



## PROJECT EXECUTIVE SUMMARY

### GEF COUNCIL SUBMISSION

**AGENCY'S PROJECT ID:** To be assigned  
**GEFSEC PROJECT ID:** 2373  
**COUNTRY:** Brazil  
**PROJECT TITLE:** Sustainable Land Management in the Semi-Arid *Sertão*  
**GEF AGENCY:** IFAD  
**OTHER EXECUTING AGENCY(IES):** Ministry of Agrarian Development  
**DURATION:** 6 years  
**GEF FOCAL AREA:** Land Degradation  
**GEF OPERATIONAL PROGRAM:** Sustainable Land Management (OP 15)  
**GEF STRATEGIC PRIORITY:** Target Capacity Building (SP1); Implementation of Innovative Sustainable Land Management Practices (PS2)  
**Pipeline Entry Date:** November 13, 2003  
**ESTIMATED STARTING DATE:** April 2005  
**IA FEE:** US\$ 565,000

FINANCING PLAN (US\$)	
GEF PROJECT/COMPONENT	
Project	5,943,000
PDF A	
PDF B	300,000
PDF C	
<b><u>Sub-Total GEF</u></b>	6,243,000
<b><u>Co-FINANCING*</u></b>	
IFAD loan	4,741,000
Government	4,343,000
Global Mechanism	60,000
FAO	20,000
Others (Beneficiaries)	62,000
<b><u>Sub Total Co-financing:</u></b>	9,226,000
<b><u>Total Project Financing:</u></b>	15,469,000
<b>FINANCING FOR ASSOCIATED ACTIVITIES IF ANY: US\$ 41,560,000</b>	
<b>LEVERAGED RESOURCES IF ANY: NA</b>	

\*Details provided under the Financial Modality and Cost Effectiveness section

**CONTRIBUTION TO KEY INDICATORS OF THE BUSINESS PLAN:** 311,000 ha of agricultural landscapes protected from degradation, of which at least 20,000 ha belong to agrarian reform settlers and smallholders who will receive direct support to implement demonstrative on-the-ground investments for adoption of improved practices for sustainable land management on 8,000 ha of agricultural productive land

**RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT(S):**

*Mr. Lampert Costa, National GEF Operational Focal Point*      Date: 20 August 2004

*Secretariat for International Affairs, Ministry of Planning, Budget and Management*

Approved on behalf of the International Fund for Agricultural Development. This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for work program inclusion.

Jim Carruthers  
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Date: 5 October 2004

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## 1. PROJECT SUMMARY

### a) Project rationale, objectives, outputs/outcomes, and activities

**Project Rationale.** The Northeast Brazil's semi-arid *Sertão* Region covers an area of 900,000 km<sup>2</sup> and is home to a population of 17.8 million inhabitants. Within the *Sertão*, the *Caatinga* is the predominant vegetation, found only in Brazil. It holds exceptional rates of national and regional endemism, and is rich in biological diversity. Despite its recognized status as an important habitat for terrestrial biodiversity, the natural systems of *Sertão* are increasingly threatened by land degradation. Studies carried out in Brazil indicate that the whole semi-arid *Sertão* area is prone to desertification. The main types and associated causes of land degradation which affect the structural and functional integrity of the ecosystems of the *Caatinga* are: i) erosion caused mainly by deforestation for annual cropping or livestock, overgrazing and inappropriate agricultural practices; ii) elevation of the groundwater table caused by excessive irrigation from groundwater; iii) salinization caused by irrigation; iv) loss of organic material and nutrients, caused by unsustainable cropping practices including slash and burn, leading to erosion and leaching; and v) deforestation caused by the increased pressure on land for pasture or subsistence agriculture, which is also leading to a reduction in fallow periods.

Environmental threats and problems also reduce the potential for provision of the following main environmental services of importance in the *Sertão* agricultural landscapes: i) biodiversity protection, mainly related to the conservation of the *Caatinga* biome and, to a lesser extent, to the potential for extractive use of indigenous fruits and medicinal plants; ii) carbon sequestration, associated with improved crop or grassland pasture systems or restoration of *Caatinga* and establishment of dense silvopastoral systems on previously degraded lands; and iii) protection of water resources in watersheds, which sums up a variety of specific services associated with sustainable upstream land use, including reduction in sedimentation in dams and flood control.

Most of the aforementioned causes of degradation are attributable not only to medium and large-scale farming but also to the smallholder agricultural activities, particularly the reduction in fallow periods, overgrazing and unsustainable agricultural practices. However, one major “driving force” which has contributed to the present environmental and socio-economic situation has been past rural policies, which were historically aimed at assigning priority to mono cropping and extensive cattle-raising. These policies, particularly those up until the early 1990s, emphasized assistance to medium and large-scale producers, with little regard for the essential integration of environmental and social sustainability into strategies to alleviate poverty and improve rural livelihoods. Smallholder agriculture continues to suffer the effects of these policies that have significantly increased rural poverty in the Northeast Region, the most undeveloped region of the country, with family income profiles equal to the poorest in Latin America. Small farmer families sustain themselves on levels of extremely low income, and there is growing dependence on government transfers. In this crisis situation, the importance of smallholder agriculture has grown more and more, not least because of the reduction in agricultural investments by larger-scale landowners. Unsustainable practices in smallholder agriculture have been maintained in the last thirty years at the cost of a growing pressure on natural resources, aggravating the causes and negative impacts of land degradation on the ecological integrity and productivity of the *Caatinga* ecosystems. However, agriculture is still predominantly of a short cycle type (maize, beans and cotton), adopting inappropriate and non-sustainable practices. Animal husbandry is also significant, throughout the rural areas, with *Caatinga* vegetation used for extensive grazing by livestock that often exceeds the environmental carrying capacity of the land. To guarantee alternative sources of income in two distinct seasons of the year, the smallholder make use of a mode of existence which includes subsistence farming, animal breeding in extensive systems, extractive activities (wood and non-timber products), temporary farm employment, and seasonal migration to urban areas which offer complementary

alternative jobs. Although smallholders perceive the processes of environmental degradation, they encounter difficulties in adopting alternative practices, especially where these require up-front investments. The adoption of sustainable production systems, however, is essential to address this economic and social situation which perpetuates land degradation and poverty.

