as well as supervision of activities relating to management and conservation of savanna resources and biodiversity.

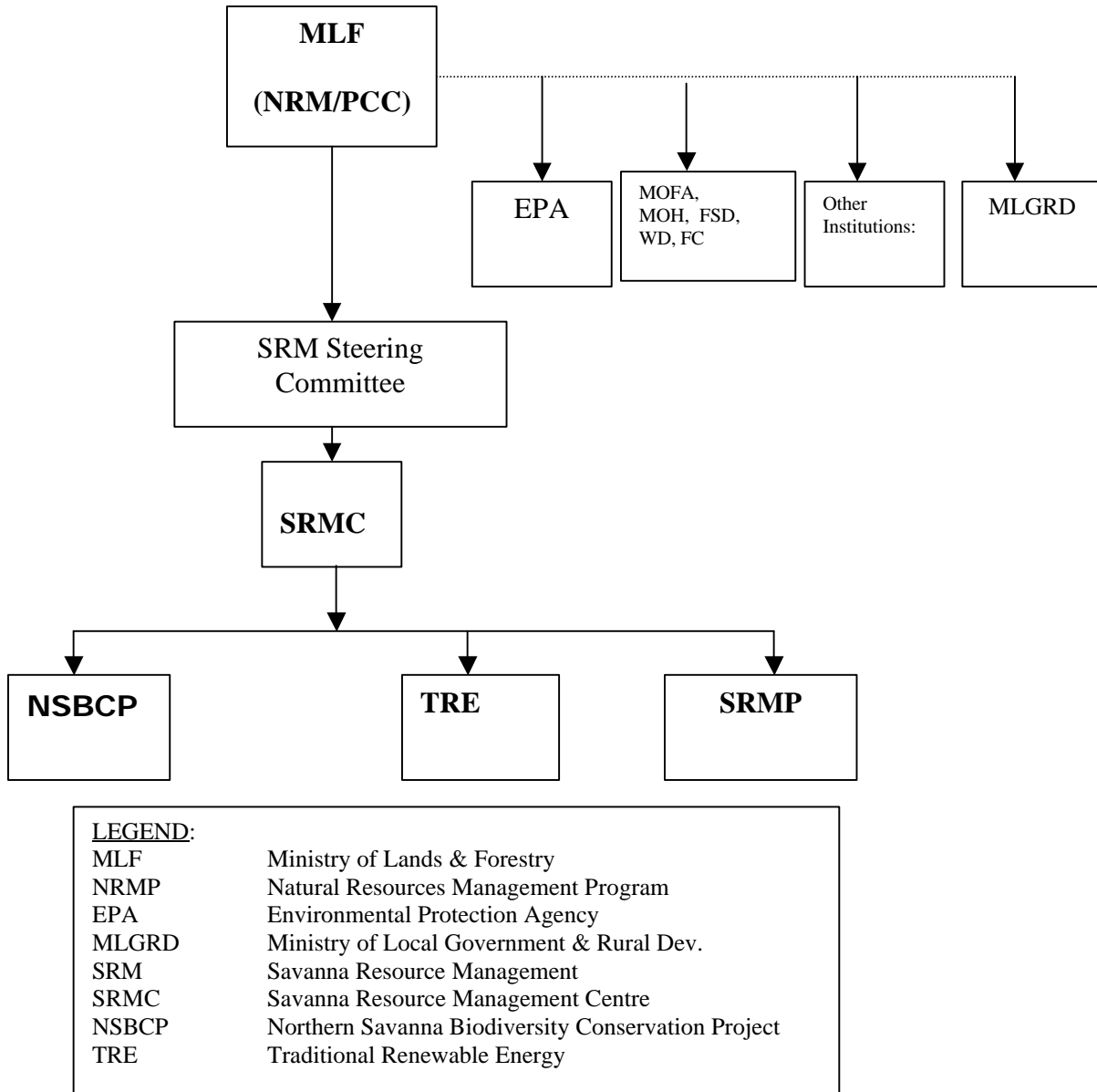
At the project facilitation level, implementation would be supervised and monitored by the existing SRMP Steering Committee, a Sub-Committee of the NRM PCC and the SRMC. The multi-disciplinary nature of the SRMC would facilitate co-ordination of implementation of interventions. It is also at this level that technical and human support needed for supervising and monitoring project implementation would be provided by a number of public, private and civil society organizations. MOFA would provide expertise to

support issues regarding agro-biodiversity, MEST/EPA would lend support to public education and awareness raising, and environmental management and co-ordination (particularly issues of degraded land), MOH would be responsible for the protection of indigenous knowledge on health care and the provision of affordable health care services through traditional healer associations; MLGRD and the District Assemblies would support local level natural resource management. The project would recruit a Coordinator who would lead implementation of interventions during the project's lifespan. NSBCP would utilize existing expertise provided through staff secondment to the SRMC from MOFA, EPA, MLGRD and FC. This list would be complemented with a staff from TAMD of MOH who would be assisting in the coordination and facilitation of implementation of activities related to the development and conservation of medicinal plants and promotion of traditional healthcare. The project would support efforts at all levels to share information with all key participants and beneficiaries as well as other donors through visits to project sites and organization of exchanges and study tours, workshops, seminars, and farmers' field days. The project would also hold regular briefings and would ensure consistency in objectives with other donors.

Field implementation of project interventions and activities would be led by subject matter specialists including a biodiversity specialist from the collaborating public and private organizations. NSBCP would be implemented on the ground by the pilot communities in close collaboration with regional and district level government administrations (particularly regional and district FSD, WD, MOFA and EPA offices, District Assemblies), civil society organizations (including women and youth groups), CBOs and NGOs (e.g., traditional healer associations, social and environmental and NGOs such as Suntaa-Nuntaa and Taimako Herbal Clinic). Implementation would also involve other agencies such as the University of Development Studies and the Northern Regional office of FORIG for training and research, MOFA for support in agro-biodiversity policy development, SARI for agro-biodiversity research, PGRC for germplasm conservation and *ex-situ* protection and the EPA for land management, education and public awareness raising.

The project would be located within SRMC in Tamale. The proposed institutional arrangements is shown in the organogram below and further details are presented in the Project Implementation Manual.

## INSTITUTIONAL AND IMPLEMENTATION ARRANGEMENTS



Under the biodiversity conservation component, implementation of the pilot project land management sub-component would be led by the Desertification Control Unit of the EPA based in Bolgatanga, with the active collaboration of the Forest Services Division of the Forestry Commission and other relevant Government and non-government organizations. Working in collaboration with NGOs, CBOs, resource managers, community level groups and associations, EPA would also lead the implementation of activities under the awareness raising and education sub-component. The WPAMCs, FMCs, District Environmental Management Committees (DEMC) and Community Environmental Management Committees (CEMC), among others, would play an active role in project implementation.

**Funding Arrangements.** GEF funding would be channeled to the MLF as the executing agency for the project. The PCU under MLF would be responsible for gathering information from all participating

agencies and would be responsible for generating the progress reports, financial management reports; operating the Special Account; and undertaking all procurement for the project.

### **5. Monitoring and Evaluation (Annex 12)**

The objectives of the monitoring and evaluation (M&E) are to develop an organized system for capturing and disseminating information needed for tracking project performance against planned activities, achievement of project outputs and objectives, and changes and trends in biodiversity status, utilization, management and conservation. The M&E system would help to measure the impact of project interventions.

Additionally, beneficiary and social assessment would be carried-out. Baseline studies would provide benchmarks for evaluation. The system would allow an effective evaluation of: (a) the effectiveness of the project's delivery mechanisms and procedures; (b) the impact of the field activities on the basis of stated objectives, and input, output and impact indicators identified in the Project Design Summary (see Annex 1); and (c) the replication of the *in-situ* and *ex-situ* activities at a wider national scale.

The M&E system would be an integral part of savanna resource monitoring under SRMP and would also be part of overall monitoring and evaluation of natural resource management under the NRMP and the management information system currently being established at the Forestry Commission headquarters in Accra. Data and information generated under NSBCP would be useful for the established *National Framework for Geospatial Information Management (NAFGIM)* at EPA, which stores natural resource and social databases.

M&E would be carried out at various levels (local, project, district, regional and national), and implementation of M&E systems would involve various agencies and beneficiary communities. The national or program level monitoring and evaluation would be done at NRMP level by the PCU. M&E implementation at the local, project and district levels would be carried out by staff on NSCBP and trained personnel from the district assemblies and communities. An M&E unit at SRMC would supervise and coordinate data collection, analyzes, storage, and diffusion and dissemination of information.

During appraisal of NSBCP, participating agencies and community members agreed on monitoring indicators, which include a set derived from the "Guidelines for Monitoring and Evaluation for Biodiversity Projects" published by the GEF in June 1998. NSBCP would formulate annual work plans, which would indicate specific milestones and deliverables, and highlight lessons learned as implementation of the project progresses. Feedback on monitoring and evaluation results would be provided to donors and other key participants through quarterly and annual reports and to communities through workshops, field days, study tours and meetings.

The progress towards project outcomes and achievement of project objectives would be evaluated during project supervision and again during an in-depth review 12 months after the project becomes effective. This would further be followed by a mid-term review at the 36-month stage of implementation. The in-depth review after 12 months would determine the extent to which the project is performing vis-à-vis its implementation plan and achievement of outputs and how these relate to the NRMP development objectives. This review would also seek to identify how the components and outputs and objectives match those that would be developed for successive phase of NRMP II. The mid-term review would determine the status of the project and the achievements of objectives by the completion date (72 months of implementation). An Implementation Completion Report would be prepared at least six months prior to final disbursement of the Grant. The Government would prepare its own evaluation and contribution to the project's completion report.



## D. Project Rationale

### 1. Project alternatives considered and reasons for rejection:

Management of biodiversity in the arid and semi-arid savanna ecosystem has not been adequately covered by NRMP I. NSBCP is designed to define a clear path for targeted biodiversity management of the savanna zone. The emphasis in NSBCP is placed on a broader based operation which would focus on the sustainable management of northern savanna resources while reducing poverty and combating land degradation. Whereas NRMP I is developing overall strategy for collaborative natural resources management at local and national levels, there is a need to systematically define and develop specific action programs to enhance global benefits by conserving savanna resources and combating desertification. This project defines and develops concrete steps that would be undertaken in order to achieve the global benefits of biodiversity and natural resource management in the savanna areas of northern Ghana. The development of NRMP II and III would link with this project and address activities that have local and national benefits.

### 2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).

| Sector Issue  | Project                                       | Latest Supervision (PSR) Ratings<br>(Bank-financed projects only) |                            |
|---|---|---|----------------------------|
|   |   | Implementation Progress (IP)                                      | Development Objective (DO) |
| <b>Bank-financed</b>  |   |   |                            |
| Sustainable forest management                                       | Forest Biodiversity Project                   | S   | S                          |
| Environmental management capacity building                          | Environmental Resource Management Project     | S   | S                          |
| Coastal wetlands conservation                                       | Coastal Wetlands Management Project           | U   | S                          |
| Natural resources management  | Natural Resources Management Project I        | S   | S                          |
| Sustainability of inland and marine fisheries resources             | Fisheries Subsector Capacity Building Project | S   | S                          |
| Financial and technical resources to sustain village infrastructure | Village Infrastructure Project                | U   | S                          |
| Land tenure management  | Land Administration Project                   | S   | S                          |
| Community Water and Sanitation                                      | Second Community Water and Sanitation Project |   |                            |
| <b>Other development agencies</b>                                   |   |   |                            |
| Preservation of sacred groves and related cultural heritage         | Environmental Protection Agency (UNESCO/MAB)  |   |                            |
| Management of sacred groves   | Community Integrated Project                  |   |                            |

|  |  |  |  |
|--|--|--|--|
|  | for the Savanna Ecosystems of Ghana (CIPSEG), funding UNESCO                             |  |  |
| Transition forest and savanna woodland protection and management | Forest Protection and Resource Use Management Project for the Volta Region (Germany/GTZ) |  |  |
| Conservation of medicinal plant species                          | Taimako Herbal Clinic/Medicinal Plant Species Nursery (UNDP)                             |  |  |
| People, Land management and Environment Change (PLEC)            | People, Land Management and Environmental Change (PLEC) (UNEP/GEF)                       |  |  |
| Productivity of root and tuber crops                             | Ghana Roots and Tuber Improvement Program (IFAD)   |  |  |
| Environmental restoration and wasteland degradation              | Environmental Restoration Project (ICOUR/UNDP) (1998)                                    |  |  |
| Plant diversity in high forest zone                              | Forestry Inventory and Management Project (ODA) (1990)                                   |  |  |
| Community wildlife management                                    | The Kajore Wildlife Management Project (UNDP/GEF Small Grants Program)                   |  |  |

IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

### 3. Lessons learned and reflected in the project design:

- Problems of overlapping mandates of various national agencies and the critical role of biodiversity in the health and well-being of rural communities has been addressed in this project by streamlining implementation, i.e., concentrating support on key agencies and communities involved directly in management of the savannas. Specific program focus is also allocated to cultural sites, medicinal plants and agro-biodiversity.
- The positive lessons of a collaborative approach with local communities, which recognizes right of access and use and seeks economic growth compatible with maintaining global and national conservation values, and methods for successful education and public awareness campaigns have been integrated into the project's components. The Biodiversity Conservation, Research and Development component focuses on establishing gene banks and germplasm conservation for medicinal plants and indigenous crop varieties.
- To achieve sustainable natural resource management in the savanna zone, people need to understand

the practical importance of biodiversity conservation and see it working in their local context. This project would develop such awareness and understanding through two inter-linked activities: (a) the development and implementation of a general biodiversity conservation education and awareness program including the multiple and practical uses of the diverse natural resources of the region, and (b) codification and dissemination of best management practices for land degradation control and rehabilitation, wildlife management (anti-poaching), woodlot establishment and development, agroforestry, bush fire prevention and control.

- The project would build on and link up with the Village Infrastructure Project (VIP) and the Second Community Water and Sanitation Project (CWSP II) by enhancing the role of communities to develop, implement, manage and maintain natural resource projects directly related to their socio-economic needs. IDA Credit.
- The NSBCP would support the identification of sustainable cultivation methods for medicinal plant species as a component of Ghanaian savanna agriculture, an element not identified in the Agricultural Services Subsector Investment Program (AgSSIP).
- The NSBCP would support the role that traditional healers play in providing basic healthcare in Ghana and, therefore, contribute to poverty reduction. Past health projects have overlooked this area and focused mainly on modern health interventions.
- Indigenous crop diversity is being rapidly eroded. Such crop varieties (cereals, legumes and roots/tubers) are an important source of meeting farmers' socio-economic needs and food security in all parts of Ghana, mostly in years of drought. The project would focus on reversing this loss of important agricultural germplasm and indigenous knowledge by collaborating with farmers to enhance the re-establishment of farmer varieties. The PGRC would play an important role in achieving the objectives of this component.

#### **4. Indications of borrower and recipient commitment and ownership:**

Ghana has ratified the conventions most relevant to the proposed project: Biodiversity (CBD: 8/29/94), Climate Change (FCCC: 9/6/95), and Desertification (CCD: 12/27/96). By financing the incremental costs of improved drylands resources husbandry and broadening participation of the primary stakeholders, GEF financing has the potential for protecting globally significant biodiversity, enhancing sustainable resource use, and alleviating poverty among the primary stakeholders. The project is consistent with GEF Operational Strategies that address the twin issues of biodiversity conservation in arid and semi-arid zone ecosystems and combating land degradation. The project focuses on local communities as managers and beneficiaries of better and sustainable use of natural resources in the savannas and promotes economic livelihood activities through enhanced use of traditional and indigenous knowledge, medicinal plant species and their products.

The adoption in 1994 of a new Forest and Wildlife Policy and subsequent (1996) preparation of a Forestry Development Master Plan provide a good foundation for implementing this project. The Master Plan includes strategies for forest and wildlife protection and increasing local communities involvement in forest, savanna woodland and wildlife management. Government commitment to implementation of biodiversity conservation plans include the preparation of a Protected Areas Systems Plan under an IDA-financed Forestry Project (1990) and inclusion of biodiversity protection and maintenance of bioquality as key elements of the sector development master plan. A Traditional Medicine Practices Act was promulgated in February 2000. The Act recognizes the enormous role and potential that traditional

medicines offer in primary healthcare, especially for poor rural and urban communities.

## **5. Value added of Bank and Global support in this project:**

Although the development objectives of NRMP I include many aspects of conservation measures to manage and protect land, forest and wildlife resources, arid and semi-arid savanna ecosystem has not been adequately covered by the project. The value added for the NSBCP is to define targeted management of biodiversity of the savanna zone. Whereas NRMP I is developing overall strategy for global, national and local level biodiversity management and conservation for the high forest, NSBCP would define and develop specific action programs (see Annex 2 for details) to enhance global benefits (in addition to national and local benefits) by sustainably utilizing and conserving savanna biological resources and combating land degradation and desertification. This project defines and develops concrete steps to complete efforts towards reaching global, national, and local benefits of natural resource management over the entire country.

Other donor agencies including the Royal Danish Government through DANIDA (traditional energy resources), World Food Program (WFP) (support to communities for sustainable agricultural development and natural resources management), The Royal Netherlands Government (Mole National Park rehabilitation, Transition Zone Fire management), UNDP/GEF Small Grant Programs (in savanna resource management) and a number of NGOs (e.g., Amasachina, Suntaa-Nuntaa, Institute of Cultural Affairs, Ecological Restoration, Ghana Wildlife Society, Nature Conservation Research Center and Conservation International), have expressed their interest in the NSBCP's objectives and their support for the SRMC. Their involvement would enhance the prospects of better bioquality maintenance and management of land degradation if donor efforts are well-coordinated.

## **E. Summary Project Analysis** (Detailed assessments are in the project file, see Annex 8)

### **1. Economic (see Annex 4):**

- Cost benefit      NPV=US\$ million; ERR = % (see Annex 4)
- Cost effectiveness
- Incremental Cost
- Other (specify)

Biodiversity conservation does not lend itself to economic analysis since no monetary value has been placed on species and/or ecosystems. However, an analysis was undertaken on incremental costs, i.e., of the additional costs accruing to Ghana for protecting its invaluable savanna biodiversity resources (see Annex 4).

There are no quantitative data available on medicinal plant supply and consumer demand at present, nor on the economic benefits and contribution to healthcare in Ghana which is derived from the use of such plants. A socio-economic survey which will be conducted under the project will help to fill these data gaps. The project scope to conserve and manage medicinal plants yields global and national benefits. The project would offer opportunities for additional sources of income through the cultivation of high-demand medicinal plants. This in turn provides opportunities to increase agricultural intensification through crop diversification and remove the pressures on wild resource lands.

Regarding agro-biodiversity, a farm model study (see Annex 4) indicated that farmers in the Northern Savanna zone of Ghana would be better off if they practiced agro-biodiversity approaches

suggested by the project. The current farming practices in and around the reserves in the project area of the three northern regions of Ghana have, over the years, tended to degrade the environment and adversely affect biodiversity conservation. Under the NSBCP, farmers would be encouraged and assisted to practice intensive farming on the same land using improved cultural practices of appropriate cropping patterns, incorporating legumes, and adopting composting and organic manuring for improving soil fertility instead of chemical fertilizers as well as integrated pest management (IPM) strategies.

Farmers would also be encouraged to adopt agro-forestry practices whereby they would inter crop their fields with economic tree crops (e.g., mangoes and cashews), woodfuel and pole-producing tree species to increase farm incomes and at the same time improve the species' richness and biodiversity conservation.

To illustrate the incremental financial benefits likely to accrue to the farmer by the adoption of the project concept of biodiversity conservation, two farm models have been developed to compare their financial situation and the effects of their farming activities on biodiversity conservation based on two scenarios: (i) the "do-nothing-situation" where farmers continue with their present cropping systems without any intervention; and (ii) the "do-something-situation" where farmers adopt environmentally friendly and biodiversity conservation practices such as tree crop-agricultural crop mixed farming systems.

The analysis (see Annex 4) shows that the incremental financial benefits likely to accrue to farmers using conservation practices is positive. Two models were used in the analysis, a model with mango inter-cropping and a model with inter-cropping with cashew as against the existing practice. With respect to the model with mango, the Net Present Value is Cedis 1.57 million and an Internal Rate of Return of 93 percent, while the model with cashew registered Cedis 80,000 and 52 percent respectively, indicating that the project is financially beneficial to farmers. The cost of capital used in the discounted cash flow computation is 45 percent.

## **2. Financial (see Annex 4 and Annex 5):**

NPV=US\$ million; FRR = % (see Annex 4)

Given the capacity building and community-based character of this project, a standard financial analysis is not readily possible. The project does not include commercial production of phytomedicines, bush meats and other non-timber forest products, therefore, the likely fiscal impact in the short run would be insignificant. However, those sub-components of the project that support parks, e.g., Mole National Park, that have tourism as an activity may realize increased revenue in the short-term.

As the project encourages the sustainable use of resources in the long-run, the financial benefits to individual households and communities would be apparent as the project evolves and widespread sustainable use practices are adopted.

[n.a.] Cost-Benefit Analysis : NPV= million;

ERR= n.a. [ ] Cost Effectiveness Analysis:

[x] Incremental Cost (See Annex 5A):

### **Fiscal Impact:**

The incremental costs are projected to be US\$7.60 million including price and physical contingencies. Under baseline conditions, the Government of Ghana's (GoG) expenditure on conservation and management of savanna biodiversity resources including medicinal plants contribute a small percentage

of the total budgetary allocation for the environment. The project scope, to conserve savanna biodiversity yields national and global benefits. The global benefits would include the conservation and management of unique flora and fauna including the sustainable use of medicinal plants.

### **3. Technical:**

The project would upgrade the technical capacity of the participating institutions to facilitate appropriate analytical requirements, technology generation and transfer, and training. The main technical contributions of this project would be: (i) establishment of biodiversity/medicinal plant/farmer crop variety inventory and a national database and GIS-based management information system; (ii) identification of threatened medicinal plants and other plant species as well as wildlife species; and (iii) establishment of management and sustainable harvesting guidelines for medicinal plants and community-demand products in protected areas.

### **4. Institutional:**

- a. Executing agencies:* Ministry of Lands and Forestry
- b. Project management:* Ministry of Lands and Forestry

#### **4.1 Executing agencies:**

Until recently, central government asserted that protected areas are of national interest and that the best institution to better and effectively control the land for that national interest was the government rather than the local authority or communities. In the past, after taking over these lands central government proclaimed to be the so-called "in-trust" holder of these lands for the people, but stubbornly overlooking their rights or needs. Such situations, among others, have resulted in the common problems of poaching and encroachment, which have accompanied resource management and development in the country. Current GoG policy direction and institutional reforms are geared towards enhancing community participation in the conservation and management of natural resources and biodiversity. This paradigm shift and shedding of the "siege mentality" (i.e., the fear by resource managers that they are surrounded by a sea of hostile local interests) would need to be precipitated down to all levels in the policy-making processes and levels of administrative hierarchies. In this context, the Government would have to adopt a more effective means of ensuring that conservation and local peoples work together as partners rather than antagonists.

Although GoG has made substantive progress in mainstreaming environmental considerations into its national development agenda, it is yet to fully consider conservation of the nation's biological diversity as integral to maintaining the nation's wealth. Even when credit is given to Government of Ghana for formulating and implementing a number of sector-wide institutional and policy reforms that give some value to the conservation and development of living natural resources in its development agenda, there are areas that still need more attention and decisive action. Specific issues needing urgent action would relate to: (i) how various institutions collaborate and share information; (ii) inconsistencies of sectoral legislation and therefore the need for their review and harmonization; (iii) formulation of a national rural development strategy; (iv) restoration of traditional rights of access (use and allocation of resources, assets) to the rightful owners; (v) modalities for sharing benefits accruing from natural resource and biodiversity management and conservation; (vi) utilisation and protection of indigenous knowledge; (vii) patenting and intellectual property rights, bio-prospecting and biosafety; (viii) civil society empowerment and participation, and formulation of effective incentives to accelerate integrated development. NSBCP would support Government of Ghana to initiate effective processes of tackling these issues. An immediate challenge would be the support from NSBCP to the Government of Ghana to review and finalize the draft National Biodiversity Strategy and Action Plan by further suggesting actions and solutions for addressing

special needs of the northern savanna zone (e.g. land degradation, desertification) and incorporating issues such as those mentioned above in this paragraph. The project would support the final adoption, publication and dissemination of the strategy and action plan.

#### 4.2 Project management:

The NSBCP is closely linked to NRMP I through SRMP and as such, the management structure would be part and parcel of the SRMC management. A project coordinator would be hired and located at Tamale to coordinate project implementation. NSBCP would link up functionally with the high forest biodiversity component of NRMP I. SRMC is a multi-disciplinary agency established under NRMP I with staff seconded from various Ministries/Departments/Agencies (MDAs) including Ministry of Environment, Science & Technology (MEST/EPA), MOFA, MOE and MLGRD. The multi-disciplinary nature of the staff of SRMC would benefit the NSBCP coordinator in the implementation of project activities, which cut across all the agencies mentioned above. During pre-appraisal and appraisal of the project the existing SRMC administration and coordination arrangement was found to be sufficient to support implementation of activities under NSBCP, which would be integrated as a sub-component into SRMP. The NSBCP coordinator would be a member of the existing sub-committee established under SRMP.

There are a number of organizations whose mandates and responsibilities relate to the conservation and sustainable management of biodiversity and biological resources, but whose human and financial capacities are insufficient to fully address biodiversity conservation and management in the northern savanna zone of Ghana. Lack of coordination among various institutions in designing and implementing programs toward biodiversity conservation is an impediment. In implementing NSBCP, the coordinator would work closely with the Traditional Energy Unit (TEU) of SRMC, public and private organizations, and research and academia such as University of Development Studies (UDS), Kwame Nkrumah University of Science and Technology (KNUST), University of Ghana, Animal Research Institute (ARI), Savanna Agricultural Research Institute (SARI), and the Traditional and Alternative Medicines Directorate (TAMD). In the early stages of implementation NSBCP would assess the need to establish a Savanna Biodiversity Consultative Group and establish one if found feasible and worthy. Such a body would have representation (with appropriate and acceptable gender representation) from relevant government agencies, private sector institutions, NGOs and CBOs, local government authorities, traditional authorities and community leaders.

#### 4.3 Procurement issues:

Staff of the Project Coordinating Unit of the MLF who will be responsible for procurement, are familiar with IDA procurement and consultants selection guidelines and procedures. However, as a step towards mainstreaming the procurement function, core ministry staff should be identified for procurement training to manage procurement. All works and goods would be procured in accordance with IDA guidelines. Where National Competitive Bidding (NCB) method will be used, IDA will clear the initial bidding documents as part of the Operational Plan.

A Project Implementation Manual (PIP) containing the Detailed Procurement Plan (DPP) for the first two years will determine all procurement activities under the project. The plans will be agreed with IDA. Up-dated versions of the Global Procurement Plan (GPP) and the DPP will be submitted to IDA three months prior to the start of each subsequent fiscal year. Each quarter, a procurement monitoring report will be submitted to IDA as part of the Project Management Report (PMR).

When communities are able to organise themselves into formal/legal entities, the PIP would be

modified to describe activities for enabling community participation and training would be provided them in simplified procurement required during the operation and maintenance phase.

#### 4.4 Financial management issues:

Financial management issues are addressed in detail in Annex 6.

### **5. Environmental:** Environmental Category: B (Partial Assessment)

#### 5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including consultation and disclosure) and the significant issues and their treatment emerging from this analysis.

An environmental analysis (EA) was conducted by an interdisciplinary team of consultants between January and March 2001. The consultants visited sample reserves and non-reserve areas as well as a sampling of communities adjacent to these areas for purposes of collecting primary data and knowing the extent of community knowledge and interest in the project. Baseline information for the EA was gathered from a comprehensive review of reports on studies commissioned for NRMP, SRMP, and NSBCP or existing in other organizations. The EA report includes an Environmental and Social Management Plan (ESMP) which outlines the necessary mitigation measures as well as the institutional arrangements for implementation and monitoring, and cost estimates for the mitigation measures. The EA report makes the following conclusions with regard to environmental and social impacts:

***Impacts on the physical environment:*** Since the proposed project will support only the construction/rehabilitation of small-scale infrastructure such as ranger field stations, observation posts, and limited rehabilitation work of SRMC's office facilities in Tamale, impacts on the physical environment are expected to be limited. The EA report outlines measures designed to reduce the effects of dust and noise during construction/rehabilitation work. Any community requests for large-scale infrastructure such as roads, water supply and sanitation, health clinics will be provided through ongoing operations and will be subject to their environmental requirements (Village Infrastructure Project, Second Community Water and Sanitation Project). Furthermore, the ESMP of the proposed project provides US\$25,000 for environmental impact assessments of large-scale infrastructure as required. The establishment of faunal corridors is not expected to have any adverse impacts on the physical environment in the project area.

***Impacts on the ecological and biological environment:*** Although it is not expected that there will be a resurgence of pests or increased use of pesticides as a result of the reintroduction of crop varieties, the ESIA recommends training in IPM to ensure that potential pest recurrences can be addressed appropriately, if necessary. The ESMP provides US\$100,000 for training in IPM and best farming practices for farmers in pilot areas. The provision of small-scale infrastructure (ranger field stations, observation posts, SRMC's office rehabilitation) and the creation of faunal corridors are not expected to have negative impacts on the environment. However, the ESIA notes that the transboundary movement of wild animals in the faunal corridors may result in the transmission of animal diseases which may affect the animal population negatively. The ESMP includes US\$150,000 for the surveillance of wild animals movements.

***Impacts on the socio-economic environment:*** The ESIA notes that the project does not intend to acquire land or to limit access to sources of income for the population. However, in the event that loss of income or livelihood occurs due to project activities, it is proposed that a social assessment be conducted at that point in time through the use of a Social Assessment Framework.

#### 5.2 What are the main features of the EMP and are they adequate?

Capacity building and awareness raising at various levels, the implementation of programs for maintaining traditional rights of access to resources and income and rural livelihood as well as the



provision of alternative livelihood support systems are the main feature of the ESMP. For example, provisions will be made for (i) public education and awareness raising on appropriate land management practices and cultivation of crop and medicinal plants; (ii) short term refresher courses (i.e., in bullock ploughing, fire management) for staff from the Wildlife Department and the Forest Services Division of the Ministry of Food and Agriculture, (iii) IPM training for farmers in pilot areas, (iv) training for Veterinary Services staff in wild animal surveillance and disease treatment, (v) training for an Environmental Specialist to monitor the implementation of the ESMP, (vi) developing programs to address social safeguard issues such as possible loss of access to resources, income and livelihood, and (vii) developing programs for the creation of alternative livelihood and income-generating systems. These measures complement project activities such as the management of integrated pest management (IPM) or support for appropriate land management management and for the protection of farmers' crops and properties from moving animals in the faunal corridors.

### 5.3 For Category A and B projects, timeline and status of EA:

Date of receipt of final draft: Sent to ASPEN for clearance in August 2001

The first draft ESIA was submitted to MLF in January 2001 and reviewed in-country by various constituencies, which included public and private sector institutions including the Ghana Environmental Protection Agency and externally by peer reviewers as well as ASPEN within the Bank. The consultants incorporated comments and resubmitted the upgraded draft to MLF and the Bank. The second draft, which was cleared by ASPEN on March 10, 2001 was received at the Bank's InfoShop on March 12, 2001 (Report Number Assigned: E-445) and disclosed publicly in-country during a workshop in Tamale on March 17, 2001. A team comprising Bank and GOG staff and consultants was in the field from March 12-30, 2001 to appraise the project. Comments made at appraisal and those received from ASPEN and other reviewers were incorporated and a final ESIA document submitted in August 2001 to ASPEN for approval. ASPEN cleared the final document on October 19, 2001 and the March 10 draft was replaced at the Bank's InfoShop on October 22, 2001.