In response, the Federal government has established a strong policy agenda which reflects national priorities that address the development-related dimension of land degradation, by supporting a number of programmes aimed primarily at promoting sustainable development, poverty alleviation and land tenure security. They include: i) the IFAD financed Sustainable Development Project for Agrarian Reform Settlements in the Semiarid Northeast (**PDHC**), focused in improving the capabilities and involvement in the local market of 30,000 poor rural families, to enable them to manage more efficiently and sustainably productive activities in agriculture, marketing, micro-enterprise and small-scale agro-industry; ii) the National Smallholder Agriculture Program (PRONAF), providing credit and assistance to facilitate conditions for increasing productive capacity, generating employment and income, contributing towards improving the quality of life by smallholder families; and iii) the National Program for Land Credit (PNCF), financing land access to farmers with little or no land available, hence contributing to land tenure security. Federal and State governments have also initiated a number of attempts to conserve biodiversity and develop a biome-level framework for integrated ecosystem management of the Caatinga dry forests. The principal on-going initiative to support this framework is the Demonstrations of Integrated Ecosystem (IEM) and Watershed Management in the Caatinga Project (MMA/UNDP Caatinga, co-financed by GEF), which, within the context of IEM, has a strong focus on: i) sustainable forest management and associated sustainable production of wood and no-wood products integrated with conservation, ii) improved practices for increasing efficiency of Caatinga wood/biomass transformation, iii) afforestation of degraded lands, and iv) ecological corridors, including consolidation of protected areas.

Key **constraints** which hinder progress leading to the adoption of improved approaches that address the above mentioned issues and lead to sustainable land management, while addressing rural poverty include: i) limited human and institutional capacity to create an enabling environment needed to support sustainable land management and to combat land degradation; ii) barriers to adoption of more sustainable land use practices associated with input and labour costs in switching to the new practice and possible loss of income in the transition period (in this case up-front incentive payments are important); iii) lack of compensation mechanisms for the environmental services provided by farmers but enjoyed by other local and global users; iv) limited or inexistent adoption of successful and replicable pilot experiences that turn into future permanent public policies to support sustainable development; and v) limited or inexistent continuous monitoring and evaluation of lessons learned from existing land management experiences in the region; vi) lack of data and information necessary for decision-makers to incorporate sustainable land management considerations into production activities. There is also a need to capitalize on the existing (though limited) cross-sectoral approaches which have been introduced in the Semi-arid in the last few years, such as the on-going baseline PDHC project mentioned above.

In light of the potential for improved land use systems, which may increase significantly the storage of greenhouse gases in the Semi-arid Sertão agro-ecosystems, and the significance the Caatinga biome (and its associated agro-ecosystems) for the conservation and sustainable use of biodiversity considered to be of global importance, and the growing threats to the remaining habitats affected land degradation, urgent interventions are warranted.

The above mentioned programmes provide a sound foundation for complementary efforts that may address the constraints and negative impacts associated with land degradation on the Caatinga ecosystem and its underlying functions and services. The PDHC adopts a sound cross-sectoral approach to rural development that integrates the social, cultural and economic dimensions of poverty issues, with

effective participation of stakeholders at all stages, including women and Afro-American minorities. Nevertheless, until now, there has been no attempt to integrate an ecological dimension into the PDHC processes on a systematic basis, by focusing on the prevention and control of land degradation, and hence accelerating actions on sustainable land management to protect and restore the Caatinga ecosystem, increase carbon sequestration and stabilise sediment release in waterbodies.

In order to support interventions which specifically address the previously-mentioned social and environmental issues and underlying causes which contribute to land degradation, as well as the *constraints* impeding the implementation of scientifically sound and cross-sectoral approaches in the semi-arid Sertão, complementary to the existing cross-sectoral approach adopted under the baseline scenario, GOB requested IFAD assistance in the preparation of a proposed GEF-financed project to complement Government's existing programs, and in particular the PDHC, PRONAF and PNCF. The proposed project would support the achievement of incremental benefits related to these baseline programs, complementing the MMA/UNDP Caatinga project. It is envisioned that, by addressing existing land degradation in the small-holder sub-sector of Sertão through an adequate approach to the implementation of sustainable land management, the project will generate highly significant socio-economic and environmental benefits at the local, national and global levels. Interest in the protection of some of the country's environmental assets such as the xeric formations of *Sertão* reaches beyond Brazil as these provide positive global externalities (e.g. biodiversity conservation and carbon sequestration).

The proposed project strategy builds upon the strategy already adopted by the PDHC Project, particularly by recognising that this project has been giving value to and promoting educative processes and those associated with the strengthening of social capital, the improvement of the capacity for management, production and commercialization (including greater collaboration with private sector partners) and the equity of gender. Therefore, it will add a complementary technical strategy to the existing PDHC strategy, which will contribute to consolidate these processes by incorporating the ecological dimension into the socio-cultural and economic dimension already adopted by the PDHC project on a cross-sectoral basis. This dimension will emphasize the generation of references for public policies to combat land degradation and will incorporate a global vision of the phenomena of land degradation (for details, see Project Brief's Section III.D on Project Strategy).

The **global objective** of the proposed Alternative is to minimise the causes and negative impacts of land degradation on the integrity of the Caatinga biome ecosystem in the North-East of Brazil through the implementation of sustainable land use systems. The **development objective** is to contribute to an increase in the sustainable development and the quality of life in communities affected by land degradation in the semi-arid North-East of Brazil, through promoting a pilot cross-sectoral approach in support of productive activities and poverty reduction.

The principal **project outcomes** will be: (i) a collective "culture" developed among smallholder farmers, community leaders, school teachers, students and decision makers for the protection of natural resources and the prevention and control of land degradation in the semi-arid Sertão; (ii) increased public awareness of the importance of land degradation issues and appropriate land management in the sustainable economic development of the semi-arid Sertão region; (iii) increased environmental services provided by sustainable land use in the project area and likely to be sustainable; (iv) a monitoring and evaluation system established to monitor project progress and track the impact on people livelihoods and the ecosystem, and to support the replication of lessons learned and successes in other regions of Brazil and Latin America; and (v) a model for participatory management implemented capable of ensuring the achievement of the projects objectives and goals.

The proposed project would be implemented over a six year period with a total estimated budget of US\$ 15.5 million of which GEF is providing \$ 6.2 million as a grant. The project's executing agency is the

Ministry of Agrarian Development (MDA) through its Secretariat of Territorial Development (SDT). The project has four **components**: (i) Building Capacity for Sustainable Land Management and Increasing Environmental Awareness; (ii) Environmental Incentives; (iii) Project Monitoring and Evaluation; and (iv) Project Management and Information Dissemination.

Project **activities** will include: (i) education and community engagement efforts to facilitate the implementation of sustainable land management policies, while at the same time providing sustainable economic opportunities for communities living in the Sertão; (ii) building increased capacity among project executors, focusing on the internalization of global environmental concepts; (iii) environmental education efforts to increase public awareness on land degradation issues; (iv) participatory planning activities (at the ecosystem and agro-ecosystem levels) to incorporate sustainable land management principles in the development of community and individual/farm level activities throughout the project-benefited territories, including global issues in the planning process; (v) targeted research (field trials) and associated technical training to address constraints associated with different sustainable land uses; (vi) provision of incremental financial resources for the establishment of an incentive program (FISP Ecológico) for land use practices which generate environmental services, hence supporting the transition costs to and implementation of sustainable livelihood activities; (vii) development of payment mechanisms for selected environmental services (watershed protection services and carbon sequestration projects); (viii) development of commodity markets for indigenous and organic products; and (ix) M&E and information dissemination activities (use of local news media, website, local and national workshops, project pamphlets, etc.).

**Project area and target population.** The larger project area consists of six “territories” (group of municipalities) included in the current implementation phase of the baseline PDHC Project, located in the Semi-arid zone of the country’s north-eastern states of Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco and Sergipe. It includes a total area of about 311,000 ha, with 168 agrarian reform settlements and smallholding communities. The Project target group comprises about 7,000 smallholder families (33,000 inhabitants) living in these agrarian reform settlements and communities. Among these smallholding communities, the project would include support to nine Afro-American (*Quilombo*) communities, comprising 260 families (for details on these minority *Quilombo* groups, see Section II.B of Project Brief, para.64). The project’s **direct beneficiaries** or priority target group consists of 1,000 smallholder families (5,000 inhabitants) with 20,000 ha, and students from about 120 rural schools.

The project **global benefits** will be: (i) the sustainable use of the biological diversity, by adopting sustainable agricultural and rangeland/pasture management activities, and the restoration and subsequent protection of degraded vegetation in areas currently used for livestock production, that would preserve or restore the ecosystem’s environmental functions and services, while improving the livelihood of stakeholders; and (ii) increased storage of greenhouse gases in productive systems, which would primarily be achieved through the adoption of sustainable agricultural and rangeland/pasture management practices and the restoration and further protection of degraded vegetation in areas currently used for livestock production.

**National benefits** generated from the project include: (i) improvement of the economic productivity of agricultural production through the adoption of sustainable management practices. As the preliminary studies for the design of the environmental services component indicated, the sustainable land management practices promoted by the project will in most cases be equally or more profitable for farmers than the current degrading practices, and the project will provide important national benefits by reducing the barriers to adopting more profitable and environmentally beneficial systems. (ii) increased economic benefits flowing to rural communities derived from the local ecological “goods and services” associated with improvement of land management, including a reduction in erosion (and consequently in siltation and downstream salinity), improvement in water quality for productive, consumptive and

recreational use, and aesthetic improvement of the landscape; (iii) improved management skills at local and national levels; (iv) improvement of institutional and human-resource capacity in order to promote the sustainable use of natural resources; (v) strengthened structure related to political, regulation, and socio-economic incentive aspects, to address rural poverty and their ties with land degradation as a model to be replicated all over the Brazilian semi-arid region; and (vi) an improved policy and planning/institutional framework to support sustainable land management concepts and practices facilitating the adoption of sustainable on-farm practices and off-farm interventions, while improving livelihood opportunities. (vii) increased income from the provision of global environmental goods and services such as carbon sequestration and biodiversity conservation.

b) Key indicators, assumptions, and risks (from Logframe, Annex B)

Progress towards achievement of global objectives will be measured against the following **performance indicators**: (i) By PY6, functional and structural integrity of the Caatinga agro-ecosystems ensured across 20,000 ha, thereby reversing land degradation, enhancing soil structure stability, conserving biodiversity and increasing carbon sequestration, as measured by: a) 10% increase in Caatinga plant species diversity in land management systems (including rangeland/pasture management, agroforestry, agrosilvopastoral and annual crop systems); b) reduction of at least 10% in sediment concentration downstream plots where sustainable land management options have been adopted; c) additional carbon sequestered on project demonstration sites (tons of carbon/area/year) as a result of adoption of sustainable land management practices (incremental amount of sequestration to be estimated in PY1, after completion of baseline studies); (ii) incidence of poverty reduced in the six territories with Project activities – with income levels on FISP Ecológico sites improved by at least 10% (by PY6); (iii) sustainable agricultural and rangeland/pasture management practices adopted by 1,000 farmers on 8,000 ha of agricultural productive land by PY6 (2,000 ha by PY3); (iv) a better capacity for facilitating and implementing sustainable land management systems, including governmental institutions (30 municipalities, MDA, 6 States), NGOs (30), community leaders (150), young smallholders/social mobilizers (150) and smallholders (1,000); (v) by PY6, greater awareness among 200 rural communities (7,000 families), 120 rural schools and by society at large (90,000 inhabitants) of land degradation and the potential contribution of sustainable land management to address the issue and improve livelihoods in the project area; (vi) by PY6, greater level of satisfaction (80%) with the innovations promoted by the Project and continued adoption of sustainable land management practices by farmers (70%); (vii) by PY6, 200 smallholders producing and commercializing native products and traditional crops (50 smallholders in PY3) and 150 smallholders producing and commercializing organic products (30 organic farmers in PY3); and (viii) By PY5, the establishment or strengthening of commodity market-based incentives for sustainable agricultural production, as measured by a 10% increase in the number of market outlets for native and organic products.

**Key assumptions** are: (i) GoB is continuing to support to land degradation-related activities and policies, and to provide necessary counterpart financing; (ii) outreach to farmers through education and field trials component is sufficient to generate proposals to implement land use changes which can be considered under the FISP Ecológico; (iii) smallholders interested in modifying their behaviours and practices which are currently leading to land degradation (traditionally, deforestation as basis of farming); (iv) local and regional markets for indigenous and organic products can be identified which produce sufficient returns to farmers; (v) coordination between the different levels of decision-makers create favourable conditions for collective planning; (vi) innovative actions in accordance with environmental legislation; and (vii) information flows among the various intervention levels of the project and allows the lessons learned to be systematized and disseminated. The project design has incorporated several elements to help control any factors that may change these assumptions.

**Risks** outside of the project's control include: (i) radical changes in economic conditions affecting agricultural production; (ii) major climatic or environmental incidents that disrupt agricultural production; (iii) implementation of water resources legislation and institutional framework progress is not sufficient to permit PES development in project area; and (iv) carbon market development will not provide sufficient demand for carbon credits from sequestration. The matrix presented in Section V. B of Project Brief (Risks and Mitigation Measures, pages 26-28) highlights potential risks related to the critical assumptions made by the project and corresponding risk mitigation measures (including risks within and outside of the project's control).

## 2. COUNTRY OWNERSHIP

### a) COUNTRY ELIGIBILITY

Brazil ratified the United Nations Convention to Combat Desertification (UNCCD) in 1997, the Convention on Biological Diversity (CBD) in 1994, and the UN Framework on Climate Change (UNFCCC) in 1994. In 1997, it established the National Policy to Combat Desertification reaffirming its commitment to fight against desertification in conformity with the UNCCD. One of the specific dispositions of this policy was to prepare and implement the UNCCD National Action Programme (NAP) to Combat Desertification, presented by GOB in August 2004 (NAP preparation was supported by the GM of the UNCCD and GTZ).