### 5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

In view of the direct effect that the project would have on the communities and villages within the pilot areas, a sample of these communities was visited. The consultants visited the pilot areas to gather supplementary data by interacting with government officials, district assembly members, NGOs, opinion leaders, chiefs and a cross-section of people, especially women and the youth in the communities. Communities that were visited live in or on the fringes (5km-10 km) of existing protected areas such as the Gbele Resource Reserve, Mole National Park, Keni-Keni Forest Reserve, Tankwidi West and Tankwidi East Forest Reserves, Sisili Central Forest Reserve, White and Red Volta River Forest Reserves etc. In the field, the consultants used interviews and the administration of questionnaires to gather data and information. The substance of the questionnaire focused on general socio-economic conditions in the communities, and how communities perceived environmental and social issues and problems relating to the project as a whole and specifically to the proposed establishment of wildlife corridors and the creation of community-dedicated reserves, re-introduction of farmer crop varieties, cultivation of medicinal plants, and enhancement of agro-biodiversity.

Staff of the MLF, WD, FSD of MOFA, EPA, and a number of traditional healers in the three regions participated actively in the preparation of the ESIA. The process has been very participatory and consultative. A submission of the initial draft of the ESIA to Ministries, Departments, and Agencies, SRMC, Industry, NGOs, civil society and communities was made in January 2001. The ESIA has been

disclosed publicly during a workshop held in Tamale on March 17, 2001. It was presented before a broad audience in an effort to consolidate people's views and to incorporate their comments and concerns into the final document. The workshop was conducted in four local languages.

### 5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?

For the purposes of monitoring, collection, collation, storage and dissemination of data and information during the implementation of the mitigation actions, the SRMC Monitoring and Management Information System Unit would be used. Monitoring would be carried out in accordance with a manual or system prepared under the NSBCP. Impacts of the project on the environment and social set up would be done using systems that would be developed under the project. A write up on Monitoring and Evaluation is presented in Annex 12.

## 6. Social:

### 6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.

The major social issues for the project are the following:

- (a) Existing incentives and commissions (from park visitations), provided by GOG to traditional authorities and communities for community involvement in the implementation of natural and biodiversity resources management activities and programs, are not sufficient to solicit support and involvement of communities in resource management. The project would consider and explore for adoption, where possible, the principles and experiences from other initiatives such as CAMPFIRE in Zimbabwe and the Namibian Black Rhino and Desert Elephant Conservation Project. NSBCP would provide support for off-farm opportunities to communities and groups and other forms of assistance to TAMD and regional THAs. The project would define actions to reach out to public and private organisations, civil society, the rural and disadvantaged poor about the value of biodiversity including medicinal plant species and the need to encourage their sustainable use and conservation.
- (b) A number of forest and wildlife reserves (for example, Mole National Park, Kenikeni Forest Reserve in the Northern Region, Gbele Resource Reserve and Naaha Community Forest Reserve in the Upper West Region, the Red and White Volta Forest Reserves in the Upper East Region) are surrounded by farming and communities involved in animal husbandry, whose livelihood depend, to a large extent, on the resources in the reserves. These communities tend to encroach/excise portions of the reserves for crop farming and grazing. Consequently, under the project, a system of reserve management, which includes the involvement of the fringe communities, will establish a system of conflict resolution arrangement. In addition, frameworks would be identified and implemented that allow reserve access by the rightful owners of the resource and other stakeholders.
- (c) As a specific example of (b) above, the existing Wildlife Division scheme to resettle the people of Gbele Community outside the Gbele Resource Reserve was not acceptable to the project. During appraisal, an agreement was reached with the Government that the community would not be subject to resettlement. Based on this agreement the Gbele Resource Reserve and the community around it are considered as pilot areas for the project. However, the project is clear that expanding land needs of the Gbele village inside the Reserve would not be met at the expense of the Reserve.

- (d) The security of community rights over natural resources, while securing biodiversity in the area, has become a debatable issue, not only in the northern savanna zone, but also all over the country. Project assistance would be provided to ensure that biodiversity management systems developed are responsive to the local communities needs and interests. Efforts would also be made to ensure that community collaboration and participation in biodiversity conservation is not purely a money saving activity by the project.

## **Gender (Annex 12)**

Social analysis of gender issues in the utilization, conservation and management of natural resources shed light on the differences in terms of authority structures, status in the community, access to land, resources, benefits, income, training and education in the construction, control and management of the environment. To bridge gender disparity and to alleviate women's vulnerabilities in natural resource utilization and management, the project would: (i) ensure that information relating to project activities reach both men and women, as well as preparing women to effectively participate in the resource management process; (ii) target women in the communities, as well as existing women's organisations, for education and awareness on biodiversity and medicinal plant conservation and safe use; (iii) promote alternative sources of energy and efficient use of fuel wood; (iv) support women to conserve existing medicinal plants through cultivation; and (v) promote mechanisms for the active and full participation of women, especially traditional healers and TBAs in the THAs.

Although registered traditional healers are overwhelmingly males in the three regions, health management within families is undertaken by women. Reproductive health is the responsibility of TBAs who delivery the majority of babies in rural communities. Because of their role in pre and post-natal activities the TBAs are under increasing exposure to HIV/AIDS infection, and if infected virus transmission. Training in the prevention of HIV and care and treatment of AIDS patients and the need for reproductive training and refresher courses are recognized as priority needs by regional directors of health.

### **6.2 Participatory Approach: How are key stakeholders participating in the project?**

Primary beneficiaries and other affected groups include: farmers/community groups, academic institutions, Government (local and national), traditional healers, women's groups, local NGOs (e.g., Aid for Development (AFORD), Gub-Katimali, Amasachina, Partners in participatory Development (PAPADEV), Tiyumba Integrated Development Association (TIDA), Katchito Community Development Center (KCODEC), Bimoba Literacy Farmers Co-operative Union (BILFACU), Presby Mile 7 Agricultural Station, Catholic Relief Services, Adventist Development Relief Agency, Ghana-Danish Community Project, Village Aid, Tamale Arch Diocesan Agricultural Project (TAAP), Tamaiko Herbal Clinic, Upper East Woman's Group, Suntaa-Nuntaa, 31st December Women's Movement), and other donor agencies operating in the project area. These beneficiaries and groups have been fully involved in a participatory manner in design, preparation and appraisal of this project. Furthermore, their involvement in the implementation would be central to fulfilling the objectives of this project. Through the Savanna Resource Management Center and its multi-agency setup, community participation is direct and the role of local government is guaranteed. Information sharing among all stakeholders has been and would continue to be key in project design, implementation, monitoring and evaluation.

Participatory rural appraisals would be part of the project's management planning process in order to ensure that local communities concerns are addressed effectively. The management plan would need the endorsement of the communities in the area. Therefore, from the outset, the project has been and would continue to be characterized by a strong participatory approach. It builds on lessons learned in community

participation and management in the GEF-financed Coastal Wetlands Management Project and in the community consultation approach used in GEF-sponsored coastal zone management sector work in Ghana. Investments in alternative livelihoods (targeting women, the poorest, etc) to compensate for forgone short-term revenues due to adoption of a more controlled management regime for high-priority savanna biodiversity conservation sites would be channeled through community-based mechanisms to finance environmentally sound and sustainable activities. IPRs would be protected under this project. There would be no resettlement undertaken in this project. EPA would be involved in the production public education materials (such as instruction videos) for communities involved. Under this project the Center for Scientific Research into Plant Medicine at Mampong-Akuapem, the Noguchi Memorial Institute and the School of Pharmacy, University of Science and Technology, Kumasi, would continue to assist in identifying the safety and efficacy of traditional herbal medicines. The Traditional Medicine Program, World Health Organization (WHO) has linked with AFTR2 to identify traditional herbal medicines used in the treatment of malaria under the Roll Back Malaria Program and opportunistic diseases associated with HIV/AIDS in Ghana, Benin and Nigeria. The medicinal plant components of NSBC Project would link with and exploit synergies with these other activities in order to ensure sustained impacts of interventions.

| <b>Stakeholders and Beneficiaries</b> | <b>Preparation</b> | <b>Implementation</b> | <b>Operation</b> |
|---------------------------------------|--------------------|-----------------------|------------------|
| Communities                           | CON                | COL                   | CON/COL          |
| THs and TBAs                          | CON                | COL                   | CON/COL          |
| THAs                                  | CON                | COL                   | CON/COL          |
| Intermediary NGOs                     | CON                | COL                   | CON/COL          |
| Academic Institutions                 | CON                |                       | CON/COL          |
| Local government                      | CON/COL            | COL                   | COL              |
| Other donors                          | IS/CON/COL         | COL                   | IS/CON/COL       |

Note: CON: consultation, COL: collaboration, IS: information sharing.

### **Other key stakeholders**

Project preparation included a number of pilots to involve park officials, communities and specifically targeted stakeholders, (THs, TBAs, farmers, rural women) in harvesting and management of non-timber forest products, medicinal plant species survey, farmer crop variety demand and availability, fire control and other revenue generating enterprises. These were initiated and carried out using funds from a GEF PDF – Block B Grant. Lessons learned and experienced gained would be put in practice by the Project Coordinator through the SRMC.

### **6.3 How does the project involve consultations or collaboration with NGOs or other civil society organizations?**

The project recognizes the skills of NGOs and other civil society actors (including women and youth groups) and fully intends to utilize them to elicit the active participation of beneficiary communities living in or on the fringes of the reserves and parks. Being mostly local and close to the communities, through animation and participatory techniques, they bring to the project their knowledge of the terrain and skills they have specialized in to sensitize communities about development objectives. There are a good number of civil society actors in the three northern regions with the requisite indigenous and professional experiences needed to support and carry out the implementation of project interventions.

The project has adopted a participatory and collaborative approach to achieve its objective of developing and implementing comprehensive strategies for managing and conserving savanna biodiversity. Many local NGOs and CBOs, particularly development and environmental NGOs, as well as traditional authorities (e.g., skins and earth priests/priestesses) and traditional healers have been involved from the beginning in project design, preparation and appraisal and their involvement in implementation is seen as crucial to achieving the overall goal of the project. Through community animation methods, NGOs/CBOs are expected to play a key role in creating and raising awareness about the link between sustainable use and conserving the resources of the reserves and parks and the sustainability of community livelihood. They would also assist project managers in developing awareness enhancing strategies such as community theaters, media messages and programs, and gender mainstreaming. Community participation in conservation and management to promote community ownership of various management practices will be fostered by the project with the active participation of NGOs, especially CBOs. The project recognizes that all actions that concern communities such as the establishment and management of the two faunal corridors described in Annex 2 will require the assistance of NGOs/CBOs who will mobilize and sustain community support and active participation. Furthermore, decision making on and implementation of reserve and park management and development activities would be done with all key stakeholders including NGOs as equal partners.

### **6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?**

NSBCP has identified social development goals such as gender equity and access, empowerment and participation, poverty reduction, environmental protection, capacity building, improvement of livelihood, human health and income levels, alternative income-generation among others and set itself the task of ensuring that these are adequately addressed.

Institutional arrangements include the Savanna Resource Management Center and its multi-agent set-up to ensure that community participation is direct, the inclusion of primary beneficiaries and other stakeholders such as farmers' groups, academic and research institutions, relevant MDAs such as the Forestry and Wildlife Divisions of the Forestry Commission, local government agencies, and local NGOs and CBOs as well as traditional healers, traditional authorities, traditional birth attendants and opinion

leaders. The project will be supported with funds from two ongoing Bank-funded projects namely the VIP and CSWP-2 to provide participating (pilot) communities with small-scale rural infrastructure investments such as schools, market places, boreholes, mechanized wells, health posts and clinics, etc.. NSBCP is organically and functionally linked to the ongoing Bank-supported SRMP and the DANIDA-funded Traditional Renewable Project. During implementation NSBCP will continue to explore and deepen linkages to other domestic and externally-funded ongoing and new projects.

Technical support would be provided by a number of public, private and civil society organizations. In many cases, emphasis has been placed on the involvement of communities, community-based organizations and NGOs and specifically targeted stakeholders such as TBAs, THs, traditional rulers and opinion leaders as well as local government authorities. At the project level (i.e., implementation level in the communities) the establishment of resource management committees at the local level (e.g., WPAMC, FMC, DEMC, etc.) would ensure that social development issues would be highlighted and monitored, and interventions toward achievement of social development outcomes are strictly carried out.

#### 6.5 How will the project monitor performance in terms of social development outcomes?

To track social indicators, NSBCP would make use of beneficiary and social assessments. Social impact assessments would measure the impact of field activities on the basis of stated activities. Monitoring and evaluation would be carried out with the involvement of beneficiary communities working in close collaboration with various agencies, both governmental and non-governmental. Participating agencies and communities would agree on monitoring indicators. The SRMC will monitor and ensure the satisfactory implementation of the Environmental and Social Mitigation Plan described in Annex 13 of the PAD.

At the local level, community members would be selected from the forest management committees and wildlife protected area management committees as enumerators. Data would be collected with the help of structured surveys, interviews, participatory rapid appraisal, rural rapid appraisal and direct observations.

### 7. Safeguard Policies:

#### 7.1 Do any of the following safeguard policies apply to the project?

| <b>Policy</b>   | <b>Applicability</b>  |
|---|---|
| <b>Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)</b>         | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| <b>Natural Habitats (OP 4.04, BP 4.04, GP 4.04)</b>                 | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| <b>Forestry (OP 4.36, GP 4.36)</b>                                  | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| <b>Pest Management (OP 4.09)</b>                                    | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| <b>Cultural Property (OPN 11.03)</b>                                | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| <b>Indigenous Peoples (OD 4.20)</b>                                 | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| <b>Involuntary Resettlement (OP/BP 4.12)</b>                        | <input checked="" type="radio"/> Yes <input type="radio"/> No |
| <b>Safety of Dams (OP 4.37, BP 4.37)</b>                            | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| <b>Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)</b> | <input type="radio"/> Yes <input checked="" type="radio"/> No |
| <b>Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)*</b>      | <input type="radio"/> Yes <input checked="" type="radio"/> No |

#### 7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

Detailed costed Environmental and Social Mitigation Plan has been developed and the project has earmarked US\$383,000 for the implementation of the Plan (See Annex 13). Implementation of the ESMP will be monitored by SRMC and evaluated during the biannual project supervision missions and project

completion evaluations carried out jointly or separately by donors and the Government of Ghana.

## F. Sustainability and Risks

### 1. Sustainability:

Government's commitment in terms of sustaining policy reforms as well as staff and funding of project initiatives after the project ends is crucial. Success in developing community-based project design and implementation is necessary if there is to be enduring project ownership by the beneficiaries. Using clearly defined benchmarks, the project seeks to enhance sustainable community use and management of savanna resources while ensuring that globally significant biodiversity resources are protected. This enhanced protection of biodiversity would need to be based on negotiated agreements with the local communities that demonstrate locally verifiable benefits in the form of alternative livelihood system. The success of the project in encouraging reforestation and rehabilitation of degraded savanna areas is crucial to the sustainability of the envisioned biodiversity conservation measures. Hence, Government's commitment to improving community knowledge and field capacity for effective stewardship of biodiversity resources through integrated land management strategies would ultimately determine the sustainability of conservation achievements.

### 2. Critical Risks (reflecting the failure of critical assumptions found in the fourth column of Annex 1):

| Risk   | Risk Rating | Risk Mitigation Measure  |
|--|-------------|--|
| <b>From Outputs to Objective</b><br>Lack of institutional capacity and collaboration among existing institutions for biodiversity conservation, management and utilization | M           | Funds would be provided to strengthen capacity of collaborating institutions                           |
| <b>From Components to Outputs</b><br>Delays in the development of project implementation and management capacity   | N           | Recruitment of a project coordinator with adequate staff and authority                                 |
| Lack of motivation and collaboration of local communities, particularly traditional healers, to develop and adopt sustainable management practices                         | M           | Local community outreach and training included in project activities secure their active collaboration |
| Delayed collaboration between participating ministries (MLFM, MOH, MOFA)   | N           | Resources provided to facilitate collaboration   |
| <b>Overall Risk Rating</b>   | M           |  |

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)

### 3. Possible Controversial Aspects:

None.

## G. Main Conditions

### 1. Effectiveness Condition

- Project Implementation Manual including a Project Implementation Plan would be completed and approved by the Bank.
- Project Coordinator with qualifications acceptable to the Bank appointed prior to effectiveness.
- Recruitment of independent auditors with qualifications acceptable to the Bank appointed prior to effectiveness.
- An annual work program including procurement schedules for the first year of implementation acceptable to the Bank prepared.
- An adequate financial management and accounting system, acceptable to the Bank established.

### 2. Other [classify according to covenant types used in the Legal Agreements.]

- As a condition of negotiations, the recipient should submit to the Bank a letter of sector policy toward ensuring that forest and wildlife management, including biodiversity utilization would be done on a sustainable basis.
- The Recipient shall ensure that the people living inside the Gbele Resource Reserve as of the 2000 National Population Census shall be permitted to continue to live in the reserve and shall be eligible for benefits under the Project.
- The Recipient shall:
  - (a) not later than October 31 in each year, furnish to the Bank for review and comments a draft annual work program and supporting budget for the succeeding calendar year;
  - (b) not later than November 30 in each year: (i) review with the Bank the documents referred to in paragraph (a) above; (ii) identify implementation issues and propose appropriate solutions; and (iii) update Project timetables and performance indicators;
  - (c) not later than December 31 in each year, furnish to the Bank for its comments and final approval the work program and budget referred to in paragraph (a) hereof, as such program and budget shall have been revised to the satisfaction of the Bank in the course of the review referred to in paragraph (b) hereof and, except as the Bank shall otherwise agree, carry out the Project in the year in question on the basis of the said work program and budget as so revised.

## H. Readiness for Implementation

- 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
- 1. b) Not applicable.
- 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.
- 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.
- 4. The following items are lacking and are discussed under loan conditions (Section G):



## **I. Compliance with Bank Policies**

- 1. This project complies with all applicable Bank policies.
- 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.

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Edward Felix Dwumfour  
**Team Leader**

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Joseph Baah-Dwomoh  
**Sector Manager**

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Peter Harrold  
**Country Manager/Director**

## Annex 1: Project Design Summary

### GHANA: Northern Savanna Biodiversity Conservation Project

| Hierarchy of Objectives   | Key Performance Indicators   | Data Collection Strategy   | Critical Assumptions  |
|---|--|--|---|
| <p><b>Sector-related CAS Goal:</b><br/><b>CAS Goal:</b><br/>Poverty alleviation through environmentally and socially sustainable economic growth</p> <p><b>Sector-related CAS Goal:</b><br/>Improvement in healthcare, environment and economic livelihood of Northern Savannah zone.</p> <p><b>GEF Operational Goal:</b><br/>Assessment and marked improvement of conservation of globally significant biodiversity in the northern Savannah zone.</p> | <p><b>Sector Indicators:</b></p> <p>Reduction in level of rural poverty in the Savannah zone based on project activities.</p> <p>% improvement of healthcare, environment and livelihood systems through biodiversity conservation and sustainable use of resources.</p> <p>Success in in-situ conservation and management of protected Savannah forests and wildlife areas as well as the surrounding habitats.</p>   | <p><b>Sector/ country reports:</b></p> <p>GLSS reports, annual UNDP reports, poverty profiles, PRSP monitoring, M&amp;E component of the project</p> <p>GLSS reports, annual UNDP reports, poverty profiles, PRSP monitoring, M&amp;E component of the project. Government publications.</p> <p>MLFM/SRMP reports, Land use land cover mapping by NRMP GEF-Project Progress Report</p> | <p><b>(from Goal to Bank Mission)</b></p> <p>Improved biodiversity and enhanced sustainable social and economic development through improvement in livelihoods and health.</p> <p>Other Bank-supported programs that target reduction of poverty are successful</p> |
| <p><b>GEF Operational Program:</b><br/><b>Project Development Objective:</b><br/>Improve livelihood, health and environment of communities in the northern savanna zone through conservation and sustainable use of natural resources including medicinal plants.</p>   | <p>An effective biodiversity conservation policy framework (NBSAP) that takes into account issues highlighted under paragraph 4 Institutional) of Chapter E (Issues Requiring Special Attention) of the PAD.</p> <p>Increased adoption of improved plans and effective measures for biodiversity management and conservation in the Savanna Zone by communities.</p> <p>Increased awareness of biodiversity management and conservation issues by the public especially rural communities.</p> <p>Increased acceptance by the public especially farmers to maintain agro-biodiversity in</p> | <p>Policy documents, Legislative Instruments</p> <p>Published reports and plans.</p> <p>Baseline surveys, M&amp;E reports.</p> <p>Baseline surveys, M&amp;E reports</p>  | <p>GOG commitment to conservation, management and sustainable utilization remains strong.</p> <p>Local authorities and communities cooperate and support activities.</p>  |

|   |  |  |   |
|---|--|--|---|
|   | plant and crop gene banks.   |  |   |
| <p><b>Global Objective:</b></p> <p>Identify, monitor, conserve key components of globally significant biodiversity in the northern savanna zone through ecosystem management, conservation and management policies, identifying endemic species habitats for protection, preservation of medicinal plants resources and knowledge, and maintaining cultivation of farm crops.</p> | <p><b>Outcome / Impact Indicators:</b></p> <p>Hectares of savanna priority areas including on and off reserves under effective management.</p> <p># of regeneration of threatened, endemic and rare biotic species in the priority areas.</p> <p># of communities effectively involved in propagation of important indigenous crops and medicinal plants.</p> <p># of hectares put under cultivation of farmer crop varieties and medicinal plant species.</p> <p>% Reduction in encroachment of natural habitats.</p> <p>% Rehabilitation of degraded lands and restocking of wildlife protected areas.</p> | <p><b>Project reports:</b></p> <p>Published reports, FSD and WD annual reports, NRMP progress reports, Land use/land cover maps.</p> <p>Published reports, Project quarterly and annual reports, supervision reports, ICR</p> <p>Baseline survey and project progress reports. Published reports, Project quarterly and annual reports, supervision reports, ICR.</p> <p>Published reports, Published reports, Project quarterly and annual reports, supervision reports, ICR</p> <p>Published reports, Project quarterly and annual reports, supervision reports, ICR</p> <p>Published reports, Project quarterly and annual reports, supervision reports, ICR.</p> | <p><b>(from Objective to Goal)</b></p> <p>Participatory process allows stakeholders and GOG agencies to reach long-term agreement on objectives and strategies for Savannah resource management.</p>    |
| <p><b>Output from each Component:</b></p> <p><b>1. Formulating the Policy Framework:</b></p> <p>a. Policies/strategies for biodiversity conservation and management formulated.</p> <p>b. An effective Intellectual Property Rights (IPR) policy (including benefit sharing) and bio- prospecting guidelines for the utilization</p>  | <p><b>Output Indicators:</b></p> <p>Policies/strategies related to biodiversity reviewed by end PY02, broader consultations carried out by end PY03, and an effective national policy on biodiversity management developed by end PY04, and implemented by end PY05.</p> <p>Draft IPR policies and bio-prospecting guidelines developed and tested by end PY03, and finalized by end PY05.</p>   | <p><b>Project reports:</b></p> <p>Project Supervision reports. Project quarterly and annual progress reports.</p> <p>Project Supervision reports. Project quarterly and annual progress reports.</p>   | <p><b>(from Outputs to Objective)</b></p> <p><u>Development/Global Objective:</u></p> <p>GOG willingness and capacity to implement requisite institutional and organizational changes and strategy.</p> |

|   |   |   |   |
|---|---|---|---|
| <p>of biodiversity resources and indigenous knowledge developed.</p> <p>c. Review, finalization and adoption of the National Biodiversity Action Plan (NBSAP).</p> <p>d. Specific regulations regarding traditional medicine practice and codes of conduct for traditional healers associations developed.</p>  | <p>NBSAP review completed by end PY02; revised document incorporating bio-prospecting and biosafety issues finalized and approved by GOG by Y04, and implemented by PY05.</p> <p>Northern region-wide discussions on the Traditional and Alternative Medicines Act completed by PY01. Regulations on traditional medicine practice and codes of conduct for THAs developed and adopted by PY03. Implementation of regulation and code of conduct by PY04.</p> | <p>Published NBSAP document. Consultant's reports. Workshop reports. Cabinet notification letter. National gazette notices. Project quarterly and annual progress reports. Legislative instruments.</p> <p>Published regulations and codes of conduct. Consultant's reports. Workshop reports. Cabinet notification letter. National gazette notices. Project quarterly and annual progress reports. Legislative instruments.</p> | <p>Willingness of the Ministry of Environment, Science and Technology to release draft document and participate in the review and finalization.</p> <p>TAMD, healers' and traditional medicine providers' agreement to work together.</p> |
| <p><b>Project Components / Sub-components:</b><br/><b><u>2. Capacity Building and Awareness Raising</u></b></p> <p>a. (i) Capacity and collaboration of national, regional and district level government agencies (MLFM, MOFA, MOH, MEST, EPA, DAs, PGRC) for implementing programs and activities toward sustainable biodiversity management strengthened.</p> <p>(ii) Capacity of the project</p> | <p><b>Inputs: (budget for each component)</b></p> <p>a. (i) Institutional capacity assessment conducted and training needs identified by end PY01. Training completed 40 % by end FY02, 60% by FY03, 80% by end FY04 and 100% by end PY05. Construction of ranger camps and observation posts completed by PY03. Supply of goods and equipment completed by PY04.</p> <p>a. (ii) Capacity assessed and</p>  | <p><b>Project reports:</b></p> <p>Progress and supervision reports<br/>Implementation completion report.</p> <p>Progress and supervision reports. Implementation</p>  | <p><b>(from Components to Outputs)</b></p>  |

|  |  |  |   |
|--|--|--|---|
| implementation unit (SRMC) to collaborate and implement NSBCP strengthened.                                  | PIU up to 90 % strengthened by end PY01 and 100% by end PY02.  | completion report.   |   |
| b. Establishment of a herbarium in Tamale  | Capacity needs including training needs assessment completed by PY01; Herbarium fully established by end PY04 (40% by PY02, 80% by PY03). # of plant species effectively kept by end PY02.   | Project progress reports<br>Project supervision reports, ICR.  | Resources are provided in timely manner   |
| c. Biodiversity Management Information Systems and GIS database developed.                                   | Needs assessments completed in PY01. Procurement and installation of equipment completed by end PY02 and training of staff completed by PY02. NSBCP M&E system fully integrated into NSBCP MIS by end PY02. NSBCP MIS fully integrated into SRMC MIS by end PY03.  | Progress and supervision reports, M&E reports.<br><br>Monitoring reports, ICR and relevant data generation.                                      | MOH fully supports Directorate strengthening.   |
| d. Traditional and Alternative Medicines Directorate of MOH strengthened. Support to THAs and TBAs, GHATRAM. | Capacity assessment conducted and training needs identified by PY01. Procurement and supply of goods and equipment to TAMD completed by PY02.  | Progress and supervision reports, M&E reports.<br>Workshop reports   |   |
| e. Capacity building and Awareness Raising for Civil Society and Communities.                                | Capacity and training need assessment completed by end PY01. Training plan developed by end PY01.<br><br>% people/groups trained by PY02 (30%), PY03 (40%), PY04 (50%), PY05 (60%) and PY06 (70%).<br><br># of communities that have received education and awareness.<br><br># education and awareness campaigns carried out in a year. | Progress and supervision reports.<br>Implementation completion reports.<br><br>Education and mass awareness documents prepared and disseminated. | Public interest and support of communities; commitment to sustainable resource use/conservation activities. |
| <b><u>3. Biodiversity Conservation, Research and Development</u></b>   |  |  |   |
| a. Development of  | Biodiversity management  | Baseline survey and SRMC   |   |

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| <p>Biodiversity Management and Conservation Systems and Strategies for pilot protected areas including "hotspots" and endemic species.</p>   | <p>systems and strategies developed and implemented by PY06.</p>   | <p>progress report.</p>   |   |
| <p>(i) Detailed socio-economic surveys of communities living in and around protected area systems for 10 forest and 2 wildlife reserves.</p>   | <p>Socio-economic surveys completed by PY01.</p>   | <p>Consultants' reports. Project quarterly and annual progress reports.</p>                   | <p>Communities would not encroach on forest and wildlife reserves and would collaborate in achieving sustainable management objectives.</p>           |
| <p>(ii) Detailed ecological and biological surveys conducted in 12 protected areas and endemic species and hotspots" identified.</p>   | <p>Surveys completed by end PY02.</p>  | <p>Consultants report. Projects quarterly and annual progress reports. SRMC reports. ICR</p>  |   |
| <p>(iii) Biodiversity management plans for 10 forest and 2 wildlife reserves and strategies for the protection and management of "hotspots" and endemic species developed and implemented.</p> | <p>Management for 10 forest and 2 wildlife reserves developed and adopted by PY05 (4 MPs by PY03, 8 MPs by PY04). Strategies for managing and conserving hotspots and endemic species developed and implemented by end PY06.</p>   | <p>Consultants report. Projects quarterly and annual progress reports. SRMC reports. ICR.</p> |   |
| <p>(iv) Strategies for cultivation and protection of indigenous crop varieties in PAs developed and implemented.</p>   | <p>Strategies developed and implemented by end PY06. # of PAs in which indigenous crop varieties have been preserved. % distribution of indigenous crop varieties in a PA.</p>   | <p>Consultants report. Projects quarterly and annual progress reports. SRMC reports. ICR.</p> | <p>Local communities capable and willing to implement agreed activities.</p>  |
| <p>(v) Empowering key stakeholders (particularly communities) for biodiversity conservation.</p>   | <p># of WPAMCs, FMCs, DEMCs, CEMCs established and effectively resourced. # of community representatives on the committees. # of times committees participate in the planning process and implementation of annual work plans of FSD and WD. % share of revenue and benefits to communities. % reduction in poaching and encroachment.</p> | <p>Projects quarterly and annual progress reports. SRMC reports. ICR.</p>                     | <p>State resource managers' preparedness to shed off the "siege mentality". Local communities capable and willing to implement agreed activities.</p> |
| <p>b. Improving biodiversity</p>   | <p>Pilot areas identified in PY01.</p>   | <p>Projects quarterly and annual</p>  | <p>Willingness of stakeholders to</p>   |

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| <p>conservation through land management and restoration of degraded lands in 6 pilot off-reserve areas.<br/>3 off-reserve pilot areas identified for each of the following:<br/>- restoration of degraded lands;<br/>- medicinal plant cultivation;</p> | <p>Studies on soil-species match completed by PY01.<br/># of pilot cultivation trials initiated by end PY02.<br/># of hectares under cultivation trials.<br/># of people engaged cultivation pilot trials.<br/>Survival rate of cultivated plants.<br/># of field gene banks of medicinal plants established by the end of PY06.</p>   | <p>progress reports. Supervision reports. ICR.</p>                                      | <p>actively participate in implementing activities on the ground.<br/><br/>THAs and TBAs can provide early warning impact on species before changes in numbers become apparent.</p> |
| <p>c. Developing and sustaining biodiversity in wildlife corridors.</p>   | <p># of broader consultations with communities surrounding the two faunal corridors and other key stakeholders held and completed in PY01.<br/>MOU signed between PA managers, DAs and local communities by end PY01.</p>  | <p>Project quarterly and annual progress reports. Project supervision reports. ICR.</p> |   |
| <p>(i) Support management and development of community "dedicated" reserves.</p>  | <p># of community dedicated reserves established and maintained.<br/># of hectares of community lands put under permanent cropping, e.g. woodlots or under no-burn regimes.<br/># of hectares of community land incorporated into the corridor.<br/># of communities involved in activities compatible with corridors development.</p> | <p>Project quarterly and annual progress reports. Project supervision reports. ICR.</p> |   |
| <p>(ii) Support conservation of wild animals.</p>   | <p>% increase in numbers of key species such as elephants.<br/>% reduction in wild animals poached.<br/>% increase in tourism receipts.<br/>% reduction in incidence and severity of crop raiding.<br/># people in the community willing to engage in patrol of PA boundaries.</p>   | <p>Project quarterly and annual progress reports. Project supervision reports. ICR.</p> |   |
| <p>d. Sustaining medicinal plant resources.</p>   | <p># of communities and people cultivating medicinal plants in field gene banks.</p>   | <p>Project quarterly and annual progress reports. Project supervision reports. ICR.</p> |   |

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| <p>e. In-situ germplasm development (field gene banks for sustainable production of agro-biodiversity)</p> <p>f. Ex-situ germplasm conservation.</p> | <p># of species of medicinal plants cultivated.<br/># of hectares cultivated.<br/>Ratio of volume of medicinal plants harvested from the wild and from cultivated plots.<br/>Length of distances covered by collectors.<br/>% increase in incomes of healers and collectors.<br/># of farmers with field gene banks registered.<br/># of farmer variety and medicinal plants conserved or cultivated.<br/>Hectares under in-situ conservation.<br/># of requests for planting material made by individuals.<br/># of germplasm collected and stored.<br/># of successful replications made.<br/># of requests for germplasm made to the repository agency.</p> | <p>Project quarterly and annual progress reports. Project supervision reports. ICR.</p> <p>Project quarterly and annual progress reports. Project supervision reports. ICR.</p> |  |
| <p><b><u>4. Project Management, Monitoring and Evaluation</u></b></p>  |  |   |  |
| <p>a. Project Management operational and fully integrated into SRMC.</p>   | <p>Project coordinator appointed. Ancillary staff appointed. Project management fully integrated into SRMC in PY01.</p>  | <p>Advertisement. Interview report. Approved contract document.<br/>Project progress and supervision reports.</p>   | <p>Commitment by MLFM to support PMCU and implement the project.</p> |
| <p>b. Project monitoring and evaluation system developed and implemented.</p>  | <p>Monitoring and Evaluation system integrated into M&amp;E at SRMC and fully operational by end PY01. M&amp;E coordinator appointed within SRMC.</p>  | <p>M&amp;E reports.<br/>Project progress and supervision reports. ICR.</p>  | <p>Availability of counterpart staff.</p>                            |
| <p>c. Environmental and Social Mitigation Plan (ESMP) integrated and implemented.</p>  | <p>ESMP fully integrated into the overall M&amp;E system of the project in PY01.<br/># of mitigation actions already implemented.<br/># of training for ESMP implementers conducted.</p>   | <p>Project quarterly and annual progress reports. M&amp;E reports. Project supervision reports. ICR</p>   |  |
| <p><u>Project Components/ Sub-components</u></p>   |  |   |  |
| <p>1. Formulating the Policy Framework</p>   | <p>US\$0.50 million</p>  | <p>Disbursement reports.</p>  | <p>Timely and adequate counterpart funds maintained.</p>             |
| <p>- 40 -</p>  |  |   |  |
| <p>2. Capacity-building and</p>  | <p>US\$3.07 million</p>  | <p>Annual audit reports</p>   |  |



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## **Annex 2: Detailed Project Description**

### **GHANA: Northern Savanna Biodiversity Conservation Project**

#### **Background**

The key issues on natural resource management in Ghana are land and forest degradation, loss of flora and fauna biodiversity associated with unsustainable harvesting levels in both the high forest (timber extraction) and savanna zones (poles/woodfuel and medicinal plants), and unsustainable land use practices especially crop farming and livestock grazing. Biodiversity in the savanna zone is a vital economic resource, particularly to the poor segment of the rural population. Biodiversity conservation is primarily a land-use issue with the driving force of land degradation being population pressure, inappropriate agricultural practices, over-exploitation and introduction of competition from exotic species.