### b) COUNTRY DRIVENNESS

The proposed project is coherent with national priorities for poverty reduction, sustainable development and environmental protection. It will provide a solid contribution to the implementation of the **National Policy to Combat Desertification**, as it will adopt an approach that integrates sustainable land management practices into the priority UNCCD NAP framework, thus facilitating the coordinated mobilization of funding for successful implementation of cost-effective and sustainable programs during and beyond the project implementation period. In this context, it has been included in the recently launched National Action Programme (NAP) to Combat Desertification, which targets the semi-arid (Sertão) and dry sub-humid lands of the country's Northeast Region. According to the Ministry of Environment – MMA (Focal Point for UNCCD) and the national institutions representing the Brazil NAP Inter-Ministerial Working Group, the proposed project is one of the most concrete support activities for the implementation of NAP.

The project will also support the implementation of the **National Policy for the Environment**, since it will vigorously pursue improving the quality of the environment in the rural settlements and communities of the Caatinga biome, and the **National Policy for Biodiversity (NBP)**, given its significant efforts to build capacity for control and prevention of desertification and deforestation and the important influence which these actions have on the conservation and sustainable use of biodiversity. During project preparation, a series of commitments to collaborate were agreed with MMA and are making a concrete contribution in implementing these environmental policies. For example, to strengthen cooperation and improve the combined efforts between the MMA's National Forest Program (PNF) and the Ministry of Agrarian Development (MDA), an inter-ministerial Cooperation Agreement was signed in 2003. This agreement is promoting an increase in environmental assets in the semi-arid area by forming new partnerships. These include concrete actions such as greater collaboration between MMA's National Environment Institute (IBAMA) and MDA's National Colonization and Agrarian Reform Institute (INCRA), which is enabling environmental licensing of the PDHC-supported rural agrarian settlements (coinciding with areas for GEF intervention under the proposed project) to be made viable and,

consequently, this is an advance in meeting the objectives of these policies and related environmental legislation. In addition, the project complements and coordinates with one of the key Government initiatives to implement the NBP in the Caatinga bioma, the previously-mentioned MMA/UNDP Caatinga co-financed by GEF (for details on coordination, see Section 4.B)

The project is in line with the GOB's social policy agenda. It supports the **National Program for Agrarian Reform** (PNRA) in that it targets agrarian reform settlers and fully complements the three above-mentioned baseline programmes (PDHC, PRONAF and PNCF) which demonstrate the country's commitment to address land degradation issues, given the strong interactions between ecological systems and the people who do not have land tenure security.

### 3. PROGRAM AND POLICY CONFORMITY

#### a) FIT TO GEF OPERATIONAL PROGRAM AND STRATEGIC PRIORITY

The project's objectives are fully consistent with the provisions of the UN Convention to Combat Desertification and with the GEF Operational Strategy, and specifically with its **Operational Program** for Sustainable Land Management (OP 15), which recognizes that, since land degradation has both poverty and global environmental dimensions, sustainable solutions require packages of finance to support interventions that address both dimensions. The proposed project will address the majority of issues and associated causes of land degradation identified in OP 15 (e.g. unsustainable agricultural practices and overgrazing), and will complement the recently implemented PDHC cross-sectoral approach to sustainable development for agrarian reform settlements in the Semiarid Sertão, by incorporating the ecological dimension into the PDHC-adopted economic, social and cultural dimensions, hence ensuring a scientifically sound and cross-sectoral approach to address land degradation issues and achieve sustainable land management, consistent with OP15.

The project fully supports the GEF's two Land Degradation **Focal Area Strategic Priorities** as identified in the FY 04-06 and FY 05-06 Business Plans, i.e., capacity building for mainstreaming of sustainable land management into development frameworks, policy and local organizations/institutions strengthening (project Components 1 and 4), complementary to basic education and training activities supported through the existing IFAD loan (PDHC), and implementation of innovative (Sub-Components 2.1 and 2.2) and indigenous (Subcomponent 2.3) on-the-ground investments (and associated capacity building) on sustainable land management, complementing existing social and productive investments supported under the loan. Finally, the proposed project is compatible with GEF's willingness to finance the incremental cost of developing sustainable land management practices, which would provide communities with new and alternative livelihoods and support the preservation of ecosystem stability, functions and services, including carbon sequestration and stabilizing sediment release in watersheds.

#### b) SUSTAINABILITY (INCLUDING FINANCIAL SUSTAINABILITY)

The proposed project approach is intended to maximize the sustainability of GEF-supported activities beyond the GEF funding period through various mechanisms and concrete actions.

Sustainability of project benefits beyond the GEF funding would be ensured by: (i) focusing capacity building efforts to overcome barriers to adoption which currently prevent farmers from moving to these improved practices as producer/ecosystem managers; (ii) recognizing and capitalizing on the crucial role of local governments, socio-environmental NGOs and producer and community organizations to organize, promote, monitor and assess implementation; (iii) utilizing existing institutional structure to



organize project activities and deliver outputs; and (iv) capitalizing on existing coordination mechanisms, particularly those which were established by the PDHC during its first two years of implementation, including public-private-civil society partnerships to implement sustainable land management.

*Financial sustainability.* There is considerable evidence to suggest that the project will be financially sustainable in the long run. The preliminary analysis of the returns to land under existing (mostly degrading) and improved technologies which would help address land degradation, indicates that from a farmers' point of view, improved practices will often yield greater returns per hectare than the current degrading practices (see Project Brief (PB) Appendix 4, para 28, and Table 1 of PB Appendix 8). The capacity building efforts and Ecological FISP payments will be designed to overcome barriers to adoption which currently prevent farmers from moving to these improved practices (see PB Appendix 4, para 29 ff.). Once adopted it is expected that farmers will continue to apply them as see greater profitability at the same time that environmental benefits will accrue. The subcomponents on developing payment systems for environmental services and developing markets for indigenous and organic products are targeted to ensure financial sustainability beyond project closure (see Appendix 4, para 33 ff.). During the life of the project, emphasis will be placed on developing additional sources of funding from local and international sources for watershed and carbon services on the one hand and indigenous and organic products on the other. Through these special markets and payment systems, future funding is expected to be tapped which will provide incentives for sustainable land management practices that will at the same time continue to address land degradation (for details, see Appendix 8 of the Project Brief).

At the level of the communities, the participatory development of sustainable land management plans applied to local ecosystems/agro-ecosystems will integrate the objective of maintaining natural resources alongside the traditional objectives of production for self-consumption and sale. These plans will define rules and norms, inspired by the national environmental legislation. The empowerment and environmental awareness of the community at large should strengthen the application of these rules and norms. From this point of view, environmental education activities in rural schools should guarantee an interest in land management over the next twenty years.

At the level of society in the Semi-arid at large, the environmental education campaigns would convey a message that there is a need to support the promotion of public policies in land management, since land is a heritage or common good. The strategy of discussing the subjects linked to land management in public forums should guarantee that environmental needs are taken into consideration throughout the full range of society's projects, and that increased awareness will be translated into governmental actions.

Evidence for the success of this coordination is the long-established PDHC project practice of working in partnership with the most diverse groups both in civil society (unions, associations, NGOs, etc.) in public institutions (universities, state rural extension agencies, INCRA, projects, etc.) and in local political authorities.

### c) REPLICABILITY

It is expected that the integrated and cross-sectoral approach to land management to be adopted by the project can be replicated within Brazil (particularly throughout the semi-arid *Sertão*) and eventually in other parts of Latin America with similar xeric systems, such as those of northwestern South America (e.g. xeric shrublands of Venezuela and Colombia). The project will specifically address this issue and support the sharing of information both within (mainly through Component 1) and outside the project area (Sub-component 4.2 on Information Dissemination), through the implementation of a project information dissemination strategy. Individuals, communities and public and non-governmental institutions interested in the project and its outcomes will have access to the relevant information and can apply it to other areas in the Caatinga and other national and regional biomes.

In the field of Payments for Environmental Services (PES), the project team has already started the exchange of information with a number of on-going and planned initiatives at the national and international levels, including other GEF projects in Brazil and Central America (see section IX.B and Appendices 9 and 11). In addition, in Brazil, the Ministry of Environment is pioneering PES through the PROAMBIENTE programme, the Socio-Environmental Development Programme for Smallholder Agriculture. This programme is starting operations in the Amazon region, but has a medium to long-term vision for nationwide roll-out, and will provide incentives for sustainable use of natural resources, in particular the adoption of technologies which mitigate negative environmental impacts. For this reason, the project team is working closely with PROAMBIENTE team to ensure full coordination and information exchange. Project Sub-component 2.1 on PES will sponsor regional workshops gathering representatives from other projects in Brazil and Latin America involved with incentives and payment mechanisms for environmental services, in order to support FISP design and strengthen the review of the implementation experience. This component will also train 20 NGOs operating in Northeast Brazil to support farmers in accessing the carbon market.

In addition, it should be stressed that the project has a demonstrative nature and will draw up and produce tools for replication (methodological, technical and institutional tools). It is based on the production of knowledge via a process of learning. Drawing up methods to facilitate this process, referencing these methods (production of guides and various manuals) and promoting their disseminating (e.g. training both of technical staff as well as local leaders are relevant strategies for enabling replication). Note that, at the local/territorial level, the training of local leaders and young farmers should guarantee the permanence of the competencies in the rural communities, which will favour replicability both in the communities where the Project is being carried out as well as in other regions during and after project closure. Finally, the participatory methodologies adopted in the field trials in partnership with farmers should guarantee the autonomy and continuity of the adaptation process.

From a technical point of view, the project's strategy is based upon the adaptation of technologies to the local realities via experimentation by the beneficiaries themselves. These processes should exclude the risk of technical package solutions, appropriate in principle, but not adapted to the geographical/ecological and social diversities of the regions in which the project is to be replicated. From an institutional point of view, the environmental education activities will foster the transfer of knowledge and methods. The dissemination of information from the trials, the production of didactic material and awareness campaigns are instruments of this replication strategy.

#### d) STAKEHOLDER INVOLVEMENT

The project's primary beneficiaries would be the rural agrarian reform beneficiaries and smallholders participating in the PDHC, including men and women in small farmer's families, rural youth, school teachers, community leaders and Afro-American *Quilombo* communities. Other key local stakeholders would include 36 local NGOs and Service Cooperatives currently working as PDHC partners (Project Executing Partners - PEDS) and additional local associations and cooperatives which would be involved as future partners, particularly those organizations working in the specific themes of the proposed project.

National stakeholders comprise the following: (i) Government institutions with national/regional/state/municipal outreach, including the MDA, MMA, the National Colonization and Agrarian Reform Institute (INCRA), the National Council for Sustainable Rural Development and Small-holder Farming (CONDRAF), the Brazilian Agricultural Research Enterprise (EMBRAPA), State Governments (particularly planning, agricultural, land reform and environmental institutions), State Councils for Sustainable Rural Development, Northeast Bank, Municipalities (particularly Secretariats for Agriculture

and Education) and Municipal Councils for Sustainable Rural Development; and (ii) Non-government organizations with national/regional/state outreach, including the Association of NGOs in the Semi-arid Sertão Region – ASA (representing more than 600 non-governmental organizations), the National Confederation (CONTAG) and the State Associations (FETAGs) of Agricultural Workers, the Cooperatives' Association of the Northeast (ASSOCENE) and other relevant national environmental NGOs.

The project has been prepared taking into full account the involvement of the above-mentioned beneficiaries and stakeholders in planning, managing and supervising preparation activities. This process of participation will be continued and expanded during implementation, supported by training, management and assistance to beneficiaries provided directly by the Project or by the partners (PEDs) mentioned above. The project will also benefit from PDHC's equity focus on the various rural poor groups, and its activities for promoting citizenship and guaranteed access to civil rights, and recognition of ethnic groups' cultural heritage. In addition, it will build upon IFAD's experience with ethnic groups in Latin America.

*Participation of the Stakeholders during the Preparation of the Project.* During the initial preparation phase (at the Concept Note level), various meetings and discussions took place with potential interested parties and partners, including research institutions, the private sector and NGOs whose work and knowledge is relevant to the semi-arid Sertão.

An important feature of the process in constructing partnerships with various interested key parties has been the stakeholder fora organized by the PDHC and begun in 2002, by seeking to establish the closest possible operational links with key national and international stakeholders for sustainable development and environment, NGOs and other key organizations working in the *Sertão*. Following on from these fora, various other initiatives for institutional and technical coordination have been promoted by the project team, driven by the concern to ensure complementarity of the Project with other on-going and planned initiatives supported by GEF. The process of public discussion and incorporation of comments and propositions into the Project has not only made it possible to shape proposed project components and activities to be shaped by stakeholder priorities but also to identify possible partners in project implementation. In addition, some of these public discussions benefited from the participation of other GEF initiatives, such as the Project Preparation Seminar held in early July 2004, at which representatives from both MMA/UNDP Caatinga and CE/BA/WB Caatinga Projects were present.