The development objective of the NRMP is to protect, rehabilitate, and sustainably manage national land, forest and wildlife resources and to sustainably increase the income of rural communities who own these resources. The global environmental objective is to increase the ecological security of the globally significant biological resources, especially within threatened tropical moist forest ecosystems. A six-year GEF biodiversity component of US\$8.70 million (focusing on the southern high forest) was linked to NRMP I and II. Although the NRMP I was approved on May 1998, it became effective on June, 1999 to be completed by June 2001. Nevertheless NRMP I has now been extended to end in June, 2002. The context of the GEF supported Northern Savanna Biodiversity Conservation project is to complement the last year of NRMP I (2 years), the proposed NRMP II (4 years) and NRMP III (4 years), NSCBP would start April 2002 to overlap with the last year of NRMP I, NRMP II for 4 years and NRMP III for one year.

The Sudan and Guinea savanna zones include the northern, drier, two thirds of the country, where the main economic activities are the production of annual crops (cereals, legumes, root crops, cotton) and livestock. While the northern savannas are home to about one third of wildlife species in Ghana, annual bushfires affect 50 percent of the savannas, destroying species of flora and fauna and reducing biodiversity.

The savanna zones are also under tremendous pressure from growing human and livestock populations, agricultural expansion, inappropriate farming practices, deforestation, bush fires, and introduction of new crop varieties that are replacing indigenous varieties. All these activities contribute to land degradation and loss of biodiversity and identified in the NEAP as one of the major environmental issues in Ghana. A number of problems can be directly linked to increasing land degradation. They include: (i) a poorly developed market system that does not price exploited natural resources at their real economic value while providing easy (open) access to dwindling communally-owned natural resources; (ii) inefficient public regulating agencies with overlapping responsibilities; (iii) inadequate/negligible involvement by key stakeholders including local communities in natural resource management; (iv) weak institutional capacity in the wildlife sector and little involvement of communities in the management and sustainable use of wildlife resources; and (v) lack of inter-agency coordination in planning and monitoring natural resource use, especially at the district and field levels.

All land including forest and savanna woodland reserves in Ghana are owned by the local communities and traditional authorities. Regarding reserves, the government's role is to manage these resources in trust for the people. The key objectives of Government natural resource policy include: (a) ensuring sustainable production of forest products, (b) preventing further environmental degradation due to deforestation and inappropriate farming practices, and (c) stimulating community involvement in management of natural resources and enhanced economic well-being of rural communities. Specific policy

and institutional reforms that were identified to address these objectives are directed at four areas: development of procedures for allocating timber utilization contracts, forest revenue policy, trade policy, and restructuring of forest and wildlife sector institutions. Technical and analytical studies to design a coherent sector-wide program of policy and institutional reforms have been undertaken, resulting in the adoption of a new National Forest and Wildlife Policy in 1994 based on three pillars of resource protection, sustainable production, and involvement of local rural people. Subsequently, a system-wide master plan, the Forest Development Master Plan (1996-2020), was developed to implement the policy. A companion legislation in Wildlife Management is also being prepared.

Medicinal plants and the traditional knowledge of their use have been the mainstay of healthcare in northern Ghana for centuries. While the government is doing all it can to increase the availability of modern healthcare, especially in rural areas, the majority of public health posts are poorly equipped and administered and per capita allopathic drug expenditure is low. Two important government actions have given greater acceptance to the value of traditional healthcare in Ghana. First, to regulate the practice of traditional medicine, register practitioners and license premises for practice and to regulate the preparation and sale of herbal medicines a Traditional Medicine Practices Act (No. 575) was passed in 2000. Apart from being the first of its kind in Africa, this Act not only legitimizes traditional medicines and healers, but may also put more pressure on the affected plants species due to the increased national attention. Since the majority of plants used for traditional medicines are harvested from the wild, it is important that this basic resource is protected through sustainable harvesting and/or cultivation. Second, MOH has established a Traditional and Alternative Medicines Directorate (TAMD). The Directorate would serve to integrate a safe and regulated traditional medicine practice into the National Health System, and play an important intermediary role between MOH and MLF in the implementation of the project. Such a role would help link the demand for plant-based drugs and their sustainable supply from in-situ and ex-situ sources.

Other relevant government policies include: (a) the draft National Biodiversity Strategy and Action Plan and the National Forest Protection Strategy which seek to: (i) safeguard genetic diversity and diversity of indigenous faunal and floral species through an ecosystem approach to management within all ecological zones, (ii) improve knowledge of the distribution and status of rare, threatened and endemic fauna species through targeted surveys, (iii) enhance protection of critical areas for migratory species through improved monitoring and habitat management, and (iv) ensure sustainability and preserve genetic diversity within non-timber forest species that are collected by rural populations for medicinal and consumptive uses through improved data collection, regulation of harvesting, and proactive management; and (b) the National Land Policy (1999) which seeks the application of the principles of sustainable resource development to the management of the country's land and water resources.

### **Project Objective and Components**

The proposed NSBCP project would be implemented over six years and focus on the three northern regions of Ghana. Its objectives seek improvement in environment, healthcare and economic livelihood, and the conservation of globally significant biodiversity in the northern savanna zone and would complement the NRMP APL, and the baseline activities would be covered under the NRMP II. The NSBCP consists of four components aimed at promoting application of improved savanna land and natural resources management techniques, involvement of communities in biodiversity and savanna resources conservation, management and use. The proposed project would apply lessons learnt and complement the community-based management planning processes being generated by the NRMP I for forest reserves, wildlife protected areas, savanna woodland and integrated community-based watershed management, from which specific action programs to enhance global benefits of savanna ecosystems would be developed and tested.

Overall, NSBCP would fund expenses including the following items:

- Small or minor civil works involving the construction or rehabilitation of ranger field stations and fire observation posts in protected areas;
- Incremental costs in park or reserve boundary maintenance, fire belt construction and maintenance;
- Goods including communications equipment, office equipment (e.g., computers, printers, fax, etc), vehicles, motorcycles, bicycles, field implements (e.g., navigational and survey tools, clothing, cutlasses, etc. laboratory equipment and chemicals (e.g., autoclave, analytic balance, incubators, luminar flow hood, reagents and chemicals, portable fume chamber, microcentrifuge);
- Consultant services - domestic and international consultants in the areas of protected areas management, terrestrial ecology, soil fertility improvement, biological and socio-economic surveys, fire prevention and control, anti-poaching operations, boundary survey, remote sensing, community education and awareness, training, women's issues;
- The establishment of pilot farmer-based / cultivation (agronomic trials outside of reserve and protected areas would utilize (traditional healers in rural areas seldom derive income from healthcare practices, their primary source of livelihood is farming);
- Farmer knowledge to ensure a sustainable supply of medicinal plants and/or parts;
- Community training and awareness activities, professional development for park/reserve management staff, on-site;
- Ranger/community training programs, local community leaders training and workshops;
- Incremental salaries and allowances for community animators/contracting, contract staff, traveling responsible agencies staff; and
- Incremental operating costs for field equipment and facilities maintenance, operation of vehicles, office equipment, etc.

Key outputs for this component are: (i) formulation and implementation of five-year site-specific management plans for the pilot forest and wildlife reserves; (ii) identification of sustainable cultivation methods for threatened and high-demand medicinal plant species with possibilities for improving through selective breeding their genetic basis without compromising their pharmacopeal properties; (iii) reduction in the incidences and magnitudes of the annual bushfires and their effects on the protected areas and fringing areas and communities; (iv) reduction in unsustainable and illegal harvesting of biological resources (especially wildlife) through activities such as group hunting; and (v) official recognition of the importance and establishment of two biodiversity corridors of regional/international/global significance linking faunal populations and reserves in Burkina Faso, Ghana, and Togo.

## **By Component:**

### **Project Component 1 - US\$0.50 million**

#### **Formulating the Policy Framework**

Over the last century Ghana is reported to have lost over two-thirds of its forest estate, which at the beginning of the 20th century measured about 8.2 million hectares. According to FAO statistics, annual rate of deforestation in the 1980s was estimated at 1.3 percent. As these forests disappeared, biological resources that inhabited these ecosystems also decimated in numbers and in variety. Although there is no complete picture about the rate and level of disappearance of bioresources in the country, it is believed that inappropriate human-induced interventions (mainly inappropriate land management and unsustainable agricultural practices) and current global economic systems are the two most determining causes of loss of biodiversity in the country.

The Government of Ghana is tackling the problem of decline of the country's natural resources base from a number of fronts including the establishment and expansion of protected area systems, formulation of policies and legislation to regulate the harvesting, utilization, development and preservation of the country's natural resources endowment, strengthening institutions responsible for natural resources management, empowering all stakeholders in management, and promoting public education and awareness raising on sustainable utilization and conservation of natural resources. However, the majority of existing policies and legislative frameworks do not cover issues related to biodiversity conservation and management. The country's policies and laws are silent on property and access related issues such as patenting of innovations and traditional indigenous knowledge, farmers' right to bioresources and conservation knowledge, fair and equitable sharing of benefits with bioresources owners and holders of indigenous knowledge on the utilization and conservation of biodiversity. In a world of increasing appropriation and commercialization of traditional indigenous knowledge and bioresources through collection and bioprospecting of plant species for pharmaceutical developments, it behooves on Ghana to review and update its existing policies and legislation to discourage "biopiracy" and ensure that its biodiversity is sustainably managed and resource owners and holders of knowledge are equitably compensated.

The objective of this component is to assist responsible ministries and agencies (e.g., MLF; Ministry of Environment, Science and Technology; Ministry of Food and Agriculture; Ministry of Health, EPA, SRMC, etc.) in defining and institutionalizing effective and long-term resource policies, strategies (biosafety and bioprospecting guidelines) and harvesting guidelines. The project would ensure that policies, strategies and guidelines that would be developed would fit well into the draft National Biodiversity Strategy and Action Plan, the National Forest Protection Strategy, and the Natural Forest and Wildlife Policy. A national Intellectual Property Rights (IPR) policy with specific reference on biodiversity use, and regulations and guidelines for collection of bioresources, compensation for use of indigenous knowledge and equitable sharing of benefits would be developed under this component. The project would fund consultant services on studies and formulation of policies and legislation, training and consultation workshops as well as developing incentive packages (e.g. credit systems) for the cultivation of nonrecommended crop varieties and plant species. The entire processes would be participatory and consultative.

In this context, the project would also support efforts to develop and promulgate a *sui generis* system of IPR governing the value of indigenous knowledge and innovation, and the collection of biological resources and dealing with issues such as the equitable sharing of benefits with owners of biodiversity and holders of biodiversity knowledge and information including that of traditional healers, birth attendants and local communities. NSBCP would support the TAMD of the Ministry of Health to develop guidelines for harvesting medicinal plants and for regulating traditional medicine practices. Project funds would be utilized to support the development of a set of code of ethics for regulating the professional conduct of traditional healers and associations in the country.

The project would fund under this component expenses for:

- consultant services in the review of the country's laws and regulation related to biodiversity management and formulation of policies, regulations and material transfer agreements relating to biodiversity management and conservation;
- training of staff of public institutions to improve capacity to enforce and monitor implementation and compliance of policies and regulations including the NBSAP;
- consultant services for studies on indigenous knowledge related to biodiversity use, conservation and management;

- information dissemination on IPR, TRIPs, CBD-related biodiversity protection requirements, etc.;
- public awareness raising and national consensus building activities on policies related to IPR, bioprospecting, biosafety, Traditional and Alternative Medicine Practices Act;
- drafting and registration of local level bylaws including local IPRs and bioprotecting regulations;
- study tours and exchanges;
- workshops, consultations, dialogues and meetings;
- international cooperation and dialogue on TRIPs, IPR protection, CBD-related requirements; and
- strengthening institutions for managing and monitoring IPRs, CBD-related requirements and other biodiversity-related protection legislation.

## **Project Component 2 - US\$3.07 million**

### **Capacity Building and Awareness Raising**

The Government of Ghana recognizes that in order to mainstream biodiversity conservation in national development it would need to strengthen national, regional, district and local capacities to conserve biodiversity and implement policies and programs for sustainable natural resources management. In the context of NSBCP, building capacity for biodiversity conservation and mainstreaming in socioeconomic development of the country would be tackled on various fronts: creating awareness at the national, regional and local government levels and among all segments of the society; enhancing skills through human resources development and training (formal and informal) and providing the tools and equipment to technical staff of government agencies; promoting effective linkages between government agencies responsible for natural resources management (i.e., MLF, MOFA, MEST, MLGRD and MOH); and ensuring collaborative local partnerships that would involve policy makers and technical staff from central, regional and local government agencies across sectors, representatives of NGOs and CBOs, the academic and research community and the broader private sector, groups (e.g., women and youth) and communities. In addition, the mainstreaming of biodiversity conservation in the country's broader development agenda would require that the government agencies mentioned above, national and local conservation organizations and local communities get better access to more accurate and widely shared data and information to allow them to manage the country's biodiversity more effectively for national and global benefits. NSBCP would respond to the Government's policy on biodiversity conservation and management by supporting the mobilization of data and information at the project level, the establishment of local and national information management systems and biodiversity databases, and implementation of training programs in GIS and information management.

This component would support: (a) procurement of goods and technical assistance services; (b) incremental operating costs of national, regional, and local level public and private sector institutions, civil society organizations and communities to carry out their mandatory functions and annual workprograms toward ensuring sustainable collaborative savanna resource management; (c) development of professional and leadership qualities of staff and agents of implementing agencies through training in order to strengthen their capacities to enforce regulations, develop, carry out and monitor conservation planning and provision of services, communicate and ensure active participation of all key stakeholders in biodiversity management; (d) training of communities and community-based organizations to enhance their capacities to participate as equal partners in the formulation, implementation and monitoring of biodiversity management plans; (e) development of efficient documentation and management information systems to support natural resources management; (f) traditional medicine organizations, services and delivery systems; (g) public awareness and education programs related to savanna resource and biodiversity management; and (h) international coordination, consultation and dialogue.

### Subcomponent 2(a) Capacity Building and Awareness Raising for National, Regional and Local Government Agencies

This sub-component would seek to strengthen the capacities of those government agencies (especially MLF, MOFA, EPA, Department of Parks and Gardens, District Assemblies, Project Implementation Units) supporting the implementation of project activities.

Expenses to be funded under this sub-component would include:

- construction of office accommodation, rangers camps observation posts, etc.
- procurement of goods (vehicles, cinema van, motor bikes, bicycles, etc.) and equipment (computer hard and software, computer accessories, cameras, videos, etc.);
- procurement of consultant services in development and training of government agency staff in database and information management;
- training of staff to enhance professional and leadership qualities in order to strengthen their capacities to enforce regulations, develop, carry out and monitor conservation planning and provision of services, communicate and ensure active participation of all key stakeholders in biodiversity management;
- development of efficient documentation and management information systems to support natural resources management;
- public awareness and education programs related to savanna resource and biodiversity management;
- international coordination, consultation and dialogue; and
- incremental operating costs for national, regional, and local level public agency staff to carry out their mandatory functions and annual workprograms toward ensuring sustainable collaborative savanna resource management.

### Subcomponent 2(b) Establishment of a herbarium in Tamale

GEF funds would be used to support the establishment of a small herbarium at Tamale, NR that would be managed by a qualified plant curator who would work under the Project Coordinator and be responsible for identifying and maintaining plant collections, with specific reference to medicinal plants species and indigenous farmer crop varieties. The Tamale herbarium would establish links with local (e.g., Ghana Herbarium, Aburi Botanical Gardens, etc.) and international herbaria. The species verification would be done under the supervision of the National Herbarium at the University of Ghana, Legon. The project would also assist with the design and set up of documentation centers at Tamale, Wa and Bolgatanga for herbarium preparations. In addition, the project would support the establishment of plant species databases at Tamale in the Northern Region, Wa in the Upper West Region and Bolgatanga in the Upper East Region with links to the central database at the University of Ghana, Legon on usage, distribution and status of farmer crop varieties and medicinal plants used in human and livestock healthcare. The database would draw together information from oral, traditional, modern literature and herbarium collections. The systematic documentation and evaluation of threat, rarity and demand would be a first for the West Africa Region in terms of its scope and comprehensiveness and would have global and regional, as well as national benefits. The key output for this project component is a functioning herbarium located in Tamale and linked to other national and international herbariums.

GEF funds under this sub-component would be used to support:

- furnishing of office space for the herbaria (e.g., furniture, books, cost of duplication and referencing of documents and reports;
- procurement of goods (computer and accessories) and technical assistance services;
- training for plant collectors and curators;

- public relations advocacy work;
- linkages between the Tamale herbarium and the National Herbarium in Accra;
- data gathering, synthesis, storage and dissemination; and
- operating incremental costs for herbarium staff.

#### Subcomponent 2(c) GIS-Based Biodiversity Management Information System Development

There is an enormous amount of data on natural resources and biodiversity use and conservation gathered from many different sources in the country. More data on biodiversity management and socio-economics of people living in or on the fringes of the pilot areas would emanate from the implementation of NSBCP. The extreme dispersion and quantity of data generally have made it extremely difficult for policy makers, application scientists, local leaders, NGOs and other users to access data of particular relevance to biodiversity conservation and resource management or even to learn of its existence. Most often, data have been of poor quality, poor usability, and inaccessible. NSBCP therefore aims at developing a GIS-based management information system that would interface environmental (mainly biodiversity data) with socio-economic data in a format that would be reliable, easily accessible and user-friendly to policy and decision makers, private sector, NGOs, groups and communities.

The sub-component would fund the following activities:

- consultant services in development and training of government agency staff, private sector, NGOs and others in database and information management;
- consultant services in system development and management;
- furnishing of the MIS office at SRMC with furniture, telephone, fax, etc.;
- procurement of equipment including computer hard and software, accessories, GIS hardware (digitizers, scanners, plotters), and software, data acquisition such as satellite images and maps, ps, etc.;
- workshops and seminars;
- publications and information dissemination;
- national and international dialogue and linkages and networks;
- incremental operating costs; and
- incremental allowances for SRMC and other temporary contract staff.

#### Subcomponent 2(d) Strengthening of the Traditional and Alternative Medicines Directorate of MOH and Support to THAs, TBAs and GHATRAM

The project would support upgrading and strengthening the ability of TAMD to fulfill its new mandate as defined in the Ministry's Five Year Strategic Plan for Traditional Medicine (April 2000). Furthermore, the project would support TAMD to assist healers to establish regional Traditional Healers' Associations (THAs). In addition, the project would assist the regional THAs, and Traditional Birth Attendants (TBAs) to work closely with regional MOH offices and the Ghana HIV/AIDS Network (GHANET) in the use of traditional treatments for HIV/AIDS associated opportunistic diseases.

GEF funds under this sub-component would be used to support the following items:

- Procurement of goods (office furniture) and equipment (computer hard and software and accessories, printers, fax, telephone);
- Establishment of regional associations and groups;
- Training in good agronomic practices (cultivation practices, IPM, crop harvesting, land tillage, etc.) and safe and hygienic herbal preparation, etc.;
- Public awareness raising campaigns of herbalist, THAs, TBAs, GHATRAM, NGOs, communities,



etc.;

- Incremental operating costs;
- Incremental allowances for contract staff; and
- Establishment of linkages, networks and information exchanges locally, regionally, nationally and internationally.

#### Subcomponent 2(e): Capacity Building and Awareness Raising for Civil Society and Communities

Increasingly, conservationists and protected area managers are shedding off their "siege mentality", feeling that there is a sea of hostile local interests around them, who are there only to encroach. Under today's conditions, where sustainable utilization of natural resources is the management objective, the Government of Ghana is supplementing its effort in protected area management through efforts at decentralization of power and responsibility, and a return of more resource management to organizations in the local areas and rural communities. As much as there is recognition for the type of sustainable long-term land use practices devised and practiced over years by local people and other groups (including civil society at large), it is important to strengthen their capacities and raise their awareness so that they would be comfortable and fully active participating in the modern approaches to natural resources and biodiversity conservation. Thus NSBCP would support formal and informal education and mass awareness campaigns within all segments of the Ghanaian society of the relevance of conservation, management and sustainable use of the country's biodiversity and natural resources to Ghana as a nation in its national development and to the world as a whole. Project interventions would include the development of radio broadcasts and video programs in various local languages in collaboration with communities, chiefs and tindanas, healers, NGOs, and relevant government ministries and agencies. The programs would be used to extol the values of good community-based resource management practices and environmental conservation, among others. The use of drama including role-play would be employed to enhance community participation and understanding of the values of conservation. The diversity of local cultures and languages would be recognized. Special programs would target women and children groups, community leaders and local government officials.

Additionally, the sub-component would support the integration of themes of biodiversity conservation into the syllabus of school in the three northern regions. Specifically, the objectives of this intervention are to: (i) design biodiversity education modules in basic schools in the project areas, (ii) train trainers who would train teachers who would use these modules in their training programs in schools, and (iii) integrate biodiversity conservation in school syllabuses. Besides, NSBCP would develop a region-wide biodiversity education and public awareness program to be used in the three northern administrative regions. GEF funds earmarked under this sub-component would be used to design biodiversity awareness activities in communities in the project areas and to train selected members of the communities who would spread the message wider to their members.

The sub-component would also support the Wildlife Protected Area Management Committees (WPAMCs) or Forest Management Committees (FMCs) or Community Environmental Management Committees (CEMCs) with equipment and logistics. The sub-component would support communities within and around reserves to develop village and community ecological and environmental activities that complement central government conservation efforts of the parks and reserves. The capacity building and awareness raising aspects of the project under this sub-component would be implemented by EPA and assisted by experienced NGOs such as the Ghana Wildlife Society and the Institute of Cultural Affairs, Ghana.

The sub-component would finance:

- consultant services (domestic and/or international) on PRA techniques, socio-economic surveys, resource inventory, community resource management (resources use and allocation), rural development;
- minor rehabilitation of small community infrastructure (community centers) identified during community planning process; purchase of goods including bicycles, office furniture, equipment, computers where necessary;
- on-site staff training and creation of awareness of local community personnel;
- incremental traveling allowances for MLF staff;
- training of trainers, animation;
- participation in national and international workshops;
- preparation of biodiversity education modules and their integration in school syllabuses;
- short domestic and overseas training, for example, in strategic planning, drafting and registration of local bylaws, community-based development planning, tourist guiding, bush fire management, anti-poaching, minimum/no-tillage, bullock ploughing, manuring and composting, agroforestry, land and water conservation;
- workshops that would provide new learning environment for healers, communities, researchers with a practical recognition of their role in conservation and development;
- incremental operating costs for operations of vehicles, office consumable, publications, expendable materials, equipment and facilities maintenance and operations; and
- incremental costs for allowances for contractual and temporary staff.

Key outputs from this component would be: (i) an action plan for implementing collaborative biodiversity conservation programs; (ii) strengthened public and private sector capacity to conserve, manage, monitor and evaluate biodiversity conservation and management programs; (iii) a process that provides for community participation in biodiversity conservation and management programs that reflect local concerns, needs and interests; (iv) an action plan that integrates local, regional and global biodiversity initiatives, and is targeted; (v) a functional biodiversity databank together with geospatial referenced MIS for monitoring ecosystem status and changes; and (vi) education intervention and multi-media awareness program delivered at community and regional levels.

### **Project Component 3 - US\$ 3.64 million**

#### **Biodiversity Conservation, Research and Development.**

##### Sub-component 3(a): Development of Biodiversity Management and Conservation Systems for Protected Areas

There are over 60 forest reserves and two wildlife reserves in the northern savanna zone of the country. Unlike protected area systems in the high forest zone of the country, very little attention has been paid to the management of savanna forest and wildlife estates on sustainable basis. The role played by these life support systems in the country's socio-economic development and growth appear to be underestimated and hence little or no consideration has been given to ensuring sustainable utilization, development and conservation of these resources. Wildlife reserves in Ghana have a rich diversity of faunal and floral species. Mole National Park, for example, has about 93 species of mammals and over 300 species of birds. There is no substantive list of wildlife species (floral and faunal) for Gbele Resource Reserve and the Bui National Park. Few botanical surveys have been carried out in wildlife reserves in Ghana. Similarly, there are few faunal inventories that have been done in the over 260 forest reserves scattered in the ecological zones of the country.

The objective of this sub-component is to collaboratively develop natural resources management

systems for the northern savanna zone, test and replicate proactive initiatives and measures, which actively involve local communities more directly in the management and conservation planning processes and in the actual implementation of activities and work plans for sustainable development and conservation of wildlife and forest reserves or parks. In this context, the component would support baseline natural resource inventories and socio-economic assessments of communities living in and around the reserves as well as those who live in the two proposed corridors. The assessments are aimed at providing information on current land management practices, resource use and allocation patterns, cultural values, and other socio-economic conditions which are needed to facilitate the development of cohesive and integrated resource management systems. The component would support the development and implementation of community-based resource management action plans to encourage sustainable use of savanna resources. The expected outcome are communities harmoniously living within the ecosystem and actively involved in the planning and management of biodiversity in the area including forest reserves and national parks. This component would address the development of community based initiatives directed at reducing pressure on the biological resources of wildlife and forest reserves, and enhancing management of off-reserve resources. Input for developing and implementing this sub-component would form part of the Parks and Reserves annual business plan and budgets that are supported by the project.

This sub-component would also support protected area boundary maintenance (particularly boundary cleaning, fire break establishment) re-pillaring and other actions needed to minimize or stop wild and uncontrolled bushfires. Bush fires remain the single most devastating cause of land degradation and deforestation in the northern savanna zone. Ravaging bushfires that have become common phenomenon during the dry season in the northern savanna landscape are human-induced and not caused by accident. The main culprits are farmers who use fires as a farm management tool, hunters (especially group hunters) for capturing wild animals, honey tappers for harvesting honey from the wildland, and charcoal burners for charcoal production. Their activities, advertently or inadvertently, destroy both vegetation and animal life in reserves and the wilderness areas, resulting in loss of forage and cover for wildlife and domestic livestock and causing loss to property and human life. Under Component 2, the project would support awareness raising and public education of the communities on early and control burning, bushfire prevention and control, and establishment of firebreaks within and around reserves. Further, project funds would be used to train both old and new members of community fire volunteer units. A region-wide campaign on environmental and biodiversity management and conservation in the three northern savanna regions would be funded under this project and led by the EPA, Ghana Wildlife Society and Institute of Cultural Affairs.

Though there is high demand for bushmeat in Ghana, the availability of animal wildlife in reserve and non-reserve wilderness areas has been drastically reduced and biological diversity is at serious risk of extinction in many such protected areas. Wild animal exploitation has been uncontrolled in the off-reserve areas and once populations have decimated communities engage in illegal hunting in the reserves. "Poaching" in protected area systems such as forest reserves, wildlife parks and resource reserves is serious and chronic. Another canker is what has become commonplace as "group hunting", where hunters, in groups numbering over a hundred, move into wilderness areas and hunt wild animals for consumption without any discourse to species' status, numbers and distribution, sex, or age. The practice has contributed to decline in numbers and diversity of species, and contributed to the ultimate extinction of species outside forest and wildlife reserves in the savanna ecosystem. In collaboration with local communities and their traditional authorities, this sub-component would provide funds for the identification and implementation of incentive-based anti-poaching and group hunting activities. Within this context, the component would also provide funds for resource management and conservation activities that would allow communities to live in harmony in the parks and reserves. While the NSBCP would not be supporting any social investments in the project areas, the project would facilitate community negotiation with the Bank-funded VIP and the

projects CWSP-II to provide some community infrastructure and sanitation support as well as alternative livelihood systems as incentive and "compensation" for community participation in sustainable resource management activities or in curbing activities detrimental to the survival and development of biodiversity.

Experience from around the world indicates that conservation activities could be jeopardized in the long term as population increases if the economic needs of adjacent communities are not addressed as an integral part of conservation activities. Conversely, the CAMPFIRE program in Zimbabwe offers a means of sustainably harvesting wild animals in communal areas for the benefit of local communities, where income receipts accrue to participating households. The CAMPFIRE communities now perceive forest reserve and wildlife as an asset with value and not merely posing a threat to life, crops and domestic livestock. The adaptation of the CAMPFIRE approach and the recognition of traditional leadership structures in the proposed project should catalyze the conservation and sustainable use of threatened plants and animals by local communities.

Given the context described above, the sub-component would support the empowerment and active participation of communities living in or close to wildlife and forest reserves in the management and conservation of the pilot protected areas. This would be done through the formation of WPAMCs and FMCs or any other structures deemed appropriate, which would include representatives from communities, whose lives are dependent on the protected areas. The core membership of such committees would include key central government agencies' staff with responsibility for natural resources management and local government administration, the private sector, civil society and local NGOs, associations, women and youth groups, etc. Under this sub-component, support would be given to develop terms of reference, which would include an overall management profile (structure, mandate, financial arrangements, etc.) and roles, rights and responsibilities of all key groups represented on the committees. The capacities of WPAMCs and FMCs would be enhanced in order for the committee to be able to contribute effectively in the strategic planning processes and plan implementation as well as in the provision of overall guidance (including monitoring and evaluation) in the management of the parks, protected areas and reserves. Once their capacities have been strengthened through training, workshops and exchanges, these local management structures would develop and implement protected area management annual workplans, which would be partially supported by the project. In addition to planning for conventional activities within the reserves, these workplans would include biodiversity-enhancing community-based activities and initiatives such as the practicing of compatible and sustainable agricultural methods (e.g., multiple cropping, composting and organic farming, integrated pest management, etc.), wild animal domestication (e.g., giant grasscutter) and other land management technologies (e.g., contour bunding, water harvesting, agroforestry, woodlot establishment, cover cropping, no-burn, etc.).

The sub-component would initially finance, through consultant services, baseline socio-economic surveys of communities living in or fringing the project pilot areas and also support ecological and biophysical inventories in ten forest and two wildlife reserves. To solicit community participation in savanna resources and biodiversity management the sub-component would support participatory diagnostic studies and dialogue to get a feel about how far and in what form communities would like to be involved in the project. Such studies would also give an insight into the types of interests, perspectives, incentives and compensations that local people would like to derive from their participation. The sets of data and information emanating from these inventories, assessments and studies as well as earlier results from ecological monitoring, maps, and field investigations would be needed in the formulation processes of effective management systems for managing those selected pilots. These management systems would include measures related to institutional and financing arrangements, strategies and action plans for the sustainable development and conservation of biodiversity, particularly of rare, endangered and threatened species, biodiversity "hotspots" as well as strategies and action plans for the rehabilitation and restocking

of the pilot reserves.

The satisfactory implementation of biodiversity management and conservation systems would require that effective education and outreach programs are developed and carried out. NSBCP would support a northern region-wide education and awareness-raising campaigns. Specific education and outreach programs, addressing the management constraints and needs of communities and organizations participating in the development and implementation of biodiversity management and conservation systems for the 12 pilot reserve areas would be supported under Component 2 of the project. Funds earmarked under Component 2 would also be used to support public education campaigns to educate communities on the hazards of group hunting as well as its effects on the fauna, flora, and associated socio-economic disadvantages. Other activities which would be funded through component 2 of the project include assisting local communities, District Assemblies, law enforcement agencies, and natural resource management agencies in developing and enforcing hunting by-laws and regulations.

The sub-component would support:

- consultant services to undertake detailed socio-economic surveys of communities living in or at the fringes of protected areas (10 forest and two wildlife reserves);
- consultant services to undertake baseline ecological and biological surveys (including biodiversity "hotspots", species' endemism and populations of rare, endangered or threatened species) for the ten selected forest and two wildlife reserves;
- consultant services to undertake ecological studies on some key wildlife species including the black and white olobus, leopard, lion, yellow-backed duiker, elephant, etc.;
- technical assistance for domestication of wild animals (e.g. grasscutter);
- identification and implementation of biodiversity-enhancing community-based activities for off-reserve area management (nursery establishment, planting and maintenance, agro-forestry, domestication of grasscutter, etc.);
- development of costed annual workplans for the reserve areas;
- consultant services for the development of the biodiversity management and conservation systems;
- field level implementation of the strategies and activities developed under the management systems;
- wild animal capture, maintenance, transport and restocking;
- construction and maintenance of trails for monitoring and ecotourism;
- civil works (ranger camps, observation posts,);
- goods (e.g., vehicles, motorcycles, bicycles, wellington boots, cutlasses, clothing, planting tools, watering containers, seeds, manure, animal cages, etc.);
- equipment (e.g. communications equipment, navigational and survey tools, computers, printers, fax, and minor camp gears, etc.);
- production of site maps and biodata maps;
- data gathering, analysis, storage and distribution and information feedback;
- formal training for WD and FSD staff, study tours and educational exchanges for WPAMCs and FMCs;
- community fora, durbars and workshops on anti-poaching, bush fire management, agro-forestry, domestication;
- organization of park or reserve management coordination meetings;
- enforcement and compliance monitoring of regulations and laws;
- drafting and registration of local level bylaws;
- incremental operating costs for FSD and WD; and
- incremental allowances for people involved in the implementation of project activities such as in reserve boundary cleaning, maintenance and patrolling, bush fire control, establishment of firebreaks,

etc.

Sub-component 3(b): Improving Land Management, Restoration of Degraded Lands in 6 Pilot Areas

An EPA survey (early 1990s) revealed that the Upper East Region is the most degraded land area in Ghana. Furthermore, with increasing degradation, deforestation has progressed to the point where climax and pro-climax vegetation are not visible in many areas except in reserved forest and patches of sacred groves. In addition, soil erosion has been aggravated over the past 20 years. Over the years, donor support for projects in the three northern regions aimed at arresting land degradation and enhancing proper land management [e.g., the Irrigation Company of Upper Region's (ICOUR) environmental restoration project funded by UNDP, the International Fund for Agricultural Development (IFAD) project on improving root and tuber crop production covering selected communities in these regions, and the Upper Regional Agricultural Development Program (URADep)] has contributed little to the maintenance of the integrity of forestland, savanna and farmland systems. These donor-supported initiatives may have had little effect in the way the northern savanna vegetation zone has been managed partly because the programs had little or no community involvement and approaches for management and conservation did not consider local level interests and preferences. NSBCP would work with and through the communities fringing or living in the selected pilot sites in order to make sure that the benefits derived from the project are replicable and sustainable.

The sub-component objective is to bring about the sustainable development and management of dryland/savanna ecosystems through desertification control techniques. Under this sub-component, the project would support: (i) socio-economic baseline surveys in communities fringing the pilot sites and bio-physical inventories of the selected areas, (ii) selection of the six pilot off-reserve areas, based on geographical spread to be included in the project, (iii) establishment and strengthening of community-level committees and reaching agreement to support project components, (iv) protection and maintenance of pilot areas, and (v) nursery establishment and distribution of plant seedlings to participating communities.

Sensitization and awareness campaigns, education and training programs for bushfire prevention squads would be financed from funds allocated under component 2 (e).

Six (6) pilot off-reserve areas would be identified in the three Northern Regions which would link with the Savanna Resource Management Component of the NRMP, which focuses on the degraded landscape of the Northern, Upper East and Upper West Regions of Ghana and piloting land management approaches in both on and off-reserve areas. The principal project beneficiaries are expected to be the communities in the selected, affected areas who would be participating in the project activities. Interventions in the pilot areas would be implemented in close collaboration with a number of key organizations (Forest Services Division of the Forestry Commission and other relevant Governmental and Nongovernmental organizations) and led by the Desertification Control Unit of the EPA based in Bolgatanga. The District and Community Environmental Management Committees, among others, would play an active role in project implementation.

Project funds would be available for:

- consultancy services for socio-economic surveys and baseline biophysical and ecological surveys of the pilot areas;
- selection of six pilot off-reserve areas;
- purchase of inputs (seeds, planting materials. etc.) and other services;
- training of communities in nursery establishment, planting techniques, farm maintenance, bush fire

- management, land and water management techniques, etc.;
- equipment (planting tools, nursery materials, Wellington boots, watering containers, etc.), vehicles;
- workshops, meetings, dialogues;
- incremental operating costs for people involved in the project; and
- incremental staff allowances.

### Sub-component 3(c): Sustaining Biodiversity in the Development of Wildlife Corridors

Currently, there are 2 wildlife reserves in the northern savanna zone that are mostly isolated from each other. Over an extended period, these islands of biological resources therein would not be able to sustain themselves because most of these habitats would have become too small and fragmented and the fauna would have experienced inbreeding and apparent weakening of their gene pool. The rate of loss of ecosystems and habitat in off-reserve areas and the pressure on wildlife in the protected areas could soon lead to loss of biodiversity.

However, contiguous networks of habitats or ecosystems in the form of corridors using, for instance riverine, gallery forests or state forest reserves that are augmented by managed community wildlife/natural resource reserves (fauna corridors) would ensure that there would be unimpeded movement of fauna between these habitats or ecosystems. Such networks of habitats would thus allow/support intermixing of genetic material of species between habitats and hence enhancement of biodiversity. To establish successful corridors, it is essential to reduce and mitigate human wildlife conflicts. Mitigation measures include modification of farming practices, particularly timing and use of monitoring and early warning and deterring equipment.

Two biodiversity-rich corridors were identified and proposed for inclusion into the NSBCP. The first proposed corridor to be situated in the north-western part of the country would begin from the Sissili Central forest reserve Pudo forest reserve Chiana Hills forest reserve and link with Nazinga Game Ranch in Burkina Faso. The second corridor is situated in the Guinea and Sudania savanna woodlands of North Eastern Ghana. It runs from Burkina Faso and links forests and other vegetation along the White Volta, the Red Volta and the Morago rivers and continue to Togo. These two corridors are of international and global importance because the Sissili River-Podo-Chiana Hills continuum serves as a corridor for the movement of fauna including elephants between Ghana and Burkina-Faso while the Red and White Volta-Morago River forest continuum is used by elephants that move between Burkina-Faso, Ghana and Togo. The establishment and management of the two corridors would be supported through targeted efforts, awareness raising and activities (e.g., community reserves, appropriate agriculture practices) to ensure that local communities are fully integrated in the creation and management of these corridors.

A local NGO, the Nature Conservation Research Center (NCRC), working in collaboration with FSD, WD, District Assemblies and the local communities in the Red Volta River basin, through funding from Canada, is implementing a project aimed at establishing community reserves in the Red Volta River basin as a long term solution to the problem of elephant crop-raiding in the area. The Red Volta basin is one of the two corridors proposed under this component. In implementing this component the project would seek collaboration with civil society groups and NGOs such as NCRC, Ghana Wildlife Society. The sub-component would link with similar projects supported by the GEF/UNDP Small Grant Program in Ghana and the bigger GEF supported wildlife management project in Burkina Faso.

The project would support the following items:

- consultant services in socio-economic assessments and biological and ecological inventories;

- construction of ranger field camps and an office block in Bolgatanga for the Wildlife Division, fire observation posts;
- formation of WPAMCs and village level resource or corridor management committees;
- dialogue and consultations between public organizations, civil society groups, NGOs, traditional authorities and communities;
- virtual delineation of corridor boundaries;
- reserve boundary maintenance including cleaning, physical pillaring, establishment of fire breaks, etc.;
- wild animal capture, transport and restocking;
- technical training for corridor management team including reserve management staff, on-site rangers, NGOs, CBOs, community leaders;
- training of community animators in land and water management, bush fire management, anti-poaching, nursery management, agroforestry, no-tillage, bullock ploughing, animal manuring and composting, etc.;
- goods including communication equipment, office equipment (computers, printers, fax, etc.), vehicle (for the Bolgatanga office), motor cycles, bicycles, field implements (e.g. navigational and survey tools, clothing, cutlasses, wellington boots, watering containers, etc. and material inputs (seeds and other planting materials, organic manure, etc.);
- establishment of community and individual woodlots and home gardens for threatened farmer crop varieties;
- awareness raising and education campaigns;
- workshops and annual WPAMC meetings; and
- incremental operating costs and allowances.

#### Sub-component 3(d): Sustaining Medicinal Plant Resources

This sub-component would support studies to: (i) assess the supply and demand (socio-economic) of current medicinal plant used for the ten major human diseases and five major livestock diseases, (ii) identify guidelines for the sustainable harvesting of medicinal plant species in protected sites when ex-situ conservation/cultivation is not possible; and (iii) establish methods for the propagation and cultivation of selected medicinal plant species in home gardens, degraded habitats, and as components of agricultural diversification for use by healers and birth attendants, and as an additional source of income. The project would also assist CSRPM to identify localities and traditional healer/birth attendants/farmers to cultivate selected medicinal plant species needed for phyto-medicine production.

The increasing demand in urban centers for traditional medicines has placed increased pressure on the wild resource-base. Market and field surveys would be carried out to determine pressures on wild populations and habitats at selected savanna forest sites and to better understand local community and northern region dependence on medicinal plants for human and livestock health care.

Another activity supported by the project would be ex-situ conservation and cultivation of medicinal plant species by communities. Home gardens maintained by women are the primary source of high-demand species as they are the first source of healthcare in the rural communities. Within a community the micro-environments of home gardens and selected agricultural sites contain high levels of species: medicinal, herbs, spices and farmer crop varieties of health and nutritional value. The home gardens are also points of experimentation, introduction of new varieties and/or species and genetic diversity as a result of plant (germplasm) exchange and supported by social-cultural diversity. TBAs are also major contributors to and users of home garden medicinal plants. The project would build upon existing knowledge by documenting species and proposing ways to address sustainability concerns within



conservation, management and sustainable use components. The project would also support the protection of sacred groves which serve as sources of medicinal plants and help to conserve biodiversity.

The project would support the following items:

- consultant services in socio-economic surveys and medicinal plant inventories;
- consultant services in collaboration with farmers in the identification of sustainable agricultural practices, selection of medicinal plants for cultivation, training extension officers;
- consultant services in selecting and cultivating medicinal forest plant species;
- identification of sustainable harvesting guidelines for in-situ high-demand medicinal plant species;
- community and leader awareness raising and education campaigns;
- nursery establishment and management;
- goods (cutlasses, water containers, etc.) and material inputs (fencing, seeds and other planting materials, etc.);
- incremental allowances for staff travel; and
- incremental allowances for operating expenses.

#### Sub-component 3(e): In-situ Germplasm

The advent of the agricultural revolution and the ever-increasing human populations have resulted in the use of hybrid and fast-growing and fast-yielding crop varieties by rural farmers. This was done at the expense of indigenous crop varieties, which were used extensively by farmers earlier, but now abandoned because they are classified as low-yielding and not fast growing. It is reported that these crops held the key to turning food production and food security around in food-deficient areas of the northern savanna zone, especially in the hunger-plagued dry season. There are a number of such indigenous crop varieties which have been abandoned and are not cultivated. The rationale here is to identify these abandoned farmer crop varieties by undertaking field inventories and collections from individuals and organizations who may be repositories for indigenous land races and varieties and replicate them on farmers' farms and home gardens for farmers who are interested in cultivating these varieties for subsistence and gain, and also to re-introduce these into farmers' farms and on selected plots to create a genetic pool for future use. Evidence from southeastern Nigeria and in the Yucatan Peninsula in Mexico and in the Amazon shows that home gardens are arguably the most species-rich agricultural systems in the world where they serve as refuge for "lost crops". The sub-component would support these activities and finance the establishment of field gene banks and the development of strategies for sustainable production of threatened agro-biodiversity.

Under this sub-component, funds would be utilized to purchase inputs (seeds and planting materials of these identified varieties, compost) and equipment. The sub-component would support technical assistance for field collections and inventories, cultivation and training of extension staff and interested farmers. In addition the project would collaborate with the Department of Parks and Gardens and support the establishment of a botanical gardens in Tamale to maintain a representative sample of savanna flora in the Tamale urban area, while at the same time providing nature attraction to urban people. The botanical garden in Tamale has some expertise in nursery establishment and would support the medicinal plant cultivation and propagation.

Funds allocated under the sub-component would be used to support:

- re-fencing and physical rehabilitation of office accommodation and the garden structures;
- consultant services in training extension staff, NGOs and farmers in IPM, cultivation;

- workshops and meetings;
- field inventories and collections, storage and preservation;
- dialoguing with communities to get agreements on their participation;
- nursery establishment and management;
- purchase of equipment, materials and inputs;
- public education and awareness creation campaigns; and
- incremental salaries and allowances for community animators, contract staff, traveling responsible agencies staff.

#### Sub-component 3(f): Ex-situ Germplasm

A balanced approach, combining in-situ and ex-situ conservation approaches, to preserving plant and crop varieties will best serve the needs of farmers as they intensify their production systems. The existing genebank facilities at the Plant Genetic Resource Center (PGRC) at Bunso warrants upgrading and strengthening as part of an overall, diversified strategy to conserve crop genetic diversity. Collections at PGRC are mostly at the "passport level" (data and location of collection level). To be able for PGRC to go beyond the "passport level" and to test regeneration and mass replication of accessions and of genetic drift and loss of viability of collected varieties, the Center would need to be strengthened. The project would support PGRC to establish ex-situ genebanks for the collected, threatened farmer crop varieties and plant species. This would be achieved in collaboration with communities, in particular farmers and traditional healers.

In particular, the component would fund studies and surveys, the restoration of off-reserve degraded lands, the formulation of community-based dedicated and off-reserve bushfire prevention and control schemes, the restoration of soil fertility and promotion of demonstrated farming/agriculture methods, formulation and implementation of management plans for the selected sites, and education and training. Management plans and remedial programs which would be developed and implemented for 10 priority areas of protected forests and two wildlife reserves. Adjacent social and agricultural systems would be taken into account and selection would be on the basis of biological diversity in the area, main threats, and net global benefits. The lessons learnt from these pilot activities would feed into the formulation of regional models for Park/Reserve management and continuity of productive (nutritive) indigenous farmer crop varieties and agricultural practices and would form a platform for the implementation of a long-term strategy for biodiversity conservation in the northern savannas.

Project funds would be used to finance:

- formal training of staff of PGRC in germplasm conservation technologies;
- equipment (computers, printers, fax, etc.) and laboratory materials and chemicals (e.g. autoclave, analytic balance, incubators, luminar flow hood, reagents and chemicals, portable fume chamber, microcentrifuge, etc.);
- incremental operating costs for filed equipment and facilities maintenance, operation of vehicles, office equipment; and
- incremental allowances for staff in germplasm collection.

#### **Project Component 4 - US\$1.30 million**

##### **Project Management, Monitoring and Evaluation**

This component would establish a rigorous project management and administrative system

to support all aspects of project planning, implementation and coordination. The Project Coordinator and a biodiversity specialist hired for the duration of the project, who would operate under the NRMP project coordination unit located at SRMC, would lead the project.

Guided by the Project Implementation Plan/Manual (PIP/M), the Project Coordinator would implement a systematic and detailed monitoring and reporting system focusing on both the output and outcome of the project. The system should allow an effective evaluation of: (i) the effectiveness of the project’s delivery mechanisms and procedures; (ii) the impact of the field activities on the basis of stated objectives, and input, output and impact indicators identified in the Project Design Summary (Annex 1); and (iii) the replication of the in-situ and ex-situ activities at a wider regional scale. The progress towards project outcomes would be evaluated during project supervision and an in-depth review 12 months after the project becomes effective (just before NRMP II becomes effective); followed by a mid-term Review at the 36 month stage (or at the same time of NRMP II Mid-Term Review). The in-depth review after 12 months would determine the extent to which the project is performing relative to NRMP I vis-à-vis its development objectives. The Mid-Term Review at the 36-month stage would determine the status (relative to NRMP II) of the project regarding the extent to which it has achieved its objectives by the completion date (72 months). An Implementation Completion Report (ICR) would be prepared at least six months prior to final disbursement of the Grant. The Government would prepare its own evaluation of the project and ICR.

Expenses funded under this component would include:

- consultant services, domestic and international, in the areas of project management, accounting, performance M&E, auditing, procurement;
- implementation and monitoring of the Environmental and Social Mitigation Plan (ESMP);
- purchase of goods including vehicle(s), office equipment;
- incremental operating costs for office consumable, equipment and facilities maintenance, domestic and international travel; and
- incremental allowances for contract and temporary staff at MLF and other government agencies staff working on the project.

Key outputs are: (i) improved capacity of project implementation including preparation of annual work plans that are clear, realistic and monitorable; (ii) timely and adequate flows of financial resources to support all project activities; (iii) improved capacity of MLF to manage programs of international donors independently; (v) enhanced ability to monitor project performance; and (iv) successful implementation of ESMP.

**Bank Financing under the NRMP**

The development of NRMP Phases I, II and III would link with the NSBCP and address activities which will have more local and national benefits. The activities under the NRMP will build on the general planning processes developed and test and implement specific action programs to enhance global benefits in the savanna zone. These overlapping interventions over the next six years of the NSBCP are funded under IDA and are estimated to cost about US\$11.3 million in total. These costs are not included in the NSBCP’s incremental project costs of US\$8.51 million in order to avoid double counting. IDA’s contribution by component is shown separately in the table below:

**NRMP and NSBCP Overlapping Activities - Incremental Costs by Component**

| Component | Sector | Bank Financing | GEF Financing | Total Incremental |
|-----------|--------|----------------|---------------|-------------------|
|-----------|--------|----------------|---------------|-------------------|

|   |                                     | <b>NRMP (US\$ M)</b> | <b>NSBCP (US\$ M)</b> | <b>Costs (US\$ M)</b> |
|---|-------------------------------------|----------------------|-----------------------|-----------------------|
| Formulating the Policy Framework                    | Institutional Development           | 1.20                 | 0.48                  | 1.68                  |
| Capacity Building and Awareness Raising             | Institutional Development           | 1.20                 | 2.76                  | 3.96                  |
| Biodiversity Conservation, Research and Development | Institutional Development           | 7.10                 | 3.25                  | 10.35                 |
| Project Management, Monitoring and Evaluation       | Public Sector Management Adjustment | 1.80                 | 1.11                  | 2.91                  |
| <b>Total Program Cost</b>                           |                                     | <b>11.30</b>         | <b>7.60</b>           | <b>18.91</b>          |

**Annex 3: Estimated Project Costs**  
**GHANA: Northern Savanna Biodiversity Conservation Project**

| <b>Project Cost By Component</b>                    | <b>Local<br/>US \$million</b> | <b>Foreign<br/>US \$million</b> | <b>Total<br/>US \$million</b> |
|---|-------------------------------|---------------------------------|-------------------------------|
| Formulating the Policy Framework                    | 0.19                          | 0.25                            | 0.44                          |
| Capacity Building and Awareness Raising             | 1.06                          | 1.46                            | 2.52                          |
| Biodiversity Conservation, Research and Development | 1.52                          | 1.42                            | 2.94                          |
| Project Management, Monitoring and Evaluation       | 0.66                          | 0.37                            | 1.03                          |
| <b>Total Baseline Cost</b>                          | <b>3.43</b>                   | <b>3.50</b>                     | <b>6.93</b>                   |
| <b>Physical Contingencies</b>                       | <b>0.11</b>                   | <b>0.17</b>                     | <b>0.28</b>                   |
| <b>Price Contingencies</b>                          | <b>1.08</b>                   | <b>0.22</b>                     | <b>1.30</b>                   |
| <b>Total Project Costs<sup>1</sup></b>              | <b>4.62</b>                   | <b>3.89</b>                     | <b>8.51</b>                   |
| <b>Total Financing Required</b>                     | <b>4.62</b>                   | <b>3.89</b>                     | <b>8.51</b>                   |

| <b>Project Cost By Category</b>        | <b>Local<br/>US \$million</b> | <b>Foreign<br/>US \$million</b> | <b>Total<br/>US \$million</b> |
|--|-------------------------------|---------------------------------|-------------------------------|
| <b>Civil Works</b>                     | 0.13                          | 0.18                            | 0.31                          |
| <b>Goods</b>                           | 0.42                          | 0.98                            | 1.40                          |
| <b>Services</b>                        | 1.44                          | 0.62                            | 2.06                          |
| <b>Training</b>                        | 0.62                          | 0.88                            | 1.50                          |
| <b>Operating Costs</b>                 | 0.81                          | 0.85                            | 1.66                          |
| <b>Physical Contingencies</b>          | 0.11                          | 0.17                            | 0.28                          |
| <b>Price Contingencies</b>             | 1.08                          | 0.22                            | 1.30                          |
| <b>Total Project Costs<sup>1</sup></b> | <b>4.61</b>                   | <b>3.90</b>                     | <b>8.51</b>                   |
| <b>Total Financing Required</b>        | <b>4.61</b>                   | <b>3.90</b>                     | <b>8.51</b>                   |

Note:

1. Included in the total project costs are allocations of US\$180,000 for Training and Awareness Raising, and US\$200,000 for Consulting Services, earmarked for the implementation of the Environmental and Social Mitigation Plan.
2. Costs above do not include \$300,000 for a PDF.

<sup>1</sup> Identifiable taxes and duties are 1.7 (US\$m) and the total project cost, net of taxes, is 26.4 (US\$m). Therefore, the project cost sharing ratio is 29.92% of total project cost net of taxes.

## **Annex 4: Incremental Cost Analysis and Economic Analysis**

### **GHANA: Northern Savanna Biodiversity Conservation Project**

#### **A. Incremental Cost Analysis**

##### **Broad Development Goals**

The broad development goals in the savanna regions of Ghana are (a) to improve the environment, livelihood and health in the generally poor regions, (b) to ensure social and rural development on the basis of sustainable natural resource management and (c) poverty reduction through better management of production resources and increasing production by the more disadvantaged rural societies. The Forest and Wildlife Policy (1994) and the Forestry Development Master Plan (1996) in their savanna components are the foundation for this development activity as detailed in the Phase I of the NRM project activities.

##### **Baseline Scenario**

The baseline activities which Ghana could reasonably have been expected to undertake on national development grounds to achieve these goals have been well stated in the savanna and wildlife resource management components of NRMP. These baseline activities include six sub-components: (a) essential institutional development for savanna resource management, (b) on-reserve savanna resource management, (c) integrated watershed management off reserve, (d) fuelwood production and marketing (e) national action program on desertification, and (f) biodiversity conservation that would improve natural resource management.

In general, the NRMP aims to establish and support individual and community-based sustainable management of natural resources of land, water, crops, trees and animals. The program has a strong poverty alleviation focus and is concerned ultimately with helping people improve their lives through enhanced management of natural resources.

Included in the institutional arrangements is the setting up of a Savannah Resource Management Center (SRMC) already underway whose role is to coordinate activities under the project and work with rural communities, government and nongovernmental institutions to identify, plan and support programs for sustainable resource management. Resources allocated to the Savannah Resource Management Component of NRMP I total US\$9.40 million. Additionally, a number of other programs and projects support these objectives in the savanna zone. Danish aid, DANIDA, is investing US\$2.10 million in promotion of traditional energy resources, the Netherlands is investing US\$4.80 million in the development infrastructure of Mole National Park.

##### **Global Environment Objectives and Benefits**

The global environment objective is to conserve the biodiversity of the Ghanaian savanna, to sustain the availability of medicinal plants, and to protect the traditional agro-biodiversity of the zone. The project also has components and cross-links to combating land degradation and desertification.

A wide range of tree shrubs and mostly annual and perennial grasses, typical savanna vegetation occur in the Northern Savanna. Over 1,300 plant species have been recorded and the trees in particular are threatened from over exploitation and uncontrolled burning. As in most countries, the best known elements of the fauna are larger mammals and birds. The indigenous mammals of Ghana number approximately 225

species, of which about 100 inhabit the savanna and dry forest zones. Although most mammals characteristic of the savanna and dry woodlands were historically widespread, extensive pressure from land use changes and land degradation, and intensive pressure from hunting, have extirpated natural populations of most game species (e.g. ungulates and carnivores) from large areas. Within lesser-known vertebrate groups some species, for instance, endemic mole rats and amphibians, are at significant risk due to land degradation resulting from fire and poor land, water and soil management practices. About 300 Afrotropical endemic bird species occur in the savanna and an additional 100 Palearctic species use the Ghanaian savanna as critical resting places on their migratory routes, 171 butterfly species are found in savanna zone habitats (Guinea savanna, 87 species; Sudan savanna, 55 species; southern dry forests, 29 species).

The northern savannas also harbor indigenous land races of important food crops. Future efforts aimed at improving production and drought resistance of crops cultivated here would draw heavily on the gene pool of native/wild crop varieties. Preserving these genetic stocks would require specific interventions to ensure that these native/wild varieties are not completely replaced by introduced varieties or lost through inappropriate land use practices. The savanna woodlands also have an ameliorative effect on the local climate and constitute a natural barrier to the desiccating harmattan winds from the Sahara, thus helping to maintain a favorable climate for agricultural production in the south.

Since savanna ecosystems cover about 50 percent of the total area of Africa and a project of this type has not been attempted anywhere in the savanna, the lessons learned from this project would be important to the conservation of biodiversity in the whole savanna zone. The opportunities provided by NRMP I and later II and III and the Savanna Resource Management Center (SRMC) at Tamale established under NRMP I make Ghana an ideal location for this activity.

To achieve its global environment objectives, the GEF alternative aims to (i) develop a capacity to assess and conserve biodiversity in the region, help in the creation of a regional policy framework to achieve these goals and build a monitoring and evaluation system for biodiversity conservation in the region, (ii) develop and implement community based biodiversity management plans for selected areas in the region, including pilot activities to arrest land degradation, promote community woodlot development and ex-situ pilot cultivation trials of threatened medicinal plants used in human and animal health; (iii) community-based awareness, conservation and management initiatives, including field gene banks of medicinal plants and traditional threatened agro-biodiversity, community based action plans and a comprehensive public education and mass awareness campaign.

### **The GEF Alternative**

Under the GEF alternative, Ghana would carry out the ongoing programs of savanna sustainable resource management but would greatly enhance biodiversity conservation by the following additional measures: (a) creating a regional focus, knowledge base and policy on biodiversity conservation, (b) defining the existing biodiversity in and outside reserves and developing management plans to sustain this, including the identification of additional priority areas and corridors for conservation, (c) creating community based resource use systems that conserve biodiversity and improve production and health, (d) providing a special focus on medicinal plants and developing community based sustainable use of this resource, (e) preserving the traditional agro-biodiversity of the zone for future development of these genetic resources, and (f) developing a long-term professional and community capacity to maintain these programs and products.