*Participation of the Stakeholders during the implementation of the project.* During the implementation phase, stakeholders will take part at three levels of management structure (for details, see Section IX.C of Project Brief): (i) at the Semi-arid Sertão regional level in the Project Steering Committee, including MDA, MMA, ASA, CONTAG, FETAGs and State Governments; (ii) at the state level in the consultative State Technical Chambers, which are composed of the relevant State Government institutions (and other GEF projects) and NGOs to promote the linking and integration of programs and activities in the State; and (iii) at the territorial/local level in the Project Territorial Committees, in which the key local stakeholders (including rural agrarian reform beneficiary, smallholders and Afro-American *Quilombo* communities) will deliberate on planning, monitoring, evaluating and linking in with other development programs and projects in the territory, supported by the PMU.

#### e) MONITORING AND EVALUATION

The proposed project monitoring and evaluation (M&E) system will monitor project progress and track the impact on people livelihoods and the ecosystem. The results from measuring project impacts and progress will be made available to project managers, beneficiaries, partner institutions (government and non-government institutions and universities) and civil society in general. More specifically, it will: (i)

track changes towards the project development and global objectives, outputs and inputs, and make changes in the project if necessary during implementation, hence providing a basis for decision-making; (ii) promote accountability for resource use against objectives; (iii) provide and receive feedback from stakeholders, and to generate inputs for dissemination of project results and lessons learned.

M&E will be carried out using participatory mechanisms similar to those in PDHC, however a much stronger technical/scientific component associated with global benefits would be integrated into the measurement and evaluation of project results and impacts on the generation of global benefits, such as reduced desertification, maintenance of biodiversity and carbon sequestration. Progress in the fulfilment of the project objectives and outcomes will be monitored in accordance with GEF procedures and will be based on the project logical framework (cf Annex B) as an essential tool that will facilitate results-oriented project implementation and sound M&E.

The M&E system will have a two level structure. At the first level it will allow data to be collected through a monitoring network. At the second level it will be stored and processed before being returned to the various M&E users. The structure will include a spatial storage (data bank) and information management system (MIS) that will make it possible to track project progress so that timely decisions might be taken on actions piloted locally, as well as on those concerning project management at the state, regional and national levels (for details, see Appendix 4 of the Project Brief, paras. 42-54).

The M&E will cover the project area in its various spheres of intervention and planning: production system, smallholding (family), producer group, settlement, association, community, ecosystem/agro-ecosystem, and territory. Monitoring activities will start with the baseline study to be undertaken during PY1, to target land degradation in the early state of project implementation. Baseline information on socio-economic data, agro-biodiversity and market prices are already being collected through on-going studies financed by the PDHC Project (IFAD loan). In addition, some external sources of information on native commodity markets is available for the baseline. Additional information will be collected during PY1 (baseline study). Project evaluations will include external assessment in three stages (ex-ante/baseline, mid-term and ex-post evaluations). A relevant operational feature of the M&E system will be integration with the existing PDHC M&E system. In addition, coordination and joint actions are being planned with two other GEF interventions, the CE/BA/WB Caatinga and the MMA/UNDP Caatinga projects (details on coordination agreements are documented in the project files).

### 3. FINANCIAL MODALITY AND COST EFFECTIVENESS

Co-financing Sources				
Name of Co-financier (source)	Classification	Type	Amount (US\$)	Status*
Government of Brazil (Ministry of Agrarian Development)	Government	Cash and in-kind counterpart	\$4,343, 000 (of which, \$3,974,000 is cash)	To be confirmed at appraisal/negotiation (see attached letter from GOB Secretary of MDA)
IFAD	GEF Executing Agency under Expanded Opportunities	Cash (part of the US\$ 25 million loan to GOB to finance the associated PDHC Project ) **	\$4,741, 000	Confirmed (on-going loan; see attached letter from borrower – GOB Secretary of MDA)

Rural agrarian reform beneficiaries and smallholders	Beneficiaries	Cash and in-kind counterpart	\$62, 000	Confirmed
Global Mechanism of the UNCCD (IFAD)	Multilateral Agency	Cash support for project preparation	\$60, 000	Confirmed (work undertaken during project preparation)
FAO	Executing Agency under Expanded Opportunities	Cash/in-kind support (TA for preparation through FAO-IFAD Program)	\$20, 000	Confirmed (work undertaken during project preparation)
Sub-Total Co-financing			\$9,226, 000	

\* Reflect the status of discussion with co-financiers. If there are any letters with expressions of interest or commitment, please attach them.

\*\* "Associated Financing" (as per definition of GEF working document GEF/C.20/6/Rev.1) for other activities that are related to the project but which are not essential for the project's successful implementation totals US\$ 41,560,000 (US\$ 20,780,000 from IFAD's PDHC loan and US\$ 20,780,000 from GOB counterpart funds to this loan).

An estimated 81% of the total project cost will be used for implementation of field/local level activities (for details, see cost tables in Appendix 5 of Project Brief). Resources are allocated in the following way: (i) US\$ 3.2 million (of which \$ 1.7 million is GEF) to strengthen local capacity through education, training, community engagement and public awareness efforts targeting 7,000 smallholder families (or 200 communities), 120 rural schools, 30 local NGOs and their technicians, and 90,000 rural and urban citizens; (ii) US\$ 2.8 million (\$ 1.1 million is GEF) to support local participatory agro-ecosystem planning and adaptation of sustainable production systems (150 on-farm and agro-ecological field trials involving 1,000 smallholders); (iii) US\$ 5.4 million (\$ 1.2 million is GEF) to provide incremental financial resources for the establishment of an incentive program (FISP Ecológico) for land use practices which generate environmental services, hence supporting the transition costs to and implementation of sustainable livelihood activities; (vii) US\$ 0.15 million to support the development of a) payment mechanisms for selected environmental services (carbon sequestration projects and watershed protection services) and b) commodity markets for indigenous and organic products; and (ix) US\$ 0.40 million for information dissemination activities at the local level (US\$ 0.20 of which is GEF). Letter of financial commitment is attached.

#### 4. INSTITUTIONAL COORDINATION AND SUPPORT

##### a) CORE COMMITMENTS AND LINKAGES

The Project is totally consistent with the principles established in IFAD's COSOP for Brazil, previously described in item II.A, since: i) it is concentrated in the Northeast region, which has the highest concentration of rural poverty; (ii) supports beneficiaries of the land reform process; (iii) prioritizes the participation of beneficiaries, the decentralization of the formulation and execution of projects, the approaches motivated by the demand for the privately supported provision of services and the protection of the environment; (iv) promotes technical training and, by associating itself with the PDHC Project, includes sensitiveness to questions of gender and ethnic minorities (Afro-American communities); and (v) includes innovative characteristics such as knowledge generation in sustainable land management complementary to basic education (reading, writing and mathematical skill development) for beneficiaries of the PDHC project, and some of the features proposed for the establishment of payments for environmental services schemes in the project area.