To achieve these objectives the following additional activities would be financed under the GEF alternative (a) the building of community and professional capacity for biodiversity conservation and monitoring and

evaluation of progress US\$1.90 million, (b) the design and implementation at more effective management plans for biodiversity conservation in and around the major forest and wild life reserves and in newly identified areas of specially important corridors of biodiversity, including medicinal plants US\$3.30 million, (c) the development of community based conservation and management initiatives and the design and delivery of a comprehensive community and stakeholder awareness program US\$2.40 million. The estimated cost of current programs is a minimum of US\$20.2 million; the cost of the GEF alternative is US\$27.80 million.

### Incremental Costs

The incremental costs needed to achieve the global environmental benefits is estimated to be US\$8.51 million, of which GEF funding is request for US\$7.60 million. The table below summarizes the assessment of incremental costs:

| Component   | Cost Category    | Cost (US\$ M) | Domestic Benefit   | Global Benefit   |
|---|------------------|---------------|--|--|
| Essential Institutional Development for SRMC                                      | Baseline         | 2.0**         | Essential organization for natural resource development of region      |  |
| Policy Framework and Capacity Building  | GEF Alternative  | 0.3<br>1.7    |  | Enhanced conservation of biodiversity in savannas through policy development, monitoring and evaluation  |
|   | Increment        | 1.9           |  |  |
| On reserve savanna resource management fuelwood production NAP on Desertification | Baseline         | 16.7*, **     | More sustainable supply of woodfuel and natural resource products      |  |
|   | Increment        | 3.3           |  |  |
| Biodiversity Conservation and Management  | GEF Alternative  | 2.7           |  | Protection of hot spots of biodiversity, reduction in land degradation, carbon sequestration, sustainability of medicinal plants and traditional agro-biodiversity |
| Biodiversity Conservation and Medicinal Plants                                    | Baseline         | 1.5**         | Natural resource products available for local food and health benefits |  |
| Community based conservation and management initiatives                           | GEF Alternative  | 2.3           |  | Gene pools of medicinal plants maintained and sustained, agro-biodiversity preserved, long term capacity and awareness for biodiversity conservation established   |
|   | Increment        | 2.4           |  |  |
| TOTAL   | Baseline         | 20.2          |  |  |
|   | GEF Alternative  | 27.8          |  |  |
|   | Incremental Cost | 7.6           |  |  |

\* This includes a component of NRMPI, Danish, Netherlands and WFP programs.

\*\* Baseline costs for the Project include 2 years of NRMP II (overlap with GEF High Forest) and NRMP III.

### Background on the NRMP

The Government of Ghana (GOG) is implementing a country wide, ten year adaptable lending program, the Natural Resources Management Program (NRMP), whose objective is to protect, rehabilitate and sustainably manage national land, forest and wildlife resources and thereby increase the incomes of rural communities who own these resources.

The full NRMP program is addressing issues of conservation, enhancement and sustainable utilization of



Ghana's land, forest, savanna woodland and wildlife resources in full and active consultation with the rural communities and institutions. However certain critical aspects of savanna resource management such as agro-biodiversity and medicinal plant species management, use and conservation are not being addressed by NRMP, hence Northern Savanna Biodiversity Conservation Project (NSBCP).

## **B. Economic Analysis**

### **Farm Models**

#### *Agro- Biodiversity Practice*

The major economic activity of the communities within and around the reserves for whom the project is being designed is farming.

Bush fallow and compound farming are two distinct traditional farming systems in the area. The common crops cultivated are sorghum, millet, rice, maize, yams, cassava, groundnuts, cowpea, tomatoes, onions and other vegetables both as food and cash crops. The communities depend on simple tools such as the hoe and the cutlass for farming.

Under the bush burning system, fields are cultivated once or twice and allowed to lie fallow while new lands are opened up by cutting down trees and burning down bushes which contribute to the destruction of reserves. Soils are left vulnerable to erosion and eventual degradation. Under the compound farming system, small pieces of land are cultivated intensively and continuously from year to year and, without the benefits of improved farming practices, leads to soil erosion, lower soil fertility, and loss of vegetation cover.

Under the project, the communities practicing bush burning would be provided with incentives to abandon the shifting cultivation method and stay on the same piece of land. They would adopt improved farming methods such as controlled bush burning, turning the debris into compost to be used with other organic manure, mulching and adopting agroforestry techniques where they could intercrop fields with economically viable tree crops to improve farm yield and prospects for biodiversity conservation.

Farmers using a compound farming system, would also be provided with incentives to use compost and other organic manure, practice mulching and adopting agro-forestry practices whereby they would intercrop their fields with income-generating tree crops, e.g., mangoes and cashews to supplement income and conserve biodiversity.

#### *Farming model*

To illustrate the incremental benefits likely to accrue to the farmer, two farm models have been developed. One is based on the scenario of the farmer continuing with his present cropping system (*without project*, i.e., without any project intervention) and comparing this financial situation and the effects of his farming activities on biodiversity conservation; and the other scenario is for the farmer to adopt a cropping system which has been recommended *with the project* where the farmer would adopt environmentally friendly and biodiversity conservation practices.

#### *Financial Analysis of the Two Farm Models*

##### Assumptions

Discount rate of 45 percent

Analysis period is 10 years

With respect to the Farm Model with the mango, the analysis shows a positive cash flow of Cedis 1.15 million in the fourth year rising to Cedis 2.65 million in the eighth to the tenth year. The first three years however show negative cash flows because these years represent the establishment phase during which there are no yields from the mango crop and therefore no incomes.

Using the prevailing cost of capital of 45 percent and using the discounted cash flow method, the project shows a Net Present Value (NPV) of Cedis 527,000 and Internal Rate of Return (IRR) of about 65 percent indicating that the return on the project is in excess of the cost of capital.

Regarding the Farm Model with the cashew, the analysis shows relatively lower positive cash flows were achieved. The first three years which represent the establishment phase during which there are no yields from the cashew crop and therefore no incomes show negative cash flows as reflected in the model.

The discounted method of project appraisal give a Net Present Value (NPV) of Cedis 80,000 and an Internal Rate of Return (IRR) of 52 percent, which is also in excess of the cost of capital.

On the basis of the analysis, both the Farm Models with the mango and cashew give higher return to the farmer with the project using biodiversity conservation farming practices than without the project where the farmer uses current and entrenched traditional mode of farming which are environmentally degrading. Though both models (with mango and with cashew) are financially beneficial, the model with the mango is more feasible.

**Table 1: FARM MODELS**

| <b>FARM MODEL WITH MANGO</b>      |       |       |       |       |       |       |       |       |       |       |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Amount in €'000                   |       |       |       |       |       |       |       |       |       |       |
| Farm size                         |       |       |       |       |       |       |       |       |       |       |
| 4 Ha                              |       |       |       |       |       |       |       |       |       |       |
| Year                              | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    |
| <b>1 INCREMENTAL COST ON FARM</b> |       |       |       |       |       |       |       |       |       |       |
| a With Project + Mango            | 2,999 | 2,749 | 2,749 | 2,749 | 2,749 | 2,749 | 2,749 | 2,749 | 2,699 | 2,699 |
| B Without Project                 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 |
| <b>2 NET INCREMENTAL COST</b>     | 600   | 350   | 350   | 350   | 350   | 350   | 350   | 350   | 350   | 350   |
| <b>3 INCREMENTAL REVENUE</b>      |       |       |       |       |       |       |       |       |       |       |
| a With Project + Mango            | 5,055 | 5,055 | 5,055 | 6,555 | 7,155 | 7,455 | 7,755 | 8,055 | 8,055 | 8,055 |
| b Without Project                 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 |
| <b>4 INCREMENTAL REVENUE</b>      | 0     | 0     | 0     | 1,500 | 2,100 | 2,400 | 2,700 | 3,000 | 3,000 | 3,000 |
| <b>5 NET INCOME STREAM</b>        | -600  | -350  | -350  | 1,150 | 1,750 | 2,050 | 2,350 | 2,650 | 2,650 | 2,650 |
| Discount rate, 45%                | 0.45  |       |       |       |       |       |       |       |       |       |
| PV                                | -414  | -166  | -115  | 260   | 273   | 221   | 174   | 136   | 94    | 65    |
| NPV                               | 527   |       |       |       |       |       |       |       |       |       |
| Financial rate of return          | 65%   |       |       |       |       |       |       |       |       |       |

| <b>FARM MODEL WITH CASHEW</b>     |       |       |       |       |       |       |       |       |       |       |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Amount in €'000                   |       |       |       |       |       |       |       |       |       |       |
| Farm size                         |       |       |       |       |       |       |       |       |       |       |
| 2 Ha                              |       |       |       |       |       |       |       |       |       |       |
| Year                              | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    |
| <b>1 INCREMENTAL COST ON FARM</b> |       |       |       |       |       |       |       |       |       |       |
| a With Project + Cashew           | 2,649 | 2,549 | 2,699 | 2,549 | 2,549 | 2,549 | 2,549 | 2,549 | 2,549 | 2,549 |
| b Without Project                 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 | 2,399 |
| <b>2 NET INCREMENTAL COST</b>     |       |       |       |       |       |       |       |       |       |       |
|                                   | 250   | 150   | 300   | 150   | 150   | 150   | 150   | 150   | 150   | 150   |
| <b>3 INCREMENTAL REVENUE</b>      |       |       |       |       |       |       |       |       |       |       |
| a With Project + Cashew           | 5,055 | 5,055 | 5,055 | 5,615 | 5,755 | 5,895 | 6,035 | 6,175 | 6,175 | 6,175 |
| b Without Project                 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 | 5,055 |
| <b>4 INCREMENTAL REVENUE</b>      |       |       |       |       |       |       |       |       |       |       |
|                                   | 0     | 0     | 0     | 560   | 700   | 840   | 980   | 1,120 | 1,120 | 1,120 |
| <b>5 NET INCOME STREAM</b>        |       |       |       |       |       |       |       |       |       |       |
|                                   | -250  | -150  | -300  | 410   | 550   | 690   | 830   | 970   | 970   | 970   |
| Discount rate, 45%                |       |       |       |       |       |       |       |       |       |       |
|                                   | 0.45  |       |       |       |       |       |       |       |       |       |
| PV                                | -172  | -71   | -98   | 93    | 86    | 74    | 62    | 50    | 34    | 24    |
| NPV                               | 80    |       |       |       |       |       |       |       |       |       |
| Financial rate of return          | 52%   |       |       |       |       |       |       |       |       |       |

**Source of Data: Ministry of Food and Agriculture (Year 2000)**

**Table 2: FARM MODEL – PRODUCTION AND INCOME BUDGET**

| <b>PRODUCTION COST</b>       |              |               |                |             |                  |               |            |               |
|------------------------------|--------------|---------------|----------------|-------------|------------------|---------------|------------|---------------|
| <b>Without Project</b>       |              |               |                |             |                  |               |            |               |
| <b>Crops</b>                 | <b>Maize</b> | <b>Millet</b> | <b>Sorghum</b> | <b>Rice</b> | <b>Groundnut</b> | <b>Cowpea</b> | <b>Yam</b> | <b>Total</b>  |
| Farm size, ha                | 0.5          | 0.2           | 0.2            | 0.5         | 0.2              | 0.2           | 0.2        | 2             |
| Requirements                 |              |               |                |             |                  |               |            |               |
| Amount in c'000              |              |               |                |             |                  |               |            |               |
| Establishment/maint. Cost    |              |               |                |             |                  |               |            |               |
| <i>Sub-total</i>             | 200          | 98            | 120            | 480         | 166              | 95            | 160        |               |
| <b>B. Inputs</b>             |              |               |                |             |                  |               |            |               |
| <i>Sub-total</i>             | 16           | 9             | 9              | 70          | 48               | 7             | 480        |               |
| <b>C. Tools</b>              |              |               |                |             |                  |               |            |               |
| <i>Sub-total</i>             | 35           | 11            | 11             | 110         | 40               | 10            | 6          |               |
| <b>TOTAL</b>                 | 251          | 118           | 140            | 660         | 254              | 112           | 646        |               |
| <b>D. Contingencies, 10%</b> | 25.1         | 11.8          | 14             | 66          | 25.4             | 11.2          | 64.6       |               |
| <b>GRAND TOTAL</b>           | 276.1        | 129.8         | 154            | 726         | 279.4            | 123.2         | 710.6      | <b>2399.1</b> |

| <b>With Project</b>          |              |               |                |             |                  |               |            |               |
|------------------------------|--------------|---------------|----------------|-------------|------------------|---------------|------------|---------------|
| <b>Crops</b>                 | <b>Maize</b> | <b>Millet</b> | <b>Sorghum</b> | <b>Rice</b> | <b>Groundnut</b> | <b>Cowpea</b> | <b>Yam</b> | <b>Total</b>  |
| Farm size, ha                | 0.5          | 0.2           | 0.2            | 0.5         | 0.2              | 0.2           | 0.2        |               |
| R'qments                     |              |               |                |             |                  |               |            |               |
| Amount in c'000              |              |               |                |             |                  |               |            |               |
| Establishment/maint cost     |              |               |                |             |                  |               |            |               |
| <i>Sub-total</i>             | 200          | 98            | 120            | 480         | 166              | 95            | 160        | 1319          |
| <b>B. Inputs</b>             |              |               |                |             |                  |               |            |               |
| <i>Sub-total</i>             | 16           | 9             | 9              | 70          | 48               | 7             | 480        | 639           |
| <b>C. Tools</b>              |              |               |                |             |                  |               |            |               |
| <i>Sub-total</i>             | 35           | 11            | 11             | 110         | 40               | 10            | 6          | 223           |
| <b>TOTAL</b>                 | 251          | 118           | 140            | 660         | 254              | 112           | 646        | 2181          |
| <b>D. Contingencies, 10%</b> | 25.1         | 11.8          | 14             | 66          | 25.4             | 11.2          | 64.6       | 218.1         |
| <b>GRAND TOTAL</b>           | 276.1        | 129.8         | 154            | 726         | 279.4            | 123.2         | 710.6      | <b>2399.1</b> |

|                               |     |     |     |     |     |     |     |     |     |     |
|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                               |     |     |     |     |     |     |     |     |     |     |
| <b>Mango</b>                  |     |     |     |     |     |     |     |     |     |     |
| Amount in €'000               |     |     |     |     |     |     |     |     |     |     |
| Year                          | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| Establishment cost            | 600 |     |     |     |     |     |     |     |     |     |
| labor and inputs              |     |     |     |     |     |     |     |     |     |     |
| Maintenance & harvesting cost |     | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| Total                         | 600 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
|                               |     |     |     |     |     |     |     |     |     |     |
| <b>Cashew</b>                 |     |     |     |     |     |     |     |     |     |     |
| Amount in €'000               |     |     |     |     |     |     |     |     |     |     |
| Year                          | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| Establishment cost            | 250 |     |     |     |     |     |     |     |     |     |
| labor and inputs              |     |     |     |     |     |     |     |     |     |     |
| Maintenance & harvesting cost |     | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Total                         | 250 | 150 | 300 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |

| <b>INCOME</b>          |       |        |         |      |            |        |        |               |      |      |
|------------------------|-------|--------|---------|------|------------|--------|--------|---------------|------|------|
| <b>Without Project</b> |       |        |         |      |            |        |        |               |      |      |
| Crops                  | Maize | Millet | Sorghum | Rice | Ground nut | Cowpea | Yam    |               |      |      |
| Farm size,ha           | 0.5   | 0.2    | 0.2     | 0.5  | 0.2        | 0.2    | 0.2    |               |      |      |
| Av.yield/ha, Mt        | 1.1   | 0.75   | 0.825   | 1    | 1.05       | 0.375  | 6.375  |               |      |      |
| Total yield, Mt        | 0.55  | 0.15   | 0.165   | 0.5  | 0.21       | 0.075  | 1.275  |               |      |      |
| Av. Price/Mt, ¢'000    | 1100  | 1200   | 1100    | 1300 | 800        | 1100   | 2500   |               |      |      |
| Total income, ¢'000    | 605   | 180    | 181.5   | 650  | 168        | 82.5   | 3187.5 | <b>5054.5</b> |      |      |
| <b>With Project</b>    |       |        |         |      |            |        |        |               |      |      |
| Crops                  | Maize | Millet | Sorghum | Rice | Ground nut | Cowpea | Yam    |               |      |      |
| Farm size,ha           | 0.5   | 0.2    | 0.2     | 0.5  | 0.2        | 0.2    | 0.2    |               |      |      |
| Av.yield/ha, Mt        | 1.1   | 0.75   | 0.825   | 1    | 1.05       | 0.375  | 6.375  |               |      |      |
| Total yield, Mt        | 0.55  | 0.15   | 0.165   | 0.5  | 0.21       | 0.075  | 1.275  |               |      |      |
| Av. Price/Mt, ¢'000    | 1100  | 1200   | 1100    | 1300 | 800        | 1100   | 2500   |               |      |      |
| Total income, ¢'000    | 605   | 180    | 181.5   | 650  | 168        | 82.5   | 3187.5 | <b>5054.5</b> |      |      |
| <b>Mango</b>           |       |        |         |      |            |        |        |               |      |      |
| Year                   | 1     | 2      | 3       | 4    | 5          | 6      | 7      | 8             | 9    | 10   |
| Farm size,ha           | 1     | 1      | 1       | 1    | 1          | 1      | 1      | 1             | 1    | 1    |
| Av.yield/ha, Mt        | 0     | 0      | 0       | 5    | 7          | 8      | 9      | 10            | 10   | 10   |
| Total yield, Mt        | 0     | 0      | 0       | 5    | 7          | 8      | 9      | 10            | 10   | 10   |
| Av. Price/Mt, ¢'000    | 300   | 300    | 300     | 300  | 300        | 300    | 300    | 300           | 300  | 300  |
| Total income, ¢'000    | 0     | 0      | 0       | 1500 | 2100       | 2400   | 2700   | 3000          | 3000 | 3000 |

|                     |     |     |     |     |     |     |     |      |      |      |
|---------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| <b>Cashew</b>       |     |     |     |     |     |     |     |      |      |      |
| Year                | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8    | 9    | 10   |
| Farm size,ha        | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1    | 1    | 1    |
| Av.yield/ha, Mt     | 0   | 0   | 0   | 0.8 | 1   | 1.2 | 1.4 | 1.6  | 1.6  | 1.6  |
| Total yield, Mt     | 0   | 0   | 0   | 0.8 | 1   | 1.2 | 1.4 | 1.6  | 1.6  | 1.6  |
| Av. Price/Mt, ¢'000 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700  | 700  | 700  |
| Total income, ¢'000 | 0   | 0   | 0   | 560 | 700 | 840 | 980 | 1120 | 1120 | 1120 |

**Source of Data: Ministry of Food and Agriculture (Year 2000)**

**Annex 5: Financial Summary**  
**GHANA: Northern Savanna Biodiversity Conservation Project**  
**Years Ending**  
**2007**

|                                 | IMPLEMENTATION PERIOD |        |        |        |        |        |        |
|---------------------------------|-----------------------|--------|--------|--------|--------|--------|--------|
|                                 | Year 1                | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 |
| <b>Total Financing Required</b> |                       |        |        |        |        |        |        |
| <b>Project Costs</b>            |                       |        |        |        |        |        |        |
| <b>Investment Costs</b>         | 2.7                   | 0.8    | 0.8    | 0.7    | 0.8    | 0.6    | 0.0    |
| <b>Recurrent Costs</b>          | 0.3                   | 0.3    | 0.3    | 0.4    | 0.4    | 0.4    | 0.0    |
| <b>Total Project Costs</b>      | 3.0                   | 1.1    | 1.1    | 1.1    | 1.2    | 1.0    | 0.0    |
| <b>Total Financing</b>          | 3.0                   | 1.1    | 1.1    | 1.1    | 1.2    | 1.0    | 0.0    |
| <b>Financing</b>                |                       |        |        |        |        |        |        |
| <b>IBRD/IDA</b>                 | 0.0                   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| <b>Government</b>               | 0.3                   | 0.1    | 0.1    | 0.1    | 0.2    | 0.1    | 0.0    |
| <b>Central</b>                  | 0.0                   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| <b>Provincial</b>               | 0.0                   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| <b>Co-financiers</b>            | 2.7                   | 1.0    | 1.1    | 0.9    | 1.0    | 0.9    | 0.0    |
| <b>GEF</b>                      |                       |        |        |        |        |        |        |
| <b>User Fees/Beneficiaries</b>  | 0.0                   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| <b>Others</b>                   | 0.0                   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| <b>Total Project Financing</b>  | 3.0                   | 1.1    | 1.2    | 1.0    | 1.2    | 1.0    | 0.0    |

**Main assumptions:**

The total Government contribution of about US\$910,700 includes about an estimated US\$884,000 in taxes.



## **Annex 6: Procurement and Disbursement Arrangements**

### **GHANA: Northern Savanna Biodiversity Conservation Project**

#### **Procurement**

##### **Ghana's Procurement Environment**

1. The World Bank conducted Country Procurement Assessment Reports (CPAR) in 1985 and 1996, a consultant report by Mr. Gosta Westring's in 1997 and a Country Portfolio Performance Review (CPPR) in 1998. These reports cite: (i) lack of a comprehensive legal framework, (ii) lack of a uniform and codified procurement procedures and regulations, (iii) weak capacity of procurement staff, and (iv) loose institutional and organizational arrangements for collective decision making in awarding of contracts, as major factors contributing to weaknesses in the public procurement practices. The reports, however, were not able to quantify the public procurement by various methods and by institutions. Some of the unacceptable features in the current public procurement practices highlighted in the reports are (i) extensive use of sole method for selection of consultants, (ii) extensive and repetitive use of shopping procedures, often including same firms, (iii) unclear procedures for opening of bids and criteria for bid evaluation and contract award, (iv) post contract negotiations, (v) mandatory use of the state insurance company for goods contracts, and (vi) over-centralization of procurement in Accra. The reports recommend a comprehensive procurement reform for Ghana. This recommendation was also endorsed in the 1999 CDF initiative document for Ghana.

2. Ghana's procurement procedures and regulations are scattered in various legal documents and circulars, which are often not clear, contradictory and subject to misinterpretations. There are no mechanisms for monitoring procurement and for dealing with complaints. The current procurement system does not guarantee economy, efficiency and transparency in public procurement. It is a fair conclusion that the Government does not have a comprehensive procurement code for the procurement of goods, works and services by Government ministries and agencies. For Donor-financed projects, for works and goods contracts below ICB thresholds and for selection of consultants, most entities follow the Bank's guidelines as the official procurement procedure. The Government has realized there is a need for the country to review and reform its public procurement practices. The reformed practices would entail adoption of rationalized and codified public procurement procedures and regulations, applicable to all public procurement entities and ensure value for money. The purpose of the public procurement reforms is therefore to streamline the procedures and regulations for procurement of goods, works, and services, and establish an effective monitoring system in order to ensure proper utilization and developmental impact of public resources.

3. The on-going procurement reforms are financed by an IDA credit under Public Finance Management Technical Assistance Project. In 1999 the Government established, in the Ministry of Finance, a Procurement Policy Oversight Group [PPOG] to oversee the process of the preparation and implementation of public procurement reforms in Ghana. The PPOG prepared a TOR for preparing a Procurement Reforms Proposal and selected consultants to prepare it. In order to ensure that the PRP is not prepared as a desk exercise, the TOR required the Consultants to work in close liaison with stakeholders in public and private sectors, paying due attention to consultation, participation and ownership. A draft Public Procurement Act is ready and it is expected that the new procurement code would be implemented by December 31, 2001.

4. In the absence of a national procurement code, the procurement procedures to be followed will be fully described in the Project Implementation Manual. Registration/Classification of contractors may be used for establishing bidder qualification or for preparing a list for use under quotation procedure but not as criteria for bidding or for award of contract.

### **Use of Bank Guidelines**

5. All works and goods financed under the GEF grant would be procured in accordance with the *Guidelines: Procurement under IBRD Loans and IDA Credits, January 1995 and as revised in January and August 1996, September 1997 and January 1999*. Consultants will be selected in accordance with the *Guidelines: Selection and Employment of Consultants by World Bank Borrowers, January 1997 and as revised September 1997 and January 1999*. National Competitive Bidding (NCB) procedures will include: (a) an explicit statement to bidders of the evaluation and award criteria; (b) national advertising with public bid opening; (c) award to the lowest evaluated responsive and qualified bidder and (d) foreign bidders would not be precluded from participation in NCB.

6. The Bank's Standard Bidding Documents (SBD) will be used for all ICB (and with appropriate amendments for all NCB) for works and goods. The Bank's Standard Request for Proposals (SRFP) would be used for all consulting assignments. Less competitive bidding and selection procedures should not be used as an expedient to by-pass more competitive methods and fractionating of large procurements into smaller ones solely should not be done to allow the use of less competitive methods. The detailed procedures to be followed will be described in the Project Implementation Manual.

### **Advertising**

7. A General Procurement Notice (GPN) is mandatory and will be published in the UN Development Business as provided under the Guidelines. The GPN would be updated on a yearly basis and would show all outstanding ICB and all consulting services estimated to cost US\$200,000 or more. Specific Procurement Notices (SPN) will be required for contracts to be procured under ICB and NCB procedures and for consultant contracts with an estimated cost of US\$100,000 or more to obtain expressions of interest (EOI) prior to the preparation of the shortlist. SPNs will as (a minimum) be published in a newspaper of wide national circulation. Consultant contracts estimated to cost US\$200,000 or more would be advertised in Development Business. Sufficient time would be allowed (not less than 30 days) for NCB and for EOI to allow adequate time to obtain documents respond appropriately.

### **Procurement capacity**

8. Procurement under the project would be the responsibility of the staff of the Project Coordinating Unit (PCU) of the MLF. A Procurement Capacity Assessment of the PCU was done under the Natural Resource Management Project and has been updated under the appraisal for this project. The summary assessment shows a medium risk.

9. The PCU already has staff who are implementing the IDA/GEF financed Natural Resources Management Project (NRMP) and SRMP and are fully familiar with Bank procurement and consultants selection guidelines and procedures. Support will be provided by the Procurement Specialist of EPA, one of the implementing agencies under the project. Both officials are familiar with Bank procurement procedures, as they are responsible for procurement under previous and on-going Bank-financed projects, including NRMP, GERMP, SRMP, FRMP, Gateway Project and Coastal Wetlands Management Project. However, since the Program Administrator is a contracted staff, MLF should initiate action to mainstream the procurement function and ensure that staff of MLF are identified for procurement training after which they should be assigned the procurement function.

## **Procurement Plans**

10. MLF will prepare a Global Procurement Plan (GPP) for the whole project, and a Detailed Procurement Plan (DPP) for the first two years of the project showing contract packages, and for each package its estimated cost, procurement method and processing times for key activities till completion. The GPP and the DPP will be part of the Project Implementation Manual that will be completed before effectiveness. The Manual will contain the project workplans from which the procurement schedules would be derived. The plans will be agreed with IDA. Three months prior to the start of each subsequent fiscal year, MLF will submit up-dated versions of the GPP, and the annual DPPs in respect of the following year. Each quarter MLF will submit to the Bank a procurement monitoring report as part of the Project Management Report (PMR).

## **Procurement Implementation Arrangements**

11. The Project Coordinating Unit (PCU) of the MLF will be responsible for procurement planning and processing of works and goods contracts and the selection of consultants. Procurement of small contracts for miscellaneous items of supplies [often required for operation and maintenance] and constructions would be delegated to the SMRC who would procure them following simplified shopping procedures under the direct supervision of the NRMP Program Administrator. As part of decentralization process, MLF will build capacity at SRMC so that, in addition to implementation of project activities, financial and procurement management would be delegated to the SRMC. PCU will track the accumulation of contracts under each procurement method and will consolidate the information so as to ensure that the aggregate amounts under the non-ICB procurement methods are not exceeded.

## **Scope of procurement and procurement methods**

12. Works (estimated to cost US\$0.36 million) would consist of small contracts for rehabilitation of the offices of the SRMC, fire observation posts and ranger camps in reserves. No ICB contracts are expected under the project, as contracts would be less than US\$100,000. These contracts shall be procured using NCB procedures. Very small contracts estimated to cost less than US\$30,000 equivalent may be procured by way of soliciting quotations through written invitations from not less than three qualified contractors. Registration/Classification of contractors may be used to identify contractors for such very small contracts. The invitation shall include a detailed description of the works, basic specifications, the required completion date, a simple form of agreement acceptable to the Bank and relevant drawings [where applicable]. In all cases the award of contract shall be made to the contractor who offers the lowest price for the required work, and who has the experience and resources to successfully complete the contract.

13. Goods would consist of vehicles [estimated to cost US\$0.42 million] and other goods items [estimated to cost US\$1.19 m] which include agricultural inputs, office, laboratory and field equipment, communication equipment, furniture and computers. To the extent possible, goods that could be procured under one supplier would be grouped into contract packages, and packages estimated to cost the equivalent of US\$100,000 or more would be procured under ICB procedures. Procurement of goods packages estimated to cost more than US\$30,000 but less than US\$100,000 [up to an aggregate amount of US\$700,000] would be procured by NCB. Goods packages estimated to cost less than US\$30,000 [up to an aggregate amount of US\$400,000] would be procured by shopping on the basis of comparison of quotations from at least three eligible and qualified suppliers. Requests for such quotations would include a clear description and quantity of the goods; as well as requirements for delivery time and point of delivery.

14. Agricultural inputs may be procured through shopping. Spare parts and accessories [up to an aggregate amount of US\$100,000], which are of proprietary nature, may be procured under contracts negotiated directly with the manufactures/suppliers or their authorized agents.

15. Consulting Services (estimated to cost US\$2.6 million] including the support to implementation of the Environmental and Social Mitigation Plan {approximately US\$200,000} would consist of various studies and technical assistance to be carried out by both national and international consultants. As a rule, consulting firms for all assignments estimated to cost the equivalent of US\$100,000 or more would be selected through Quality and Cost Based Selection (QCBS) methodology. Assignments estimated to cost the equivalent of US\$200,000 or more would be advertised for EOI in Development Business (UNDB) and in at least one newspaper of wide national circulation. In addition, EOI for specialized assignments may be advertised in an international newspaper or magazine. In the case of assignments estimated to cost between US\$100,000 and US\$200,000, the assignment would be advertised nationally. The shortlist of firms for assignments estimated to cost less than US\$200,000 may be made up entirely of national consultants. Foreign consultants who wish to participate are not excluded from consideration. Consultant services estimated to cost less than the equivalent of US\$30,000 may be contracted by comparing the qualifications of consultants. Auditors and engineers would be selected using Least-Cost-Selection procedures. In case of assignments requiring individual consultants, the selection would follow the procedures stipulated in Section V of the Consultants Guidelines.

16. Training programs and workshops [estimated to cost US\$1.8 million] including the support to implementation of the Environmental and Social Mitigation Plan {approximately US\$180,000} would be packaged in the project's workplans and budget and items therein procured using appropriate methods. The Bank would review and clear training packages as found appropriate.

#### **IDA Review**

17. All goods contracts estimated to cost US\$100,000 or more and works contracts estimated to cost US\$100,000 or more would be subject to the Bank's prior review in accordance with the procedures in Appendix I of the Procurement Guidelines for Goods and works. All contracts awarded on basis of direct contracting or sole source basis would require prior review and clearance of the Bank.

18. The TOR for all consulting assignments irrespective of value of the assignment and all single source selection would be subject to Bank prior review. Consultancy contracts with firms with estimated value of US\$100,000 or more, and consultancy contracts with individuals estimated value of US\$50,000 or more would be subject to prior review by the Bank in accordance with the procedures in Appendix I of the Consultants Guidelines.

19. All training programs, seminars, workshops etc. would be subject to the Bank's review.

20. Contracts, which are not subject to prior review, would be selectively reviewed by the Bank during project implementation and would be governed by the procedures set forth in paragraph 4 of Appendix I to the relevant Guidelines. NCB documents for works and goods will be cleared with the Bank as part of the work plan.

#### **Contract Management and Expenditure Reports**

21. As part of the PMR, MLF would submit contract management and expenditure information in quarterly reports to IDA.

Procurement methods (Table A)

**Table A: Project Costs by Procurement Arrangements**  
(US\$ million equivalent)

| Expenditure Category    | Procurement Method <sup>1</sup> |                |                    |                | Total Cost     |
|-------------------------|---------------------------------|----------------|--------------------|----------------|----------------|
|                         | ICB                             | NCB            | Other <sup>2</sup> | N.B.F.         |                |
| <b>1. Works</b>         | 0.00<br>(0.00)                  | 0.26<br>(0.24) | 0.10<br>(0.09)     | 0.00<br>(0.00) | 0.36<br>(0.33) |
| <b>2. Goods</b>         | 0.42<br>(0.37)                  | 1.05<br>(0.93) | 0.13<br>(0.12)     | 0.00<br>(0.00) | 1.60<br>(1.42) |
| <b>3. Services</b>      | 0.00                            | 0.00           | 2.60               | 0.00           | 2.60           |
| <b>Consulting</b>       | (0.00)                          | (0.00)         | (2.20)             | (0.00)         | (2.20)         |
| <b>4. Miscellaneous</b> | 0.00                            | 0.00           | 1.80               | 0.00           | 1.80           |
| <b>Training</b>         | (0.00)                          | (0.00)         | (1.72)             | (0.00)         | (1.72)         |
| <b>Operating Cost</b>   | 0.00<br>(0.00)                  | 0.00<br>(0.00) | 2.15<br>(1.93)     | 0.00<br>(0.00) | 2.15<br>(1.93) |
| <b>Total</b>            | 0.42<br>(0.37)                  | 1.31<br>(1.17) | 6.78<br>(6.06)     | 0.00<br>(0.00) | 8.51<br>(7.60) |

<sup>1/</sup> Figures in parenthesis are the amounts to be financed by the Bank Grant. All costs include contingencies.

<sup>2/</sup> Includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (i) managing the project, and (ii) re-lending project funds to local government units.

Note: Included in the total project costs are allocations of US\$180,000 for Training and Awareness Raising, and US\$200,000 for Consulting Services, earmarked for the implementation of the Environmental and Social Mitigation Plan.

**Table A1: Consultant Selection Arrangements (optional)**  
(US\$ million equivalent)

| Consultant Services Expenditure Category | Selection Method |                |                |                |                |                |                | Total Cost <sup>1</sup> |
|--|------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
|  | QCBS             | QBS            | SFB            | LCS            | CQ             | Other          | N.B.F.         |                         |
| <b>A. Firms</b>                          | 0.60<br>(0.60)   | 0.00<br>(0.00) | 0.00<br>(0.00) | 0.10<br>(0.10) | 0.20<br>(0.20) | 0.00<br>(0.00) | 0.00<br>(0.00) | 0.90<br>(0.90)          |
| <b>B. Individuals</b>                    | 0.00<br>(0.00)   | 0.00<br>(0.00) | 0.00<br>(0.00) | 0.00<br>(0.00) | 0.00<br>(0.00) | 1.70<br>(1.70) | 0.00<br>(0.00) | 1.70<br>(1.70)          |
| <b>Total</b>                             | 0.60<br>(0.60)   | 0.00<br>(0.00) | 0.00<br>(0.00) | 0.10<br>(0.10) | 0.20<br>(0.20) | 1.70<br>(1.70) | 0.00<br>(0.00) | 2.60<br>(2.60)          |

1\ Including contingencies

Note: QCBS = Quality- and Cost-Based Selection  
QBS = Quality-based Selection  
SFB = Selection under a Fixed Budget  
LCS = Least-Cost Selection  
CQ = Selection Based on Consultants' Qualifications  
Other = Selection of individual consultants (per Section V of Consultants Guidelines), Commercial Practices, etc.  
N.B.F. = Not Bank-financed  
Figures in parenthesis are the amounts to be financed by the Bank Grant.

Prior review thresholds (Table B)

**Table B: Thresholds for Procurement Methods and Prior Review** <sup>1</sup>

| <b>Expenditure Category</b> | <b>Contract Value Threshold (US\$ thousands)</b> | <b>Procurement Method</b>             | <b>Contracts Subject to Prior Review (US\$ millions)</b> |
|-----------------------------|--|---------------------------------------|--|
| <b>1. Works</b>             | >=30,000   | NCB                                   | Contracts over \$100,000                                 |
|                             | Below US\$ 30,000<br>All values                  | Price quotation<br>Direct contracting | None<br>All contracts                                    |
| <b>2. Goods</b>             | US\$ 100,000 or above                            | ICB                                   | All contracts  |
|                             | >=US\$ 30,000 – <US\$ 100,000                    | NCB                                   | None   |
|                             | All values<br>Below US\$ 30,000                  | Direct contracting<br>Shopping        | All contracts<br>None                                    |
| <b>3. Services</b>          | US\$ 100,000 or above                            | QCBS                                  | All contracts  |
|                             | Below 100,000 firms                              | QCBS/LCS/CV/individual                | Only TOR   |
|                             | Below 50,000 individuals                         | CV/individual                         | Only TOR   |
|                             | All values                                       | Single source                         | All contracts  |
| <b>4. Miscellaneous</b>     |  |                                       |  |
| <b>5. Miscellaneous</b>     |  |                                       |  |
| <b>6. Miscellaneous</b>     |  |                                       |  |

**Total value of contracts subject to prior review:** US\$3.00 million

**Overall Procurement Risk Assessment**

**Average**

**Frequency of procurement supervision missions proposed:** One every 3 months (includes special procurement supervision for post-review/audits)

All single source consulting assignments and all TORs for consulting services irrespective of value are subject to prior review.

LIB will be used only if there is a limited number of suppliers.

<sup>1</sup>Thresholds generally differ by country and project. Consult OD 11.04 "Review of Procurement Documentation" and contact the Regional Procurement Adviser for guidance.

## Disbursement

### Allocation of grant proceeds (Table C)

**Table C: Allocation of Grant Proceeds**

| <b>Expenditure Category</b>     | <b>Amount in US\$million</b> | <b>Financing Percentage</b>                   |
|---------------------------------|------------------------------|---|
| Goods, Equipment & Vehicles     | 1.40                         | 100 percent of Foreign<br>95 percent of Local |
| Civil works                     | 0.38                         | 90 percent                                    |
| Consultants Services & Training | 3.55                         | 100 percent                                   |
| Operating Cost                  | 1.65                         | 95 percent                                    |
| Unallocated                     | 0.62                         |   |
| <b>Total Project Costs</b>      | 7.60                         |   |
| <b>Total</b>                    | 7.60                         |   |

The proceeds of the GEF Grant would be disbursed over a six-year period. A period of four months after closing date would be allowed to make disbursements for expenditures incurred until the closing date of the GEF Grant.

### **Use of statements of expenditures (SOEs):**

Disbursements for all expenditures would be against full documentation, except for items of expenditures under contracts and purchase orders below US\$100,000 equivalent each, for works, goods and consulting firms, and US\$50,000 for consultant services (individuals), training and incremental costs for which disbursements would be based on statement of expenditures (SOEs). Supporting documentation for SOEs would be retained by the Grantee (GOG) for review by IDA missions and external auditors.

### **Special account:**

To facilitate disbursements, a Special Account for the Ministry of Lands and Forestry would be established and operated in US\$ at a commercial bank/Bank of Ghana, under terms and conditions satisfactory to the IDA. Upon grant effectiveness, a sum of US\$400,000 would be deposited by the GEF into this account. Further deposits would be made into this account against withdrawal applications supported by appropriate documentation.

## **Financial Management**

### Executive Summary

The objective of the Financial Management Capacity Assessment is to determine whether the implementing agency which has been identified as being responsible for the financial management under the NSBCP have adequate and acceptable financial management capability to undertake the assigned tasks. The arrangements include the agency's accounting system of recording and reporting, internal controls and auditing.

This capacity assessment was carried out at the Ministry of Lands and Forestry (MLF), head office in



Accra, by whom the special accounts of the project will be managed and the Savanna Resource Management Center (SRMC), where most transactions for the project activities will take place and will also manage significant part of the project's resources.

The agency's financial management arrangements are considered acceptable since they are capable of collecting all relevant information and recording correctly all transactions undertaken by the project, the system also assures the adequacy of maintenance of underlying records or support documents which form the basis for the preparation of regular and reliable financial statements and other similar reports, safeguard the project's assets, and are subject to auditing arrangements acceptable to the Bank.

The finance and accounts unit of MLF, which is currently managing the Natural Resource Management Project (NRMP), a World Bank funded project, would have overall financial management responsibility for the NSBCP.

The accounts unit at MLF is headed by a qualified accountant, and assisted by 4 other accounting staff with various levels of qualifications. All the staff has been trained in the World Bank disbursement procedures and performance under the current project is satisfactory.

The unit has an accounting manual approved by the World Bank, which documents the accounting system and reporting requirements under NRMP. The computerization of the accounting system has just been completed and tested and in use for the NRMP, and would be modified to incorporate activities to be covered under this new project without any risk of misallocation?

The Savanna Resource Management Center (SRMC) was established in Tamale with implementation responsibility for the Savanna sub-components of NRMP. Although overall financial management responsibility lie with finance and accounts unit at MLF head office, the accounts unit of SRMC would oversee the day to day disbursement and accounting for the project resources at Tamale.

The accounts unit at SRMC is headed by a Project Accountant, with degree in accounting and assisted by two other staff, one of similar qualifications and the second with lower. The head of this unit has been transferred from the head office to strengthen the office in Tamale The planned computerization of the accounting system at SRMC will be reviewed to incorporate activities of the new project.

Based on the assessment of the financial management system in place under the implementing arrangements proposed, there will be the need for minor additions and modifications to the Ministry's present financial systems as indicated in the action plan.

### ***Country Issues***

A Country Financial Accountability Assessment (CFAA) has just been conducted for Ghana. This document clearly identifies the main accountabilities issue in Ghana, which include;

- i) Fragmented legal framework and lack of enforcement of existing penalties for noncompliance;
- ii) Ineffective and inefficient internal auditing functions;
- iii) Weak human resource capacity because of poor public sector remuneration;

*Summary of Risk Analysis*

| Risk   | Risk Rating | Risk Mitigation Measure  |
|--|-------------|--|
| <b>Inherent Risks:</b>   |             |  |
| <b>Country</b>   |             |  |
| a) Non compliance of statutory regulations and non enforcement of penalties.                                 | S           | Government is modernizing its systems. In addition it needs to institute measures that ensure the update and enforcement of penalties for non compliance.  |
| b) Inadequacy of legal framework to regulate internal audit functions in country.                            | H           | Government is to seek donor assistance to address this weakness. More work needed here.  |
| <b>Overall Inherent Risk</b>   | <b>S</b>    |  |
| <b>Control Risk</b>  |             |  |
| <b>Staffing of the Agency</b>  |             |  |
| a) Inadequate human resource capacity of the required govt financial staff to manage project.                | N           | The project will supplement by the recruiting qualified staff to address this weakness.  |
| <b>Funds Flow</b>  |             |  |
| Delays in accounting for funds transferred to SRMC resulting in the slow down of further releases.           | M           | The computerization of the SRMC accounting system should minimize this problem   |
| <b>Internal Audit</b>  |             |  |
| No professional internal audit (IA) function. Government IA is limited to pre-auditing, with no added value. | S           | The project has outlined in its accounting manual an expenditure approval processes which ensures that only legitimate expenditures will be paid for by the project. The project will continue to rely on the external auditors for recommendation to improve their financial accounting systems. A system will be put in place which ensures that all such recommendations are implemented and monitored. |
| <b>External Audit</b>  |             |  |
| Likely project audit reports will be submitted late.   | M           | TOR will require that audits are submitted end of May. Will tie the timely submission to project management performance. Hiring of private auditors, ensuring the timely closure of accounts, appointment of auditors upfront for two years  |
| <b>Reporting and Monitoring</b>  |             |  |
| Delays in the submission of project and monitoring reports.  | M           | TTL will tie the issue of No Objections to the submission of these reports.  |
| <b>Information Systems</b>   |             |  |
| Computerized systems are not fully used due to poor training, and inadequate support.                        | M           | All staff will be trained, and a program put in place to train new staff when ever they join. Have a maintenance service contract in place.  |
| <b>Overall Control Risk</b>  | <b>M</b>    |  |

### ***Strength and Weaknesses***

The significant strengths that provides a basis of reliance of the project financial management system include;

- i) the presence of a qualified accountant as head of the finance and accounts unit with overall responsibilities for project financial management;
- ii) the presence of an accounting and financial procedures manual which have been used to manage the on-going NRMP;
- iii) accounting staff have all received training in World Bank disbursement procedures;
- iv) an introduced accounting software for use, with capability to produce project monitoring reports.

### ***Implementing Entities & Arrangements***

The SRMC sub-committee of the PCC established under the NRMP in the MLF (Accra) will supervise and monitor overall implementation. The NSBCP Coordinator will lead in the field implementation, assisted by subject matter specialists from the relevant ministries departments and agencies (MDAs).

At the regional and district levels, the various MDAs, namely; FSD, WD, MOFA, EPA, MOH, and CBOs; will collaborate with NSBCP towards implementation. The project implementation will be coordinated from Tamale where the SRMC is located.

### ***Funds Flow Arrangements***

The Project would open a Ghanaian Cedi (Ø) account at Tamale in which releases from the Government of Ghana Counterpart funds would be transferred into regularly. As the project disburses funds from this account, reimbursements would be made from the Special Account through the submission of Statement of Expenditure for eligible expenses. In the case of expenditure on consultancy services training and workshops to which 'No Objection' have been received from the World Bank, disbursements would be done centrally and directly to the third party beneficiaries. Where the contract has been contracted in Tamale, the details would be sent to Accra for payments to be effected. In such cases payments can be made directly from the SA.

Activities expected to be implemented under NSBCP for the year will be part of the approved work plan of the project. On the basis of the plan the Tamale Office will prepare a Statement for Funds Requirement (SFR) for six month (2 quarters) showing monthly requirements.

The attachment to the SFR will include details of the type of activity under the project to be undertaken, the expected output and the timing of the output. On the basis of this the equivalent amount from the project account (GOG counterpart funds account) would be transferred to the Tamale project accounts.

The amounts disbursed to effect payments on eligible expenditures will be documented in the form of Statement of Expenditures, and forwarded to Accra for reimbursement from the SA. The documents to support the SOE should include the bank statement and its reconciliation statement, and a statement which compares the period budget to actual and explanations for any discrepancies. The request must be signed by both the Coordinator and project accountant.

The documents would be maintained in the Tamale office for review by future Bank missions and for audit purposes.

### ***Auditing Arrangements***

Independent and qualified auditors acceptable to the Bank would carry out the audit of NSBCP. The selection of auditors shall be on competitive basis in accordance with the Bank's guidelines and would be in place by effectiveness of the project. It was agreed at Negotiations that as an Effectiveness Condition the Recipient would appoint independent auditors referred to in Section 4.01(b)(i) of the Trust Fund Grant Agreement.

The project accounts, SOEs and the special account would be audited by the selected independent auditors who will be acceptable to the World Bank. The auditors' reports and opinions in respect of each of these statements of accounts would be furnished to the World Bank and GEF within six months of the close of each fiscal year.

### ***Reporting and Monitoring***

The Bank has introduced a new initiative, the Financial Management Initiative (FINMI). FINMI requires projects to prepare quarterly projects monitoring reports (PMRs) in the areas of finance, procurements including contract details and project progress.

***The Quarterly Financial Reports;*** would consist of Sources of project funds and their Uses of Funds, statement of Uses of Funds by Project Activity, Project Cash Withdrawals, Special Account Reconciliation statement and a six months Project Cash Forecast;

***Quarterly Project Progress Report;*** would consist of Output Monitoring Report on contract Management and on Unit of Output by project activity;

***Quarterly Procurement Management Report;*** would consist of procurement process monitoring for goods and works and that for consultants' services, and contract Expenditure reports for goods, works and consultants' services.

Computerization of the accounting system of NRMP has been completed under the on-going phase I and PMRs can be generated by the system. The first set of PMRs is to be submitted to the Bank at the end of the third quarter of 2001. The Ministry's accounting system which would be used for the implementation of NSBCP has therefore capacity to generate the PMRs, the project would be required to produce the PMRs at the start of project implementation. The content and format of the financial reports of the PMR was agreed at negotiations and is included in the Project Implementation Manual.

**Action Plan Agreed at Appraisal**

|     | <b>Action Step</b>  | <b>Due Date</b>  | <b>Responsibility or Action By</b> | <b>Date Action Completed</b> |
|-----|---|--|------------------------------------|------------------------------|
| 1.  | Updating Financial and Accounting Manual including new chart of accounts for NSBCP activities, & Decentralized Flow of Funds arrangements | January 31, 2002   | Financial Controller               | .                            |
| 2.  | Review and Comments by WB on New Manual   | February 15, 2002  | FMS/QK & LOAG1                     |                              |
| 3.  | Training of District and Regional level staff who will handle accounts  | During February 2002                                       | Financial Controller               |                              |
| 4.  | Adaptation of PMR format to NSBCP project.<br><br>· Financial Reports<br><br>· Procurement<br><br>· Project Progress                      | October 15, 2001<br><br>February 2002<br><br>February 2002 | Financial Controller               | Completed                    |
| 5.  | Draft PMR Formats (Forms) for financial Reports sent to WB  | October 15, 2001   | Financial Controller               | Completed                    |
| 6.  | WB review comments sent to project/GOG  | October 31, 2001   | FMS QKS-CO                         | Completed                    |
| 7.  | Program of software to produce reports and testing  | Dec./Jan. 2002   | Financial Controller               | Outstanding                  |
| 8.  | Opening Special Account (with signatures etc)   | Before request for initial deposit                         | Financial Controller               |                              |
| 9.  | First set of PMRs to be produced (Draft)  | End of 1st quarter of implementation                       | Financial Controller               |                              |
| 10. | Second set of PMR to be produced  | End of 2nd quarter   | Financial Controller               |                              |
| 11. | Third set of PMRs   | End of 3rd quarter   | Financial Controller               |                              |
| 12. | Decision to Move to PMR Based Disbursements to be taken at this stage.  | End of 4th quarter   | LOAG1, AFTQK, MOF, MLF             |                              |

**Annex 7: Project Processing Schedule**  
**GHANA: Northern Savanna Biodiversity Conservation Project**

| <b>Project Schedule</b>                           | <b>Planned</b> | <b>Actual</b> |
|---|----------------|---------------|
| <b>Time taken to prepare the project (months)</b> |                |               |
| <b>First Bank mission (identification)</b>        | 10/01/1999     | 10/01/1999    |
| <b>Appraisal mission departure</b>                | 03/12/2001     | 03/12/2001    |
| <b>Negotiations</b>                               | 11/05/2001     | 11/06/2001    |
| <b>Planned Date of Effectiveness</b>              | 03/18/2002     |               |

**Prepared by:**

Hassan Mohammed Hassan, Edward Felix Dwumfour.

**Preparation assistance:**

**Bank staff who worked on the project included:**

| <b>Name</b>            | <b>Speciality</b>  |
|------------------------|--|
| Edward Felix Dwumfour  | Natural Resource Management Specialist, Task Team Leader |
| Hassan Mohammed Hassan | Environmentalist   |
| Solomon Bekure         | Agricultural Economist                                   |
| Enos E. Esikuri        | Environmentalist   |
| John D. H. Lambert     | Medicinal Plants Specialist                              |
| Lucie Tran             | Operations Analyst                                       |
| Patience Mensah        | Agricultural Economist                                   |
| Mbungu Mbuba           | Procurement Specialist                                   |
| Frederick Yankey       | Financial Management Specialist                          |
| Kofi Marrah            | Social Development Specialist                            |
| Ferdinand Tsri Apronti | Implementation Specialist                                |
| Gregoria Dawson-Amoah  | Team Assistant   |
| Rose Abena Ampadu      | Team Assistant   |
| Joseph Ellong          | Language Team Assistant                                  |

**Annex 8: Documents in the Project File\***  
**GHANA: Northern Savanna Biodiversity Conservation Project**

**A. Project Implementation Plan**

"Concept Paper for a Proposed Red Volta Community Reserve," Nature Conservation Research Center, Accra, August 10, 1999.

"Ghana: Northern Savanna Biodiversity Conservation Project (NSBCP) - Gender and Socio-Economic Issues," by Maja Naur, January 2001.

Draft Terms of Reference - Environmental Analysis

Draft Report on the "Propagation of Medicinal Plant Species," Final Phase - Taimako Plants Research Centre, Dr. J. A Yidana, July 1999.

"Forest Reserves in Northern Region."

"Ghana-Northern Savanna Biodiversity Conservation Project (NSBCP): Pre-appraisal Mission Report, O. I Aalangdong, Tamale, Ghana.

"Improving Sheanuts Production in Ghana," J. A Yidana and Abu Juam, University for Development Studies, June 2000.

"Management of Traditionally Protected Areas such as Sacred Groves and Underlying Areas in Northern Ghana," Environmental Protection Agency (Northern Region).

"Medicinal Plants and rural Development in the Savannah Region of Northern Ghana: The Role of Women in conservation, Management and Utilization," by Maja Naur, September 1999.

Mission Aide-memoire, Joint Pre-appraisal Mission of August 14-31, 2000.

Northern Savannah biodiversity Conservation (NSBC) Project, Daniel K. Abbiw, Botany Department, University of Ghana, Legon.

"Pilot Communities for Biodiversity Conservation of Indigenous Crop Varieties," A. B Dery.

"Project Proposal for the Rehabilitation of Degraded Lands in Five Selected Communities (Paga in Kassena-Nankana, Bazua in Bawku East and Shea in Bolgatanga Districts of the Upper East Region, Wulugu in West Mamprusi District in the Northern Region and Jirapa in the Upper West Region), The State of Land Degradation," Environmental Protection Agency, August 29, 2000.

"Restocking of Savanna Degraded Lands," Draft Report by Adam Abu.

"Sustainable Use of Medicinal Plants for Animal Healthcare: Report on the Pre-appraisal Mission on the Ghana Northern Savanna Biodiversity Conservation Project (NSBCP), George Aning, Veterinary Scientist, Animal Research Institute (CSIR).

"SRMP - Floral Survey".

"The Management of Endangered Plant Species in the Savannah Areas of Northern Ghana," paper presented at the Workshop on Land Rehabilitation in the Northern Savannah Areas, 24-28 February 1997, Musah Abu-Juam, Botany Unit of Planning Branch, Kumasi, Ghana.

Traditional Birth Attendants (TBA) Training Program, Upper East Region - 2000.

Traditional Medicine Component, Wildlife Division, Northern Savannah Biodiversity Project, Activities

and Budget.

"Vegetation and Floral Survey of the Northern Savanna of Ghana: Review of existing knowledge and results of a new survey," Daniel Abbiw and Patrick Ekpe, Ministry of Lands and Forestry NRMP/SRMP - BC.

**B. Bank Staff Assessments**

**C. Other**

\*Including electronic files



**Annex 9: Statement of Loans and Credits**  
**GHANA: Northern Savanna Biodiversity Conservation Project**

| Project ID    | FY   | Purpose                                | Original Amount in US\$ Millions |         |       |         | Difference between expected and actual disbursements <sup>a</sup> |        |           |
|---------------|------|--|----------------------------------|---------|-------|---------|---|--------|-----------|
|               |      |  | IBRD                             | IDA     | GEF   | Cancel. | Undisb.   | Orig   | Frm Rev'd |
| P050623       | 2002 | ROAD SECTOR DEVELOPMENT PROGRAM        | 0.00                             | 220.00  | 0.00  | 0.00    | 220.35  | 0.00   | 0.00      |
| P050619       | 2002 | ERSO III                               | 0.00                             | 100.00  | 0.00  | 0.00    | 110.64  | 0.00   | 0.00      |
| P071617       | 2001 | Ghana AIDS Response Project (umbrella) | 0.00                             | 25.00   | 0.00  | 0.00    | 24.55   | 0.00   | 0.00      |
| P000968       | 2001 | AGRIC SERVICES                         | 0.00                             | 67.00   | 0.00  | 0.00    | 63.76   | 36.64  | 0.00      |
| P050624       | 2000 | URBAN 5                                | 0.00                             | 10.83   | 0.00  | 0.00    | 10.15   | 0.00   | 0.00      |
| P050616       | 2000 | COMMUNITY WATER II                     | 0.00                             | 25.00   | 0.00  | 0.00    | 21.02   | -2.55  | 0.00      |
| P069465       | 2000 | RURAL FINANCIAL SERVICES PROJECT       | 0.00                             | 5.13    | 0.00  | 0.00    | 4.89  | 3.80   | 0.00      |
| P000974       | 1999 | NAT FUNC LIT PROG                      | 0.00                             | 32.00   | 0.00  | 0.00    | 28.06   | 8.88   | 0.00      |
| P000970       | 1999 | TRADE GATEWAY & INV.                   | 0.00                             | 50.50   | 0.00  | 0.00    | 40.93   | 16.44  | 0.00      |
| P040557       | 1999 | ERSO II                                | 0.00                             | 178.20  | 0.00  | 18.41   | 25.90   | 0.45   | 0.00      |
| P050615       | 1999 | PUB.SECTOR MNGT.PROG                   | 0.00                             | 14.30   | 0.00  | 0.00    | 7.12  | 4.99   | 0.00      |
| P040659       | 1999 | COMMUNITY DEV.                         | 0.00                             | 5.00    | 0.00  | 0.00    | 4.64  | 2.30   | 0.00      |
| P045188       | 1998 | FOREST BIODIVERSITY                    | 0.00                             | 0.00    | 10.00 | 0.00    | 6.89  | 2.64   | 0.00      |
| P000949       | 1998 | HEALTH SCTR SUPPORT                    | 0.00                             | 35.00   | 0.00  | 0.00    | 4.61  | -3.23  | 0.00      |
| P000946       | 1998 | NAT.RES.MANAGEMENT                     | 0.00                             | 9.30    | 0.00  | 0.00    | 4.12  | 4.56   | 0.00      |
| P041150       | 1997 | VILLAGE INFRASTRUCTURE                 | 0.00                             | 30.00   | 0.00  | 0.00    | 17.64   | 5.74   | 0.00      |
| P045588       | 1997 | PUB. FIN. MGMT. TAP                    | 0.00                             | 20.90   | 0.00  | 0.00    | 11.76   | 14.04  | 0.00      |
| P042516       | 1996 | PUBLIC ENTERPRISE/PR                   | 0.00                             | 26.45   | 0.00  | 0.00    | 12.03   | 13.12  | 0.00      |
| P000957       | 1996 | Highway Sector Investment Program      | 0.00                             | 100.00  | 0.00  | 0.00    | 16.03   | 39.63  | 0.00      |
| P000943       | 1996 | NON-BANK FIN INS AST                   | 0.00                             | 23.90   | 0.00  | 2.66    | 7.59  | 13.30  | 0.00      |
| P000973       | 1996 | URBAN ENVIRONMENTAL SANITATION         | 0.00                             | 71.00   | 0.00  | 0.00    | 21.06   | 28.46  | 0.00      |
| P000975       | 1996 | BASIC EDUCATION                        | 0.00                             | 50.00   | 0.00  | 0.00    | 14.52   | 19.26  | 0.00      |
| P000926       | 1995 | GH THERMAL (P-VII)                     | 0.00                             | 175.60  | 0.00  | 0.00    | 27.04   | 34.01  | 33.30     |
| P000962       | 1995 | FISHERIES                              | 0.00                             | 9.00    | 0.00  | 0.00    | 1.53  | 2.24   | 0.00      |
| P000966       | 1995 | MINING SEC.DEV & ENV                   | 0.00                             | 12.30   | 0.00  | 0.00    | 1.07  | 2.77   | 0.00      |
| P000936       | 1994 | LOCAL GOVT DEV.                        | 0.00                             | 38.50   | 0.00  | 0.00    | 5.73  | 7.09   | 0.00      |
| <b>Total:</b> |      |  | 0.00                             | 1334.91 | 10.00 | 21.07   | 713.62  | 254.57 | 33.30     |

GHANA  
STATEMENT OF IFC's  
Held and Disbursed Portfolio  
May-2001  
In Millions US Dollars