The project also maintains consistency with the IFAD' Strategy on Natural Resources Management, Environmental Protection and Poverty Reduction, by promoting social development, the equity of gender issues, the generation of income, environmental sustainability and good governance. In addition, it is coherent with this strategy that it recognizes that ecological sustainability is a necessary condition for agricultural and rural development in the long term. It is also coherent with IFAD's Regional Strategy for LAC, since it is involved in the dialogue on public policies, in equitable access to natural resources, in the construction of partnerships, in learning between the regions, in the development of new products, in sustainable agricultural production and in the sustainable use of natural resources.

Besides this, the Project has contributed to implementing the IFAD strategic partnership in supporting GEF in the consolidation of its portfolio on land degradation and in strengthening the capacity necessary for the protection of the global environment. Lastly, the project has the technical support of the Global Mechanism (GM) of UNCCD, which helps Brazil to mobilize resources to combat desertification and drought, in addition to supplying technical and financial support for drawing up the recently launched UNCCD NAP in Brazil (GM also co-financed the preparation of the proposed project concept note).

b) CONSULTATION, COORDINATION AND COLLABORATION BETWEEN IAS, AND IAS AND EXAS, IF APPROPRIATE.

The area covered by the GEF Sertão Project (i.e. the six territories of the current phase of the PDHC Project) do not overlap with any of the areas defined or planned until now by other GEF projects which are already ongoing or under preparation.

The proposed project relates to the on-going National Biodiversity Project (PROBIO, executed by MMA's Biodiversity Department, and with WB as IA), which has identified among the priority actions for the *Caatinga* biome, the need for the sustainable use of biodiversity in a number of areas of the *Sertão* located in the territories covered by the PDHC. Specifically, PROBIO has identified more than 30 areas for full protection of the *Caatinga*, and five territories covered by the proposed project are located in the buffer zone of five of these 30 areas (Quixadá, Joanina and Pipoca, Chapada Apodi, Serra do Cariri, Cariri Paraibano). The activities of the proposed project will contribute to the implementation of these five PROBIO areas by promoting the sustainable land management and the sustainable use of the natural resources in their buffer zones.

The proposed project is in conformity with the objectives of the National Biodiversity Strategy (UNDP as IA), and proposes the necessary actions and investments to achieve those objectives. In particular, emphasis is given by the project to the funding of environmental education for greater awareness on biodiversity issues (as related to land degradation) and to training to increase local stakeholders' participation in decision-making to allow them to better understand their interactions with the ecological systems of the *Caatinga*. In order to discuss these and other activities to be undertaken by the project which are relevant to MMA's GEF-funded activities such as PROBIO, the proposed project team started a series of coordination meetings with senior MMA management, including the Chief of MMA's Biodiversity Department (see Table 1 of Project Brief Annex 9) and one of the agreements that came out of these discussions is the participation of MMA in the proposed Project Steering Committee.

During project concept preparation, the project team identified that there was a small/potential risk that the project might overlap thematically with two other GEF-supported projects in the region: (i) the on-going Demonstrations of Integrated Ecosystem and Watershed Management in the Caatinga Project, Phase I (from now on MMA/UNDP Caatinga Project), covering all Northeastern states, and (ii) the proposed Conservation and Sustainable Management of the Caatinga Biome Project (from now on CE/BA/WB Caatinga), covering the Northeast States of Bahia and Ceará. As mentioned above, none of

the six territories covered by the proposed project overlaps with areas selected or planned for support under these two projects. However, to eliminate the risk of possible thematic overlap and in seeking to refine complementarity between the projects, the project teams from the three projects have been meeting in the past months, reaching a series of agreements on the way forward to guarantee this complementarity and increase efficiency in the use of GEF resources. These agreements are recorded in the project files in the form of a list of planned coordination actions with respect to various thematic areas in each of these projects. Appendix 9 of the Project Brief presents a summary of meetings and coordination agreements to date. These agreements are detailed in Tables 2 (with CE/BA/WB Caatinga Project) and 3 (with MMA/UNDP Caatinga Project) of the aforementioned Appendix 9.

The GEF Sertão proposes to consider the totality of land degradation issues in the Sertão region as they relate to activities undertaken by *agrarian reform settlers*, and is the only regional project currently designated to do that. Although the benefits of interventions of the MMA/UNDP Caatinga and the CE/BA/WB Caatinga as currently designed are mostly site specific, elements of these projects do relate to activities contained in some of the components of GEF Sertão, as already mentioned above. The demonstration sites target by these two UNDP and WB-supported projects are not within Agrarian Reform Rural Settlements. Where these projects currently support poor farmers (particularly the WB-supported project), common threads in all these projects that relate to capacity building and public education (component 1), monitoring and evaluation and information dissemination (Components 3 and 4) and institutional arrangements (Component 4) provide justification for the development of inter-project collaborative mechanisms. These linkages will serve to reduce the execution costs of these related activities, add value to the outputs, in addition to magnifying the benefits to each North-east Brazilian State as a result of the augmentation of resources provided by the projects implemented by the other GEF Agencies (WB and UNDP).

To demonstrate that sharing of knowledge among these projects has already started during the past months, technical documents (e.g. the draft reports on the socio-economic diagnostic study (Project Brief Appendix 7) and on land degradation and agricultural sustainability issues (PB Appendix 6) identified in the six Sertão project territories) were passed to the CE/BA/WB Caatinga and the MMA/UNDP Caatinga teams as an input to one of the coordination meetings held in July 2004; also, the WB and IFAD counterpart M&E experts have started discussions to ensure the establishment of compatible indicators and related measurement methods, etc.).

As the implementing agencies of GEF projects, UNDP and WB have been invited to participate in the project in its design and implementation phases, and to provide information pertinent to the development of the project, particularly through their counterpart teams in Brazil. More specifically:

- CE/BA/WB Caatinga Project (Executing agencies are the State Governments of Bahia and Ceará): a first consultation was held on 3 November 2003 with the WB Coordinator for GEF in Latin America, and a subsequent meeting between the IFAD and WB Task Managers of the two proposed projects took place in Brazil in 5 November 2003. Subsequently, both project teams met twice in July 2004 (in Recife and Salvador) and agreed upon a list of thematic areas for coordination (see summary in Table 2 of PB Appendix 9) – and final draft of this list of collaboration was sent to the WB Task Manager by the WB Local Counterpart Team, and copied to the Local IFAD Counterpart Team. Both teams have shown themselves to be active and engaged, and intend to prepare a more detailed coordination plan, the finalization of which is time-tabled to take place before the respective appraisal missions. It should be noted that both MMA/UNDP Caatinga and CE/BA/WB Caatinga Projects were present during the GEF Sertão Project Preparation Seminar held in early July 2004 in Recife, and a number of exchanges among the three projects took place since then. A record of future consultations to be held during the subsequent PDF-B phase (before appraisal) will be presented to the National Focal Point, IFAD and GEFSEC respectively, at the time of CEO Endorsement.