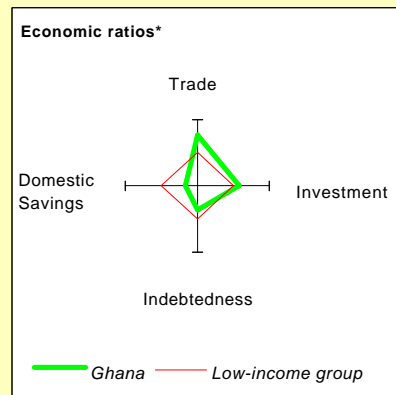
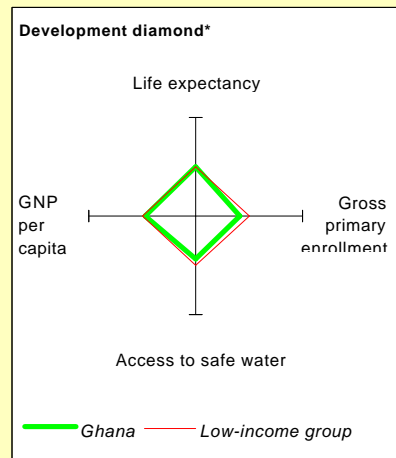
| FY Approval   | Company                 | Committed   |             |             |             | Disbursed   |             |             |             |
|---------------|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|               |                         | IFC         |             |             |             | IFC         |             |             |             |
|               |                         | Loan        | Equity      | Quasi       | Partic      | Loan        | Equity      | Quasi       | Partic      |
| 1993          | AEF Afariwaa            | 0.18        | 0.00        | 0.00        | 0.00        | 0.18        | 0.00        | 0.00        | 0.00        |
| 1990          | AEF Alugan              | 0.05        | 0.00        | 0.00        | 0.00        | 0.05        | 0.00        | 0.00        | 0.00        |
| 1992          | AEF CFL                 | 0.28        | 0.00        | 0.00        | 0.00        | 0.28        | 0.00        | 0.00        | 0.00        |
| 1995          | AEF Dupaul Wood         | 0.06        | 0.00        | 0.00        | 0.00        | 0.06        | 0.00        | 0.00        | 0.00        |
| 1998          | AEF NCS                 | 0.00        | 0.00        | 0.67        | 0.00        | 0.00        | 0.00        | 0.67        | 0.00        |
| 1997          | AEF PTS                 | 0.00        | 0.00        | 0.31        | 0.00        | 0.00        | 0.00        | 0.31        | 0.00        |
| 1991          | AEF Packrite            | 0.05        | 0.00        | 0.00        | 0.00        | 0.05        | 0.00        | 0.00        | 0.00        |
| 1999          | AEF PharmaCare          | 0.40        | 0.00        | 0.00        | 0.00        | 0.40        | 0.00        | 0.00        | 0.00        |
| 1994          | AEF Shangri-la          | 0.97        | 0.00        | 0.00        | 0.00        | 0.97        | 0.00        | 0.00        | 0.00        |
| 1996          | AEF Tacks Farms         | 0.37        | 0.00        | 0.00        | 0.00        | 0.37        | 0.00        | 0.00        | 0.00        |
| 1988/89/91/93 | Bogosu                  | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| 1989/91/93    | Cont Acceptances        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
|               | GAGL                    | 2.92        | 0.00        | 0.00        | 0.00        | 2.92        | 0.00        | 0.00        | 0.00        |
| 1990/91/96    | GHANAL                  | 0.00        | 0.44        | 0.00        | 0.00        | 0.00        | 0.44        | 0.00        | 0.00        |
| 1991          | GMCC                    | 0.00        | 0.13        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| 2000          | Ghana Leasing           | 0.48        | 0.73        | 0.00        | 0.00        | 0.48        | 0.73        | 0.00        | 0.00        |
|               | Hotel Inv. Ghana        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        |
| 1992/93       | Wahome Steel            | 0.87        | 0.00        | 0.00        | 0.00        | 0.87        | 0.00        | 0.00        | 0.00        |
| 1991/92       |                         |             |             |             |             |             |             |             |             |
| 1989/92       |                         |             |             |             |             |             |             |             |             |
|               | <b>Total Portfolio:</b> | <b>6.63</b> | <b>1.30</b> | <b>0.98</b> | <b>0.00</b> | <b>6.63</b> | <b>1.17</b> | <b>0.98</b> | <b>0.00</b> |

| FY Approval | Company                          | Approvals Pending Commitment |             |             |              |
|-------------|----------------------------------|------------------------------|-------------|-------------|--------------|
|             |                                  | Loan                         | Equity      | Quasi       | Partic       |
| 2000        | SSB                              | 10.00                        | 0.00        | 0.00        | 0.00         |
| 2000        | AEF Computer Sch                 | 0.23                         | 0.00        | 0.00        | 0.00         |
| 1995        | AEF GHANA PACK                   | 0.36                         | 0.00        | 0.00        | 0.00         |
| 1999        | AEF Garden Court                 | 1.50                         | 0.00        | 0.00        | 0.00         |
| 1999        | AEF Japan Motors                 | 1.50                         | 0.00        | 0.00        | 0.00         |
| 2000        | ELAC                             | 0.00                         | 0.00        | 0.25        | 0.00         |
| 2000        | GAGL IV-Restr                    | 0.00                         | 0.54        | 0.00        | 0.00         |
| 2000        | Ghana Telecom                    | 40.00                        | 0.00        | 0.00        | 60.00        |
|             | <b>Total Pending Commitment:</b> | <b>53.59</b>                 | <b>0.54</b> | <b>0.25</b> | <b>60.00</b> |

## Annex 10: Country at a Glance

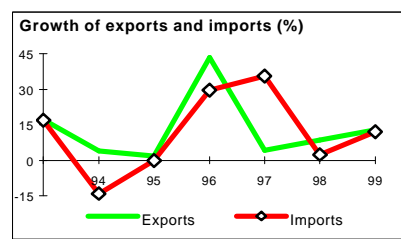
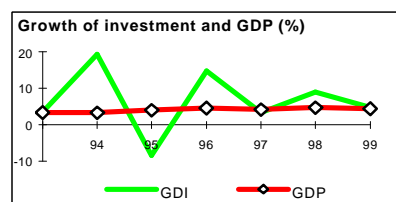
### GHANA: Northern Savanna Biodiversity Conservation Project

| POVERTY and SOCIAL   | Ghana          | Sub-Saharan Africa | Low-income  |             |                |
|--|----------------|--------------------|-------------|-------------|----------------|
| <b>1999</b>  |                |                    |             |             |                |
| Population, mid-year ( <i>millions</i> )                     | 18.9           | 642                | 2.417       |             |                |
| GNP per capita ( <i>Atlas method, US\$</i> )                 | 390            | 500                | 410         |             |                |
| GNP ( <i>Atlas method, US\$ billions</i> )                   | 7.5            | 321                | 988         |             |                |
| <b>Average annual growth, 1993-99</b>                        |                |                    |             |             |                |
| Population (%)   | 2.6            | 2.6                | 1.9         |             |                |
| Labor force (%)  | 2.6            | 2.6                | 2.3         |             |                |
| <b>Most recent estimate (latest year available, 1993-99)</b> |                |                    |             |             |                |
| Poverty (% of population below national poverty line)        | ..             | ..                 | ..          |             |                |
| Urban population (% of total population)                     | 38             | 34                 | 31          |             |                |
| Life expectancy at birth ( <i>years</i> )                    | 60             | 50                 | 60          |             |                |
| Infant mortality ( <i>per 1,000 live births</i> )            | 65             | 92                 | 77          |             |                |
| Child malnutrition (% of children under 5)                   | 27             | 32                 | 43          |             |                |
| Access to improved water source (% of population)            | 56             | 43                 | 64          |             |                |
| Illiteracy (% of population age 15+)                         | 30             | 39                 | 39          |             |                |
| Gross primary enrollment (% of school-age population)        | 79             | 78                 | 96          |             |                |
| Male   | 84             | 85                 | 102         |             |                |
| Female   | 74             | 71                 | 86          |             |                |
| <b>KEY ECONOMIC RATIOS and LONG-TERM TRENDS</b>              |                |                    |             |             |                |
|  | <b>1979</b>    | <b>1989</b>        | <b>1998</b> | <b>1999</b> |                |
| GDP ( <i>US\$ billions</i> )                                 | 4.0            | 5.2                | 7.5         | 7.8         |                |
| Gross domestic investment/GDP                                | 6.5            | 13.2               | 23.6        | 23.2        |                |
| Exports of goods and services/GDP                            | 11.2           | 16.7               | 33.9        | 33.5        |                |
| Gross domestic savings/GDP                                   | 6.6            | 5.6                | 10.7        | 6.2         |                |
| Gross national savings/GDP                                   | 6.2            | 7.2                | 18.8        | 12.4        |                |
| Current account balance/GDP                                  | 1.0            | -6.0               | -4.7        | -10.5       |                |
| Interest payments/GDP  | 0.7            | 1.1                | 1.8         | 1.6         |                |
| Total debt/GDP   | 31.9           | 64.7               | 82.9        | 81.0        |                |
| Total debt service/exports                                   | 8.9            | 32.1               | 21.8        | 20.1        |                |
| Present value of debt/GDP                                    | ..             | ..                 | 53.8        | 50.7        |                |
| Present value of debt/exports                                | ..             | ..                 | 156.1       | 151.7       |                |
|  | <b>1979-89</b> | <b>1989-99</b>     | <b>1998</b> | <b>1999</b> | <b>1999-03</b> |
| <i>(average annual growth)</i>                               |                |                    |             |             |                |
| GDP  | 2.0            | 4.2                | 4.7         | 4.4         | 5.1            |
| GNP per capita   | 0.5            | 1.9                | 2.1         | 2.2         | 2.6            |
| Exports of goods and services                                | -0.3           | 10.8               | 8.4         | 12.8        | 7.1            |



#### STRUCTURE of the ECONOMY

|                                | <b>1979</b>    | <b>1989</b>    | <b>1998</b> | <b>1999</b> |
|--------------------------------|----------------|----------------|-------------|-------------|
| <i>(% of GDP)</i>              |                |                |             |             |
| Agriculture                    | 60.0           | 49.0           | 36.0        | 35.6        |
| Industry                       | 12.3           | 16.7           | 25.3        | 25.3        |
| Manufacturing                  | 8.7            | 10.0           | 9.0         | 8.9         |
| Services                       | 27.8           | 34.3           | 38.7        | 39.1        |
| Private consumption            | 83.1           | 84.5           | 78.9        | 82.9        |
| General government consumption | 10.3           | 9.8            | 10.3        | 10.8        |
| Imports of goods and services  | 11.2           | 24.3           | 46.7        | 50.5        |
|                                | <b>1979-89</b> | <b>1989-99</b> | <b>1998</b> | <b>1999</b> |
| <i>(average annual growth)</i> |                |                |             |             |
| Agriculture                    | 0.6            | 3.0            | 5.1         | 4.9         |
| Industry                       | 1.1            | 2.5            | 3.2         | 6.9         |
| Manufacturing                  | 1.6            | -4.5           | 4.1         | 6.0         |
| Services                       | 4.5            | 5.4            | 6.0         | 2.2         |
| Private consumption            | 1.8            | 4.0            | 3.4         | 15.9        |
| General government consumption | 2.6            | 4.4            | -12.5       | 11.2        |
| Gross domestic investment      | 0.6            | 3.7            | 9.0         | 4.7         |
| Imports of goods and services  | -1.8           | 9.3            | 2.3         | 12.0        |
| Gross national product         | 1.8            | 4.2            | 4.8         | 4.8         |

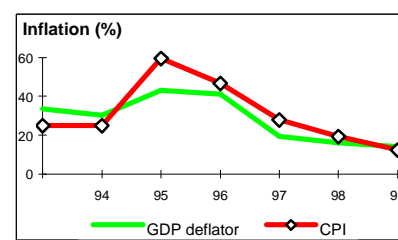


Note: 1999 data are preliminary estimates.

\* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

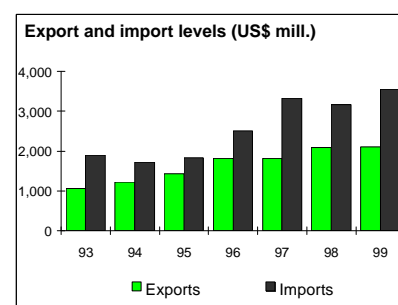
## PRICES and GOVERNMENT FINANCE

|  | 1979 | 1989 | 1998 | 1999 |
|--|------|------|------|------|
| <b>Domestic prices</b>                     |      |      |      |      |
| <i>(% change)</i>                          |      |      |      |      |
| Consumer prices                            | ..   | 25.2 | 19.3 | 12.4 |
| Implicit GDP deflator                      | 37.9 | 28.3 | 16.0 | 14.0 |
| <b>Government finance</b>                  |      |      |      |      |
| <i>(% of GDP, includes current grants)</i> |      |      |      |      |
| Current revenue                            | 10.5 | 13.6 | 20.5 | 20.2 |
| Current budget balance                     | -4.1 | 2.5  | 3.3  | 4.7  |
| Overall surplus/deficit                    | ..   | -5.3 | -8.1 | -6.0 |



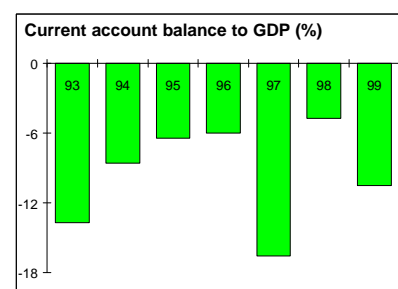
## TRADE

|                               | 1979 | 1989  | 1998  | 1999  |
|-------------------------------|------|-------|-------|-------|
| <i>(US\$ millions)</i>        |      |       |       |       |
| Total exports (fob)           | 913  | 808   | 2,091 | 2,099 |
| Cocoa                         | ..   | 408   | 622   | 550   |
| Timber                        | ..   | 81    | 171   | 174   |
| Manufactures                  | ..   | ..    | ..    | ..    |
| Total imports (cif)           | 853  | 1,087 | 3,167 | 3,556 |
| Food                          | ..   | 42    | ..    | ..    |
| Fuel and energy               | 176  | 161   | 220   | 342   |
| Capital goods                 | ..   | 190   | ..    | ..    |
| Export price index (1995=100) | 46   | 89    | 98    | 91    |
| Import price index (1995=100) | 26   | 94    | 88    | 90    |
| Terms of trade (1995=100)     | 179  | 95    | 111   | 101   |



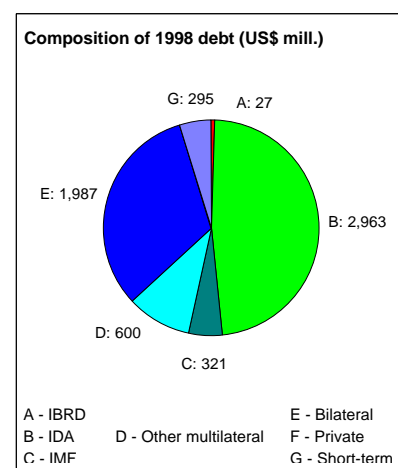
## BALANCE of PAYMENTS

|   | 1979  | 1989  | 1998    | 1999    |
|---|-------|-------|---------|---------|
| <i>(US\$ millions)</i>                  |       |       |         |         |
| Exports of goods and services           | 1,163 | 879   | 2,532   | 2,567   |
| Imports of goods and services           | 1,061 | 1,278 | 3,491   | 3,865   |
| Resource balance                        | 101   | -399  | -958    | -1,298  |
| Net income                              | -58   | -118  | -136    | -138    |
| Net current transfers                   | -3    | 202   | 741     | 620     |
| Current account balance                 | 41    | -315  | -353    | -816    |
| Financing items (net)                   | -72   | 442   | 453     | 722     |
| Changes in net reserves                 | 31    | -127  | -100    | 94      |
| <b>Memo:</b>                            |       |       |         |         |
| Reserves including gold (US\$ millions) | 401   | 436   | 508     | 446     |
| Conversion rate (DEC. local/US\$)       | 7.0   | 270.0 | 2,314.0 | 2,647.3 |



## EXTERNAL DEBT and RESOURCE FLOWS

|                                      | 1979  | 1989  | 1998  | 1999  |
|--------------------------------------|-------|-------|-------|-------|
| <i>(US\$ millions)</i>               |       |       |       |       |
| Total debt outstanding and disbursed | 1,282 | 3,397 | 6,193 | 6,297 |
| IBRD                                 | 93    | 114   | 27    | 18    |
| IDA                                  | 95    | 1,030 | 2,963 | 3,099 |
| Total debt service                   | 104   | 285   | 560   | 522   |
| IBRD                                 | 10    | 19    | 4     | 10    |
| IDA                                  | 1     | 8     | 32    | 41    |
| Composition of net resource flows    |       |       |       |       |
| Official grants                      | 32    | 208   | 239   | 159   |
| Official creditors                   | 101   | 275   | 349   | 126   |
| Private creditors                    | -6    | 54    | -10   | 115   |
| Foreign direct investment            | -3    | 15    | 56    | 203   |
| Portfolio equity                     | ..    | 0     | 15    | 80    |
| World Bank program                   |       |       |       |       |
| Commitments                          | 19    | 272   | 97    | 256   |
| Disbursements                        | 34    | 168   | 211   | 219   |
| Principal repayments                 | 3     | 11    | 17    | 28    |
| Net flows                            | 31    | 157   | 195   | 191   |
| Interest payments                    | 8     | 17    | 19    | 23    |
| Net transfers                        | 23    | 141   | 175   | 168   |



## **Additional Annex 11**

### **Community Participation**

In line with the project's stated development objective to improve the livelihood and health of communities in the northern savanna zone of Ghana through the sustainable use of natural resources, community-based actions by key stakeholders in joint management action of parks and reserves is proposed.

Community participation in the project is considered crucial. Communities living in and around the parks and reserves could impact positively or negatively on the project. Some communities have been living in these locations long before they were declared as forest reserves or national parks. They are engaged in mostly farming activities, animal husbandry and collection of NTFPs. Benefits derived from the reserves are in the form of water, woodfuel, wood for construction of dwelling houses, bush meat of various kinds and so on. Traditional birth attendants (TBAs) and traditional healers (THs) depend on the forest reserves for supplies of herbs and medicinal plants. Some communities, as in the case of Gbele, have farms and reside inside the reserves. Others practice activities, such as slash and burn practices, woodfuel extraction and group hunting (through burning and smoking out animals) which are harmful to the reserves and have, many times, led to wildfires contributing to the destruction of forests, wild animals and other natural resources.

The major causes of loss of biodiversity and degradation of natural resources in the savanna zone can be traced to tremendous pressure from increasing human and livestock populations, inappropriate farming practices, deforestation, and bush fires. Among a number of contributory factors is inadequate involvement of local communities in the natural resource management process. This leaves communities feeling that such resources are everlasting and free for all. Due to their activities, local communities have come into conflict with park and reserve authorities, such as the Wildlife Division and the Forestry Services Division. This has led to an uneasy, if not hostile relationship between the communities and the authorities. Despite the policing actions of the wildlife and forestry institutions, the areas under their protection continue to be encroached by members of the fringing communities and more distant communities leading to the depletion and degradation of their natural resources.

A number of legitimate needs are responsible for community entry into these areas. They include their need for water, wood for cooking and building of dwelling houses, bush meat and herbs. Poverty, in many cases, is an important factor in forcing them to look for these free benefits from the forests, as is the denuded environment outside the protected areas, thereby putting more pressure on areas that are better endowed with water and other resources. Another factor is the seasonal movement of elephants outside the protected areas in search of forage during which they invade the farms of local communities and trample their crops and the vegetation around them. Though the local people sometimes react by killing some of these animals to ward them off, they have not succeeded in stopping the seasonal movements of animals in search of food.

Therein lies the rationale for increasing their awareness and involvement in resource conservation and management and equipping them with the capacity to manage and use sustainably natural resources. The reasoning of the project designers is that the various actions envisaged stand a better chance of success if they take into account the existence and economic activities of the communities living in and around the

parks and reserves, and considering them as an integral part of the environment. The goal is to adopt approaches that recognize the problems facing the communities and to design with them systems by which they can become an integral part of conservation actions in collaboration with other actors including wildlife and forestry officials, district assemblies, and non-governmental organizations (NGOs).

### **Community Participation Conservation Management**

Community participation in conservation management is advocated by the project because it would promote community ownership of conservation practices, through participation in the design and implementation of the various management actions. It is expected that such an approach would promote commitment and buy-in by the local communities living in and around these protected areas.

The objective of this component of the NSBCP is to collaboratively develop, test and replicate proactive measures which involve local communities more directly in planning and management of northern savanna wildlife and forest/park reserves. The project would adopt a system of incentives such as alternative livelihood practices based on preliminary assessments undertaken early in the project and in-depth natural resource and socio-economic assessments of communities in and within close proximity to the reserves aimed at providing information on current livelihood practices, resource use patterns, cultural practices and other conditions.

The component would also support the development and implementation of community-based resource management action plans to encourage sustainable resource use. To this end, local communities would form community action groups in collaboration with forestry and wildlife officials and other interested actors. Chiefs and other opinion leaders would be involved at the outset. The project recognizes the important role traditional and other opinion leaders such as assembly members play in the lives of local communities particularly in the rural setting. Thus they are able to influence behavioral change among their people when required.

The need to establish alternative livelihoods for communities living within or in close proximity to protected areas, as incentives to discourage them from going into the reserves for their needs is recognized.

### **Community Actions in the corridors**

The project aims to support the development of two wildlife corridors. The first corridor would begin from the Sissili Central Forest Reserve through the Pudo Forest Reserve, the Chiana Hills Forest Reserve linking up with the Nazinga Game Ranch in Burkina Faso. The second corridor runs from Burkina Faso and links forests along the White and Red Volta Rivers and the Morago River continuing to Togo. The objective of the corridors is to allow the movement of animals particularly elephants between Ghana, Togo and Burkina.

The establishment and management of these two corridors may require the establishment of community forest reserves and other specific activities in concert with local communities to ensure that they are fully integrated in their establishment and management. Community actions would include the development of areas where trees and other plants sought by elephants in their seasonal movements would be cultivated in sufficient supplies to keep them from straying into community farms and trampling them. These activities would be jointly developed and managed by communities, wildlife and forestry officials as well as environmental NGOs.

### **Alternative Livelihood**

Under this component, the communities would be supported to develop alternative sources of livelihood, which would promote a harmonious relationship with biodiversity conservation. Wildlife Protected Areas Management Committees (WPAMCs) and Forest Management Committees (FMCs) would be formed under the project and would include selected members of the communities.

Alternative livelihoods identified through consultations with communities in Gbele Reserve, Desima, Sekoti, and Zongoiri include woodlot development, bee keeping, and domestication of small game. Game domestication is not practiced in northern Ghana. However, it could be introduced with a chance of a good measure of success particularly with the acceptance of the concept by the local communities. The component would include the supply of breeding stock, shelter, and capital to interested communities. In the Mole Game Park communities might want to develop artifacts for sale that would be support the Park tourist attraction. The component therefore has the potential of leading to poverty reduction, a key objective of the NSBCP.

To facilitate the development of alternative livelihood under this component, the project would provide equipment, technical assistance, training and implementing expenses. In particular, the project would consider the provision of mechanized wells to eliminate the communities' need to go for water inside the parks and reserves.

### **Public education and awareness creation**

In order to facilitate the integration of the local communities into biodiversity management a comprehensive public and awareness-raising program would form an important part of the community-based actions. The importance of indigenous knowledge in eliciting community participation cannot be overlooked. Awareness creation programs such as radio and TV discussion programs in the local languages, video documentaries as well as community theater production to elicit active participation of the communities would be developed and supported by the project.

The awareness campaign would develop messages focusing on the importance of maintaining biodiversity and the sustainable use of natural resources, codification and dissemination of best land management practices, sustainable development in the traditional renewable energy sector through woodlot development, wildfire prevention and management as well as production of training and information materials. Communication equipment and consultancy services would be sought to ensure that effective programs are developed to strengthen the capacity of communities to participate in decision-making regarding the protection of the ecosystem. Other activities would include sensitization tours of wildlife parks and community durbars.

## **Additional Annex 12**

### **Monitoring and Evaluation**

The objectives of the monitoring and evaluation (M&E) is to develop an organized system for capturing and disseminating information needed for tracking project performance against planned activities, changes and trends in biodiversity; and for measuring the impact of project interventions.

Additionally, beneficiary and social assessment would be carried-out. Baseline studies would provide benchmarks for evaluation. The system would allow an effective evaluation of: (a) the effectiveness of the project's delivery mechanisms and procedures; (b) the impact of the field activities on the basis of stated objectives, and input, output and impact indicators identified in the Project Design Summary (see Annex 1); and (c) the replication of the *in-situ* and *ex-situ* activities at a wider national scale.

The M&E system would be an integral part of savanna resource monitoring under SRMP and would also be part of overall monitoring of natural resource management under the NRMP, therefore, the information generated would be fed into NAFGIM which stores natural resource database.

M&E would be carried out at two levels, local and national, and would involve various agencies and beneficiary communities. The local level would be sub-divided into community, project (NSBCP) and regional/geographical (SRMP) levels. The national or program level would be at NRMP. Implementation would be carried-out by an M&E unit of the NSBCP. The unit would coordinate data collection, analyze and disseminate information.

Participating agencies and community members would agree on monitoring indicators, which would include a set derived from the "Guidelines for Monitoring and Evaluation for Biodiversity Projects" published by the GEF in June 1998. Annual work plans would be prepared each year with specific milestones and deliverables, and highlighting lessons learned as the project progresses. Feedback on monitoring and evaluation results would be provided through quarterly and annual reports and to communities through workshops and meetings.

The progress towards project outcomes would be evaluated during project supervision and an in-depth review 12 months after the project becomes effective; followed by a mid-term review at the 36-month state. The in-depth review after 12 months would determine the extent to which the project is performing vis-à-vis its development objectives. The mid-term review would determine the status of the project and the achievements of objectives by the completion date (72 months of implementation). An Implementation Completion Report would be prepared at least six months prior to final disbursement of the Grant. The Government would prepare its own evaluation and contribution to the project's completion report.

#### **Levels of M&E and Responsibilities**

##### **A. Local Level**

Community/Site -- community members would be selected from the Forest Management Committees and Wildlife Protected Area Management Committees as community enumerators, to collect



data at the community level. The community enumerators would be responsible for:

- collecting data for NSBCP M&E unit and
- transmitting data to NSBCP

Participating Agencies -- one person from each participating agency would be responsible for:

- organizing and collecting data on participating agencies activities
- preparing formats for data collection
- transmitting data to NSBCP M&E
- providing technical opinions on M&E results

Project level NSBCP) one M&E officer would be responsible for:

- coordinating all NSBCP M&E activities and agencies
- organizing monitoring at community and project levels
- collecting information from participating agencies
- preparing formats for data collection
- reporting on project management activities – financial management, implementation status of project activities etc.
- organizing baseline studies and special surveys
- consolidating and analyzing data
- preparing and disseminating reports
- signaling project management and relevant stakeholders about problems identified by M&E results
- organizing workshops to disseminate results of M&E to communities
- coordinating preparation of annual workplans and procurement schedules
- organizing M&E training
- convening meetings
- managing M&E database
- coordinate World Bank implementation support missions

Regional Level/Geographical (SRMP) -- the SRMP MIS officer would be responsible for:

- integrating NSBCP M & E information into SRMP MIS
- transmitting information to NRMP for national level monitoring
- informing/signaling SRMP Steering Committee about results NSBCP M& E results

## **B. National Level**

National/program (NRMP) -- one officer would be responsible for:

- integrating NSBCP M&E data into NRMP MIS
- transmitting information to NAFGIM database
- informing/Signaling policy makers of results/problems from M&E
- provide feedback on policy issues to regional and project level stakeholders

## **Indicators**

Monitoring indicators in Table 1 were identified and agreed on with stakeholders. The process

involved a series of consultations with communities in various locations in the project sites, followed by two workshops that was attended by implementing agencies, and a cross-section of community representatives of women, traditional healers, opinion leaders and farmers.

### **Data collection, Storage, Analysis and Dissemination**

Primary and secondary data would be collected and built into a biodiversity database on northern savanna. The biodiversity database would be integrated into SRMP MIS that in turn would be fed into NRMP MIS. Relevant aspects of the biodiversity database in the would be fed into NAFGIM database from the NRMP MIS.

Data would be gathered from:

- structured surveys
- interviews
- PRA, RRA
- official documents
- remote sensing
- land survey
- direct observations
- routine activities of participating agencies

Community enumerators would collect data based on requests from the M&E unit and participating agencies. In addition, participating agencies would compile data as records of their routine activities and transmit the data in partially analyzed form to the NSBC M&E unit. Data would be available from specific studies e.g. baseline study and surveys.

The M&E unit would compile data from all sources into NSBCP database, and feed it into the SRMP MIS. The M&E unit would analyze the data and prepare reports. The M&E unit would prepare quarterly and annual reports. Additionally, it would prepare occasional briefs on pressing issues that need immediate attention of the communities. M&E reports would be disseminated to participating agencies, policy makers' communities. Dissemination to communities would be done through formal workshops and during site management meetings.

### **M&E Capacity**

The M&E unit would manage the M&E system. It would be supported in field data collection by 16 community enumerators who would be drawn from the various communities at the project sites. The enumerators would be trained in interviewing and questionnaire administration. Focal persons from the participating agencies, SRMP and NRMP M&E would provide further support. An M&E specialist (short-term consultant) with international experience would work with and train the M&E staff to set up the system. The SRMP is providing for expertise and software for the design and management of the MIS. For this reason, no additional resources would be required under NSBCP.

It is expected that the project would build the capacity for managing a biodiversity information system that is well integrated at local and national levels, and can carry-on beyond the project life.

### **Baseline and other Studies**

Baseline studies would be conducted where there are information gaps. Data from the baseline studies and existing data would be used to build benchmark information for monitoring and evaluation. Other investigative studies would be conducted on specific issues.

## **Evaluation**

An in-depth assessment of the project would be carried-out 12 months after effectiveness to evaluate the performance of the project towards meeting the development objectives. The results would identify the project status at its mid-term. An implementation completion report would be prepared after the project closes to assess the project's performance. Given that biodiversity conservation takes a long time to show results, the full effects of project interventions on conservation of northern savanna biodiversity is more realistically evaluated ten or more years of project implementation.

**Table 1. INDICATORS**

| <b>Objectives</b>                                       | <b>Indicator</b>   | <b>Unit</b>                     | <b>Data set</b>  | <b>Method</b>   | <b>Frequency</b>                   |
|---|--|---------------------------------|--|---|------------------------------------|
| <b>Poverty reduction</b>                                | Incidence of poverty   | %                               | Government official poverty data - GLSS (for all poverty indicators) | Collect from published Government statistics (method for all poverty indicators)                                | When statistics is published       |
|   | Household per capita income  | cash value                      |  |   |                                    |
|   | Infant mortality   | %                               |  |   |                                    |
|   | Access to safe water   | %                               |  |   |                                    |
|   | Net primary school enrollment  | % of age group                  |  |   |                                    |
| <b>Community-based global biodiversity conservation</b> | Area (reserves, parks, other) under effective participatory management               | Hectare                         | Maps, project records, remote sensing data                           | Area measurement GIS, mapping   | Annually                           |
|   | Participatory management plans implemented   | Number                          | Project records  | Interviews, physical observations   | Annually                           |
|   | Change in institutional arrangement for managing wildlife and forest protected areas | Number                          | Project records, terms of reference                                  | Review of minutes of meetings, record of inauguration.  | Annually                           |
|   | Plant genebanks established  | Hectares, Number of species     | Genebank records "passport data"                                     | Genebank records, collect passport data   | Annually                           |
|   | Regeneration of vegetative cover   | Hectare                         | Maps and vegetative cover records                                    | Collect passport data, physical observations in the field   | Every five years                   |
|   | Change in area under compatible land use   | Hectare                         | Project records of land use.   | Vegetative cover methods  | Every five years                   |
|   | Changes in key flora   | % loss<br>Number of key species | Survey data, community records                                       | Community report on land use, examine land use records and maps from Soil Research Institute and other agencies | Seasonally (dry and rainy seasons) |
|   | Changes in key fauna   | Number of key species           | Survey data, community records                                       | Counting at transects, interviews   | At suitable intervals              |
|   | Degraded areas rehabilitated and by communities                                      | Hectare<br>% survival           | Community records  | Counting at points, patrols   | Biennially                         |

| <b>Objectives</b>   | <b>Indicator</b>   | <b>Unit</b>   | <b>Data set</b>   | <b>Method</b>  | <b>Frequency</b>             |
|---|--|---|---|--|------------------------------|
| <b>Community-based global biodiversity conservation (continued)</b> | Community dedicated reserves under effective management  | Hectare<br># of communities   | Community records, project data, images                       | Communities keep data, physical observations                               | Annually                     |
|   | Incidence of bush fires  | Number/season<br># brought under control  | Community records, project data, images                       | Community enumerators keep records, images                                 | Annually                     |
|   | Awareness of bushfire control in communities   | Number/% of people, number of programs, # of Fire Volunteer Groups formed                       | survey results  | PRA, interviews  | Annually                     |
|   | Hotspots   | Number created and surveyed   | Community records<br>Inventory records                        | Interviews, counts, observations   | Annually                     |
|   | - Change in key faunal and floral species  | Number of species, % loss   | Survey records  | Survey of transects  | Annually                     |
|   | - Distribution of key faunal and floral species  | #/unit area,<br>#/animal head   | Survey records  | Count numbers on transects   | Annually                     |
| <b>Community-based global biodiversity conservation (continued)</b> | Faunal corridors established   | Hectare, number of corridors, # of communities involved   | Project records, management plans, maps                       | Interviews, review of management plans, GIS                                | Annually                     |
|   | Crop raiding reduced/Human-animal conflict reduced   | Number of raids, # of elephants and other wildlife killed, #/weight/value of property destroyed | Community records, wildlife patrol records                    | Wildlife guards keep records<br><br>Interviews, review of management plans | Continuous<br><br>Biennially |
|   | Sacred groves under effective management   | Number, Hectare<br>% woodland cover   | Community records   | Interviews, Monitoring, Observations                                       | Annually                     |
|   | Accessibility to key medicinal plants increased.<br>- distance to source<br>- time spent in collecting 1 kg plant material | Number of healers<br>Km<br>Hr   | Records compiled by practitioners and Project monitoring team | Review of guidelines and record of official meetings                       | Once every two years         |
|   | Guidelines for sustainable   | # of technical reports  | Guideline document  | Interviews, workshop recordings,   | Annually                     |

|   |  |   |   |  |                     |
|---|--|---|---|--|---------------------|
|   | harvesting of medicinal plants                                 | # of technical workshops/seminars   | Technical reports<br>Workshop reports   | observations   |                     |
|   | Increase in cultivation of medicinal plants                    | # of varieties<br>Hectares<br>Mt/head   | Project reports, farmers' records, agric extension records, practitioners' records                    | Enumeration,<br>Extension delivery   | Annually            |
|   | Reintroduction and cultivation of indigenous crop varieties    | # of farmers<br># of varieties<br>Mt/head<br>Hectare  | Project records, farmer records, Agric. Extension records, Interview records                          | Collaborate with agricultural extension staff to collect data from farms   | Annually            |
|   |  |   |   |  |                     |
| <b>Objectives</b>   | <b>Indicator</b>   | <b>Unit</b>   | <b>Data set</b>   | <b>Method</b>  | <b>Frequency</b>    |
| <b>Policy environment</b>   | Biodiversity conservation policies formulated adopted          | #   | Government policy documents on intellectual property rights, bioprospecting and biodiversity strategy | Examine official policy documents and speeches.<br>Examine technical and workshop reports  | Annually            |
|   | Biodiversity Consultation Group established                    | Date<br>#/% (proportions of various groups).<br># participating in meetings<br># of meetings/year         | Terms of Reference<br>Minutes of meetings.<br>Annual plan of work or operation                        | Examine minutes of meetings, official inauguration speeches, review records of BCG   | Annually            |
|   | Association of Traditional Healthcare Practitioners registered | Date (of registration)<br># formed<br># members<br># of meetings  | Terms of Reference<br>Minutes of meetings.<br>Annual plan of work or operation                        | Examine official records at Registrar of Associations, minutes of meetings, annual plan of work, project reports, correspondence | Annually            |
| <b>Community education and awareness of biodiversity conservation</b> | Biodiversity conservation awareness raised                     | # of people reached<br># of meetings, workshops/seminars held<br># trained to engage in awareness raising | Survey data   | Structured surveys   | Biennially          |
|   | Depth of community out reach of conservation awareness         | # of people and communities reached   | Survey results  | Structured surveys, interviews   | Once in three years |
| <b>Alternative</b>  | Income derived from medicinal                                  | Cash value in   | Practitioners' accounts,  | Interviews, collect data   | Biennially          |

|   |   |   |  |  |   |
|---|---|---|--|--|---|
| <i>livelihood</i>                           | plants increased<br><br>Community members benefiting from alternative livelihood sources (ALS)<br><br>Change in average household income attributed to alternative livelihood sources | Cedis<br><br># of people or communities<br># of ALS provided<br><br>% change in income levels<br># of people with income above a threshold  | project records<br><br>Project records, Interview records, community management records<br><br>Survey records          | from practitioners<br><br>Interviews, review community records, surveys<br><br>Assess household income, household income surveys | Biennially<br><br>Income assessment (biennially); Household income surveys (once in five years) |
| <b>Monitoring and Evaluation capability</b> | M&E system established  | # of systems established<br># of upgrades commissioned<br># of Cedis spent in upgrades<br># of M&E reports generated<br># of users<br># of M&Es/year conducted<br># trained to use system | Staff training records, management system information flow, monitoring documents, expenditure records, project records | Assess management information system, review annual and workplan and budget, interview stakeholders                              | Annually  |

## **Additional Annex 13**

### **Environmental and Social Impact Assessment**

NSBCP has been categorized during project identification and preparation as a Category B project under the World Bank's Safeguard Policies and Guidelines and therefore does require an environmental and social impact assessment. However, given the nature and scope of the project, the intended beneficiaries, the activities identified to support achieving the outputs and the objectives of the project, and extent of any perceived impacts, the project requires just a relatively little environmental and social work in the form of an analysis. For this project, preliminary surveys conducted by a team comprising sociologists, rural development specialists, natural resources management specialists, community animators and members and others during project identification missions showed that the implementation of certain interventions and activities would trigger the World Bank's Safeguard Policies on Environmental Assessment (OP 4.01), Pest Management (OP 4.09), and Involuntary Resettlement (OP 4.30). There was therefore a clear justification to formulate an Environmental and Social Management Plan (ESMP) for mitigating adverse impacts that would emanate. The surveys, however, indicated that other Safeguard Policies such as Indigenous People (OP 4.20), Forestry (OP 4.36), Safety of Dams (OP 4.37), Projects on International Waterways (OP 7.50) and Projects and Disputed Areas (7.60) will not be triggered. The ESIA work done on the project includes an Environmental and Social Management Plan (attached below) for mitigating adverse impacts that would emanate.

According to the Environmental and Social Impact Assessment (ESIA) work done on the project, the project is expected to have a number of very positive impacts on the environment including increased sustainability of woodland savanna, wildlife resource management, medicinal plant species, farmer crop variety germplasm, bush fire control, livestock grazing, improved soil fertility, watershed management, and enhanced effectiveness of environmental management and monitoring. The implementation of the project interventions during and after the project closes is not expected to have any significant adverse social and environmental impact on the rural people and the ecology of the northern savanna area.

The components and activities identified under NSBCP would have negligible or no significant adverse impact on the socio-economic set up in the pilot areas. The project recognizes the importance of guaranteeing the maintenance of traditional rights of societies and would therefore not acquire any assets (community or individual lands, movable and immovable property, etc.) in order to carry out any of the activities planned under it. People and community assets would remain therefore intact and would not be affected by the project. Project interventions would not lead to physical displacement, dislocation or resettlement of communities or people from their communities or homes, and within or outside forest and wildlife reserves. Since no acquisitions of land and property or physical movement of people or communities would be done under or emanating from the project, there would be no compensation payments to any individual, groups or communities. However, implementation of the project may result in loss of access to resources by individuals or communities, whose livelihood are tied up with natural resources and biodiversity in the area. Particularly for the Gbele village that is situated in the Gbele Resource Reserve natural resource use and allocation would become a problem as population increases: There would be pressure from the community for more farmland and other non-timber forests products for subsistence and gain as well as social infrastructure, which would require more reserve land. The ESMP discusses various planning and mitigation options to address this kind of problem.

NSBCP interventions would be implemented, among others, in sacred groves, community dedicated reserves, and other natural habitats such as forest and wildlife reserves. Sacred groves have significant



religious and historic importance and reverence to rural people. These may be places of traditional worship, abode for gods, burial places for chiefs and tindanas, ancestral homes, etc. The project would seek to improve the integrity of these areas by supporting activities such as enrichment planting with indigenous plant species and wild animal restocking with fauna indigenous to the area. In addition, such areas would be planted with medicinal plant species and other plant species that could be used by communities for fuelwood or construction poles. Implementation of project activities in these areas would be done in a participatory and collaborative fashion by involving the WPAMCs or FMCs, local people, communities and traditional authorities in formulating, discussing and agreeing together on a plan of implementation. This would ensure that any perceived impacts are eliminated or mitigation plans are designed prior to commencement of implementation. The ESMP describes possible ways of mitigating any perceived adverse impacts.

The project would support farmers to re-introduce abandoned farmer crop varieties on their farms or in home gardens. NSBCP would target using farmers' farms, home gardens and degraded lands for the cultivation of medicinal plant species. It is expected that project interventions (as described in Annex 2) would lead to increased agricultural and medicinal plant production, and therefore growth in people's income levels and health care needs. The project does not perceive that agricultural growth and medicinal plant availability would be achieved at the expense of the environment. The project perceives no pest resurgence or soil fertility loss or a consequential drop in crop yield as a result of crop re-introduction and cultivation of medicinal plants. Contrary, the integration of indigenous crop varieties and medicinal plant species in the agro-ecological set up, in sacred groves and on degraded lands would reduce pest numbers, enhance soil fertility and increase soil productivity. Project funds would not be utilized to support the use of pesticides and other agro-chemicals.

Although the project perceives no increased use of pesticides and other agrochemicals, an ESMP has been prepared to consider such a "virtual" occurrence. With FAO support, MOFA have developed integrated pest management (IPM) packages and IPM extension materials in cereal (particularly in rice), vegetable and fruit tree farming and have conducted countrywide training and skills upgrading of farmers, extension staff and others in the application of IPM. Farmer orientation and training are done usually through what have become popularly known as -farmer field schools- in IPM. The staff of MOFA's two departments - Agricultural Extension Department and the Plant Quarantine and Regulatory Services Department (PQRSD) - and other public and private organizations with presence in the three northern regions have capacity to extend IPM to farmers. But the current farmer-extension staff ratio is skewed unfavorably against farmers. As planned under Component 2 of the project, more farmers, extension staff, NGOs, CBOs, farmer-based organizations, input suppliers, etc. would receive training and exposure to environmentally sound and sustainable agricultural production technologies, including integrated pest management (IPM) strategies. In this respect, training would highlight technologies such as IPM strategies, biological control, physical and mechanical control, safe use of chemicals, preparation and application of so-called third generation pesticides (e.g. neem extract), composting and organic manuring, minimal/no-tillage, bullock ploughing, cover cropping, mixed cropping, etc. IPM is the packaging of two or some or all of the above-mentioned agronomic practices and techniques as the best option at any particular temporal and spatial situation to prevent or control pests and diseases.

NSBCP would also take lessons from the current policy of the Ministry of Food and Agriculture, one of whose objectives is to use less and less pesticides and other chemical inputs in agriculture and to promote integrated pest management technologies. Current Government of Ghana policy on agricultural growth is to train more MOFA extension staff and farmer-based organizations in sustainable agricultural production and in IPM. Again, lessons that would be learnt from the Bank supported Agricultural Service

Sub-Sector Investment Project (AgSSIP), which was ratified by the Government of Ghana in July 2001, would help to shape the way NSBCP would support implementation of interventions. AgSSIP would support training of farmers, farmer-based organizations, MOFA extension staff and environmental and social NGOs and CBOs in IPM. Ghana's IPM policy is consistent with the FAO's policy on integrated pest/disease management.

GEF funds earmarked under Component 2 would be utilized to support community outreach programs. NSBCP would support activities leading to the enhancement of public consciousness on safe and correct use, application and disposal of pesticides and agrochemicals, organic farming, non-chemical preservation of farm produce, etc. The outreach program would expose participants to the criteria for selection and use of pesticides as outlined in the World Health Organization's Recommended Classification of Pesticides by Hazard and Guidelines to Classification (Geneva: WHO 1994-95), the World Bank's Operational Policies on Pest Management OP 4.09, and the Ghana National Pesticides Management Act. The Ghana National Pesticides Management Act is consistent with the WHO's pesticides classification and guidelines.

NSBCP would not support large-scale community infrastructure investment such as schools, roads, water supply and sanitation, health clinics, community centers, dams/dugouts etc. Such investments would be funded, as appropriate, under the World Bank supported Village Infrastructure Project (VIP) and Community Water and Sanitation Project (CWSP-2), which are currently under implementation. NSBCP would support only the construction and rehabilitation work of ranger field stations and bushfire observation posts on non-farm lands and outside of protected areas as well as the limited rehabilitation work of SRMC office facilities in Tamale. It is not expected that these rehabilitation and construction activities would result in any significant increase in noise levels and level of dust emissions that would be damaging to human health and the physical environment. It is expected further that there would be no or negligible loss of vegetation since the construction of new ranger field stations and observation posts would require only small land parcels at the fringes of protected areas, and rehabilitation of existing ranger field stations and SRMC office structures would require no additional new land. Overall, these limited civil works, which would involve no earth excavation and moving, would have no significant adverse impact on the physical environment (e.g. air and water quality, microclimate, temperature, soils, hydrology, etc.). The severity of these environmental issues that would be likely to emanate from implementing the project would be negligible, their extent localized, and the duration very short.

Faunal corridors would be created by incorporating community and individual lands along major rivers in the north as part of the existing forest reserves. These community and individual lands would not be gazetted as state forest reserves. There would be no physical or legal demarcation or pillaring of community and individual lands that would form part of the corridors. However, old and defect pillars showing boundaries of state reserve lands would be replaced. No physical changes would be made in the corridors that would adversely impact on the ecology and biology of the system. Perceived impacts, albeit insignificant, that could emanate from some community activities and may have negative bearing on the integrity of the ecology of the corridor would include bush burning, inappropriate forms of crop production and grazing of animal, creation of settlements, etc. The ESMP and the PAD indicate that the project would support the development and adoption of appropriate land and water management practices such as agro-forestry, mixed cropping, woodlots establishment, application of organic compost and manure for farming, no-burn and no-till technologies, etc. The project would support through formal training and workshops the Veterinary Services Department and the Animal Health Department of MOFA, WD and FSD to mount periodic surveillance of wild animal movements to determine transmission and ensure prevention and cure of animal diseases, especially of transboundary migratory wild animal species.

The study proposed a costed Environmental and Social Mitigation Plan, based on the results of the environmental and social analysis. A total amount of US\$383,000 has been earmarked for the implementation of the ESMP. The proposed project would not provide any large-scale infrastructure investments such as schools, roads, water supply and sanitation, health clinics, community centers, dams/dugouts etc. These would be provided at the request of participating communities under the Village Infrastructure Project (VIP) and the Second Community Water and Sanitation Project (CWSP-2), which are currently under implementation. The infrastructure investments will be implemented in accordance with environmental guidelines prepared by the EA for the Village Infrastructure Project and the Second Community Water and Sanitation Project. As appropriate, NSBCP investments will be subject to environmental impact assessment as required by Ghana's Environmental Protection Agency.

The Savanna Resources Management Center at Tamale will be the lead agency responsible for implementing the environmental and social management plan and ensuring that other measures included as interventions in the project and which in themselves are required for mitigation of adverse impacts are carried out and that they achieve their objectives in this regard. In order to do so the SRMC will designate the Environmental Management Specialist seconded to the Center from the EPA to be responsible for monitoring the progress in implementing the plan. This individual will need to be further trained in environmental assessment and monitoring. Since certain activities and mitigation actions will be carried out by various agencies and individuals in the field, such institutions and individual officers and some community members identified to carry out such responsibilities will need short training courses, in-house training or on the job training in environmental and social assessment and monitoring. In carrying out the environmental and social management and assessment functions as they relate to the mitigation actions, the EM Specialist will work with the District Environmental Management Committees (DEMCs) and the Community Environmental Management Committees (CEMCs), whose capacities will have to be built through training workshops. The project will have to provide material and financial support to the institutions, committees and individuals identified to implement the mitigation plans.

For the purposes of monitoring, collection, collation, storage and dissemination of data and information during the implementation of the mitigation actions the SRMC monitoring and management information system unit will be used. Monitoring will be carried out in accordance with a manual or system prepared under the NSBCP. Monitoring of mitigation actions will be carried out right from start off date of project implementation.

**ESMP SUMMARY TABLE**

| <b>Activity</b>  | <b>Implementing Agency</b>   | <b>Monitoring Responsibility</b>  | <b>Timing</b>        | <b>Cost</b>                     |
|--|--|---|----------------------|---------------------------------|
| <b>ENVIRONMENT</b>   |  |   |                      |                                 |
| <b><i>Infrastructure investments</i></b><br>- Appropriate mitigation measures  | CWSA: water supply and sanitation<br>MOFA: roads, health clinics, dams/dugouts | SRMC<br>SRMC  | Project duration     | Included in CWSA & VIP projects |
| - Conduct EAs  | Consultants  | EPA   | As requested         | \$25,000                        |
| <b><i>Cultivation of Crop Varieties &amp; Medicinal Plant Species</i></b><br>- Integrated Pest Management (IPM)  | Agric. Extension Dept. and PQRS of MOFA, SRMC, NGOs                            | Agric. Extension Dept. and PQRS of MOFA   | As requested         | Included in project             |
| - Donkey carts to move compost   | Agric. Extension Dept. of MOFA   | Agric. Extension Dept. of MOFA  | As requested         | \$3.00 per donkey cart          |
| - Training in IPM and best farming practices   | TAMD/Min. of Health  | TAMD/Min. of Health   | Once a year          | \$100,000                       |
| - Public Education and Awareness Raising on Crop and Medicinal Plant Cultivation   | TAMD/Min. of Health  | TAMD/Min. of Health   | Project duration     | \$50,000                        |
| <b><i>Biodiversity Resources Management:</i></b><br>- Support appropriate land management practices & protect farmers' crops and property from moving animals in the faunal corridors: | Agric. Extension Dept. of MOFA, SRMC, WD, FSD                                  | SRMC with support from Wildlife Division (WD), Forest Services Division (FSD), and respective District Assemblies |                      | Included in project             |
| - Short term refresher courses for SRMC, MOFA, WD, FSD   | Consultants/NGOs   | SRMC  | Once every two years | \$20,000                        |
| - Surveillance of wild animal movements  | Veterinary Services Dept. and Animal Health Dept. of MOFA, WD, FSD             | SRMC  | Project duration     | \$150,000                       |
| - Training for Veterinary Services, Animal Health Dept., and Wildlife Division   | Consultants, NGOs  | MOFA  | Once every year      | \$20,000                        |
| - Training workshops for Communities   | Consultants  | SRMC  | Twice during project | Included in project             |

|   |   |      |   |   |
|---|---|------|---|---|
| - Training for Env. Specialist to monitor implementation of ESMP  | SRMC  | SRMC | Less than 3 months                              | \$8,000   |
| <b>Sub-Total</b>  |   |      |   | <b>\$373,000</b>  |
| <b>SOCIAL</b>   |   |      |   |   |
| Develop a plan on compensation /alternative land use for potential loss of agricultural land and use of resources in protected areas.                           | Consultants, independent valuers, NGOs and relevant government units  | SRMC | During first quarter of project implementation  | Part of costed interventions and activities of the project.         |
| Establish a program for community-based alternative income generating activities for beneficiaries in and around the Gbele Reserve.                             | Consultants and NGOs  | SRMC | Right after project effectiveness               | \$10,000 for formulating a program                                  |
| Ensure that the project takes into account the potential increase in population in relation to the planned limitation in natural resource use from the reserve. | WD, SRMC  | SRMC | During first quarter of project implementation  | Part of costed interventions and activities of the project.         |
| Develop a multi-sectoral plan which shows how the other two projects will cater to the needs of the targeted communities.                                       | Consultants, NGOs other donors active in the region and in collaboration with the TTLs from all three projects to reflect synergies | SRMC | During first quarter of project implementation. | Cost would be catered for under VIP and CWSP-2.                     |
| Develop a monitoring and evaluation Plan which is participatory and ensure that is adequately budgeted for.   | Consultants, relevant implementing actors at the government, district and community level.  |      | During first quarter of project implementation  | Already incorporated into the M&E section of the project components |
| <b>Grand Total</b>  |   |      |   | <b>\$383,000</b>  |

**Additional  
Annex 14**

**Description of Selected Project Sites**

**A Forest Reserves**

**Criteria for selection**

As most Forest Reserves are degraded selection skewed towards reserve with a large intact vegetation. The following condition score system was used:

Condition Score applied in summarizing the vegetation quality of forest reserves

| <b>Score</b> | <b>Definition</b>  |
|--------------|--|
| 1            | EXCELLENT with nearly closed canopy forest or woodland showing little or no sign of degradation; few perennial grasses           |
| 2            | GOOD with light to moderate signs of degradation; predominantly trees and shrubs; grass cover moderate                           |
| 3            | SLIGHTLY DEGRADED: Open woodland with mostly short trees and shrubs; grass cover rather dense                                    |
| 4            | MOSTLY DEGRADED: Degraded savanna with very few and widely scattered short trees and shrubs and extremely high dense grass cover |
| 5            | VERY POOR: Grassland composed mainly of short annual grasses, sometimes growing in tussocks                                      |

**1. Reserve name:** Ambalara      **District:** Wa      **Condition Score:** Good

**Area:** 131.94 km<sup>2</sup>

**Date of Reservation:** 1956 (1957)

**Documentation:**

**Reservation/Management objectives:** To protect and maintain existing vegetation cover in the catchment areas.

Notes: Selected only as a pilot site because it has greater than 60% intact vegetation.

**2. Reserve name:** Kenikeni                      **District:** Bole  
**Condition Score:** Good

**Area:** 515.92 km<sup>2</sup>

**Date of reservation:** 1955

**Documentation:**

**Reservation/Management objectives:** Headwaters for several streams that feed the tributaries of the Black Volta River, reservoir for game, control of soil erosion. Poles and thatch for local housing, conserve the vegetation which the livelihood of the communities depend upon.

Issues to be tackled under the project will include enrichment planting, planting buffer zone around sacred grove, ex-situ propagation of medicinal plants from reserve to home gardens of traditional herbalist. Fire protection and fire fighting training.

**Notes:** Selected because 1) its southern location to Mole National Park (MNP) serves as an off-park refuge or additional protection for wildlife. 2) The presence of the Communities leaving between this reserve and MNP offers opportunity for community for developing systems for community involvement in biodiversity resource management.

**3. Reserve name:** Kulpawn H/waters    **District:** Tumu    **Condition Score:** Partly Degraded

**Area:** 155.40 km<sup>2</sup>

**Date of Reservation:** 1957

**Documentation:**

**Reservation/Management objectives:** To protect the headwaters of the Kulpawn River.

**Notes:** Selected only as a pilot site because it has greater than 60% intact vegetation.

**4. Reserve name:** Kulpawn Tributaries    **District:** Wa    **Condition Score:** Partly Degraded

**Area:** 99.95 km<sup>2</sup>

**Date of Reservation:** 1954

**Documentation:**

**Reservation/Management objectives:** Protect the headwaters of Kulpawn tributaries.

**Notes:** Selected only as a pilot site because it has greater than 60% intact vegetation.

**5. Reserve name:** Mawbia    **District:** Tumu    **Condition Score:** Good

**Area:** 129.95 km<sup>2</sup>

**Date of Reservation:** 1954

**Documentation:**

**Reservation/Management objectives:** To protect the headwaters of Mawbia river and its tributaries.

**Notes:** Selected only as a pilot site because it has greater than 60% intact vegetation.

**6. Reserve name:** Nuale    **District:** Wa    **Condition Score:** Good

**Area:** 51.8 km<sup>2</sup>

**Date of Reservation:** 1952

**Documentation:**

**Reservation/Management objectives:** To protect the headwaters of the San River and its tributaries and to ensure a supply of forest produce in perpetuity for the neighboring villages (Reserve selection Report, 1952).

**Notes:** Selected

**7. Reserve name:** Sinsabligbini                      **District:**                      **Condition Score:**

**Area:** 72.72 km<sup>2</sup> (Natural Forest =72.52 km<sup>2</sup>; Plantation = 200 hectares)

**Date of Reservation:** 1955/1956

**Documentation:** Reserved under Native Authority Bye Laws of 1956.

**Reservation/Management objectives:** Protection of headwaters of Moya Tributaries, protection from soil erosion, provision of thatch and poles for local housing, provision of herbs for medicinal practices, establishment of plantations for fuel wood and poles.

Issues to be tackled under the project include re-introduction of endangered medicinal plants by traditional herbalists from fringing communities in areas under rehabilitation, fire protection, prevention and fighting, enrichment planting of degraded areas with indigenous species and watershed management.

**Notes:** 180 ha converted to plantation.

**8. Reserve name:** Tankwidi East                      **District:** Bolgatanga  
**Condition Score:** Slightly Degraded through illegal mining activities

**Area:** 193.2 km<sup>2</sup>

**Date of Reservation:** 1955

**Documentation:**

**Reservation/Management objectives:** To preserve little remaining woodland in Western Frafra and to ensure a permanent supply of forest produce including poles, fuelwood, fruits and grasses for the Sub-Native Authority areas of Zuarungu. Also to rehabilitate areas which have been ruined by inappropriate agricultural practices (Reserve Selection Report, 1951).

**Notes:** Reserve intact. However, about 20 ha have been destroyed through illegal gold mining.

**9. Reserve name:** Tankwidi West                      **District:** Navrongo  
**Condition Score:** Slightly degraded

**Area:** 119.14 km<sup>2</sup>

**Date of Reservation:** 18/2/41

**Documentation:**

**Reservation/Management objectives:** (i) To preserve the remnant woodland in the Nankana area and to ensure a permanent supply of forest produce including poles, fruits, fuelwood and grasses for the local population (ii) To carry out improvement planting in areas which have been destroyed through inappropriate agricultural practices. (Management Plans, Reserve Selection and Control reports).

**Notes:** About 60 ha degraded as a result of encroachment, illegal farming activities and bush fires. Over-grazing and bush fires are the major environmental problems in the area.



## B. Faunal Corridors

**Reasons For Selection:** Basic criterion is contiguity with the intact vegetation in Burkina and Togo and others in Ghana. These corridors contain various species and populations of wild animals including migrating large mammals such as the elephant.

**10. Reserve name:** Chiana Hills **District:** Navrongo **Condition Score:** Good

**Area:** 43.59 km<sup>2</sup>

**Date of Reservation:** 12/2/1951

**Documentation:**

**Reservation/Management objectives:** To protect sources of streams which flow south and south-east through the Nakong and Ketiu farming areas and eastwards to join the Chiasi River and also as a valuable source of supply of poles and firewood (Reserve Selection Report).

**Notes:** Intact forest reserve. Selected as a pilot site because it has greater than 60% intact vegetation and significant wild animal life.

**11. Reserve Name:** Morago East **District:** Gambaga/Walewale  
**Condition Score:** Good

**Area:** 88.06 km<sup>2</sup>

**Date of Reservation:** 1954

**Documentation:**

**Reservation/Management objectives:** The reserve was created to provide complete protection for the headwaters of the Morago River a tributary of the White Volta River. The reserve is expected to provide medicinal plants, thatch material, fuelwood, construction wood and grazing land for communities close to the reserve. No management plans exist. Interventions to be supported under the project would include extension delivery, awareness creation and education on basic bush fire protection, prevention and fighting, in-situ and ex-situ propagation of threatened plant species the retained or endangered medicinal plants.

**Notes:** Selected because it forms part of eastern faunal corridor.

**12. Reserve name:** Morago West **District:** Bawku  
**Condition Score:** Good

**Area:** 39.76 km<sup>2</sup>

**Date of Reservation:** Not known. Either 1946 or 1954

**Documentation:** Has exploitable sizes of *Khaya senegalensis*. Group hunting by inhabitants is prevalent.

**Reservation/Management objectives:** (i) To protect headwaters of streams which arise therein to ensure water supply to neighboring villages. (ii) To prevent erosion on hill slopes and to ensure the supply forest produce to the surrounding populations. (Management Plans and Demarcation reports.)

**Notes:** Selected because it forms part of eastern faunal corridor.

**13. Reserve name:** Pudo Hills **District:** Tumu **Condition Score:**

Slightly degraded

**Area:** 54.45 km<sup>2</sup>

**Date of Reservation:** 1956

**Documentation:**

**Reservation/Management objectives:** Soil and erosion control.

**Notes:**

**14. Reserve name:** Red Volta East      **District:** Bolgatanga

**Condition Score:**

**Area:** 217.60 km<sup>2</sup>

**Date of Reservation:** 1953

**Reservation/Management objectives:**

(i) To rehabilitate the land and its forest crop with minimum interference with the rights of the people;

(ii) To supply poles, fuelwood, small timber for tools to inhabitants from the area on sustained yield basis;

(iii) Safeguard the soil from accelerated erosion;

(iv) Carryout research on coppicing ability of indigenous species and effects of bush fires on their growth rate.

**Notes:** About 10 ha damaged by illegal gold digging. Extensive tobacco and other farming practices degrade the banks of the Red Volta River. Occasional encroachment and grazing of cattle by Fulani headsmen. Periodic bush fires result in stunted growth of plant species. (Working/Management Plans and Control reports).

**15. Reserve name:** Red Volta West      **District:** Bolgatanga

**Condition Score:** Slightly degraded

**Area:** 261.6 km<sup>2</sup>

**Date of Reservation:** 1955

**Reservation/Management objectives:**

(i) To preserve the little remaining woodland in Zuarungu District and to ensure a permanent supply of forest produce including poles, fuelwood, fruits and grasses for the Sub-Native Authority areas of Zuarungu;

(ii) To rehabilitate areas which have been ruined by bad agricultural practices;

(iii) To conduct research in degraded savanna woodland.

(Management Plans, 1950)

**Notes:** Illegal farmers have destroyed about 5.08 ha.

**16. Reserve name:** Sissili Central      **District:** Navrongo

**Condition Score:** Good

**Area:** 155.09 km<sup>2</sup>

**Date of Reservation:** 13/2/1951

**Reservation/Management objectives:** To protect vegetation thereby ensuring the flow of the stream in the dry season and lessen flooding and erosion; and also to ensure the supply of forest

produce in perpetuity to the villagers of the North-west Builsa. (Reserve Selection Report, 1948)  
**Notes:** Partly degraded.

### **C. Community Reserves**

**Criteria:** Identifiable community initiatives. At the time of PDF only the Naaha Community reserve was identified.

**17. Reserve name:** Naaha Community Reserve **District:** Wa **Condition Score:** Good

**Area:** About 5 ha

**Date of Reservation:** Apparently on 13/2/1997

**Reservation/Management objectives:** To protect vegetation thereby ensuring the central stream in the dry season. Support by Nuntaa-Suntaah NGO to cultivate medicinal plants for village use. The periphery will be planted with fuelwood species and managed by an existing village reserve committee.

**Notes:** Well maintained.

### **D. Wildlife Reserves**

**Criteria:** Selected because of protection for flora and fauna. They are also representative samples of ecosystem in Ghana with more than 80% of vegetation intact.

**18. Reserve name:** Mole National Park **District:** Damongo **Condition Score:** Excellent

**Area:** 4,480 km<sup>2</sup>

**Date of Reservation:** 1971

**Reservation/Management objectives:** To actively protect and maintain the physical, biological and aesthetic features of the park as a fine example of typical Guinea (tall grass) savanna ecosystem. Realizing and exploiting the park's potential as a venue for tourism based on its wildlife viewing, recreational, educational, cultural and aesthetic appeal.

**Notes:** Well maintained representative sample of Guinea savanna. Rich in mammal (90+spp.) and birds (300+spp.)

**19. Reserve name:** Gbele Resource Reserve **District:** Tumu **Condition Score:** Good

**Area:** 565 km<sup>2</sup>

**Date of Reservation:** 1975

**Reservation/Management objectives:** To assure the natural conditions necessary to maintain populations of native large mammals and to provide for the sustained production of wildlife and other products and also to allow natural movement of surplus animals into the surrounding lands for the benefit of local people. The primary management objective was the provision of bushmeat for the local communities.

**Notes:** Gbele village located in the reserve. Apart from the settlement area that is partly degraded the remaining areas are well maintained and intact.