- MMA/UNDP Caatinga: the proposed project will continue to work in close coordination with UNDP/GEF/MMA. This collaboration started before the preparation of the original concept proposal of the Project when the idea of the present proposal was identified to complement the UNDP/GEF Project. According to the Brazilian UNDP/GEF Unit, this complementarity was also identified, at that time, by the then GEF Secretariat Team Leader for Land and Water Resources. These GEF projects would generate global benefits through two necessary different and complementary strategies. One had its focus on the sustainable management of forests (and areas of protection) and the other on sustainable agriculture and rangeland/pasture management. Just as in the CE/BA/WB Caatinga Project both teams are highly engaged in improving coordination (see summary in Table 3 of PB Appendix 9), and a more detailed coordination plan will be prepared before appraisal.

Moreover, there have been other consultations and agreed coordination with involved IAs and EAs during the PDF-B phase. They include:

- Regarding collaboration with other projects in the field of payments for environmental services (PES), an exchange of communications has been made with the WB TM and subsequently with the Project Manager of the Regional Integrated Silvopastoral Ecosystem Management Project – RISEMP (WB as IA), covering Colombia, Nicaragua and Costa Rica on PES. The RISEMP has developed a system of indices for the payment of environmental services associated with various types of land use change which they are currently in the process of evaluating. Information from their experience will be very useful and pertinent to the PES component of the proposed project. Project management of RISEMP and the proposed project have already agreed to establish collaboration between the two projects, with the cooperation activities already included and budgeted for in the Project design (including a study tour to Central America on PES). On this theme, initial discussions have also been initiated with the Rio de Janeiro Integrated Ecosystem Management in Production Landscapes of the North-Northwestern Fluminense (WB as IA) and with the Ecosystem Restoration of Riparian Forests in São Paulo Project (WB as IA). The project design has planned national workshops for exchange of experiences and lessons learned on PES among these and other relevant GEF initiatives in Brazil (for record of these communications, see Table 1 of PB Appendix 9).
- In the area of land degradation assessment, the Project has begun coordination activities jointly with the FAO team involved in the preparation of the Land Degradation Assessment of Drylands Project – LADA (UNEP as IA and FAO as EXA) in order to build up, based upon the strategies developed, methods and tools of LADA, to assess, quantify and analyse the nature, extent, severity and impacts of land degradation on ecosystems, watersheds and carbon storage in drylands at a range of spatial and temporal scales. During the PDF-B phase there was an exchange of e-mails, collection of technical reports from LADA (available on LADA's website), suggestions for TORs for a land degradation assessment, and meetings in FAO between the FAO/LADA Technical Team and the FAO Investment Centre Officer responsible for assisting GOB/MDA in project preparation, per IFAD's request. In the forthcoming months, the project team intends to discuss possibilities for specific actions for collaboration with the LADA team (in FAO and UNEP) during project implementation (for record of these communications, see Table 1 of PB Appendix 9).

### C) PROJECT IMPLEMENTATION ARRANGEMENT

MDA's Secretariat of Territorial Development will have primary responsibility for implementation of the proposed activities, working through the Directorate of PDHC Project (PMU), which will also assume the role of Directorate of the GEF Sertão Project (see **Figure 1** of Project Brief Section IX.C, page 40). Hence, the project will build upon the existing PDHC's management structure, which will be slightly scaled-up for administration (procurement, financial management and reporting) of GEF resources and



oversight of GEF-funded activities. This task will be carried out jointly with the local partner institutions (PEDs, mostly NGOs and Service Cooperatives). In addition, as in the PDHC, it will work with other MDA Secretariats (Sec. of Agrarian Reform and Land Settlement – SRA and Sec. of Smallholder Agriculture – SAF), INCRA, additional NGOs and producer organizations, state and municipal government at the local level. Consistent with MDA's current programs, it is expected that municipal governments and a broader cross-section of civil society will play a more active role in the GEF-supported activities. The approach adopted by the PDHC Project is intersectoral and emphasizes the economic, policy, social and cultural dimensions, bearing in mind the need for people to live together in the semi-arid environment. The proposed Sertão Project will incorporate the ecological dimension into this already adopted intersectoral approach.

The institutional arrangement for carrying out the specific project components' activities will work under the principle of giving high value to institutions that have accumulated knowledge, applied to the reality of the semi-arid, in line with local culture and seeking to demonstrate the viability of living with dignity and success in this region. Supporting the implementation of the components' activities, the current training partners of PDHC will also be broadened, to include, for example, Universities and Research Institutes.

The current model of social management in the PDHC Project is building links to facilitate a bottom-up and integrated planning of government activities. The option to integrate the Sertão Project management structure with the PDHC Project will strengthen this strategy (see **Figure 2** of Project Brief Section IX.C, page 41). Following the PDHC Project model, the deliberative and consultative political-institutional management structure of the project will cover three levels (for details, see Project Brief's Section IX.C, paras. 168-174): i) a *Regional Steering Committee*, ii) *State Technical Chambers*, to articulate and monitor programs and activities in the context of the strategies for territorial development defined regionally to reflect the specific circumstances of the State; and iii) *Territorial/ Local Committees*, to plan, monitor, evaluate and articulate the implementation of the project and respective plans and other activities which seek to develop the territory. It is worthwhile stressing that at the consultative level in the communities/settlements and territories, the men and women small-holders who are the beneficiaries of the Project have wide representation, with a local social control body being a body of direct democracy in this context.

This process of participatory management, in conjunction with M&E and exchange of experiences with other GEF Projects and other development programs will constitute a fundamental pillar in supporting the efficacy of the institutional arrangement for the implementation of project activities. Participatory management and the project's information dissemination activities will lead to a joint vision and the definition of replicable model interventions to address land degradation in the project area which can be scaled up by stakeholders and partners beyond project closure.

## ANNEX A: INCREMENTAL COST ANALYSIS

### 1. General Aspects

The project **development objective** is to contribute to an increase in the sustainable development and the quality of life in communities affected by land degradation in the semi-arid North-East of Brazil, through promoting a pilot cross-sectoral approach in support of productive activities and poverty reduction.

The **global objective** is to minimise the causes and negative impacts of land degradation on the integrity of the Caatinga biome ecosystem in the North-East of Brazil through the implementation of sustainable land use systems.

The **principal project outcomes** are: (i) development of a collective “culture” among smallholder farmers, community leaders, school teachers, students and decision makers for the protection of natural resources and the prevention and control of land degradation in the semi-arid Sertão; (ii) increased public awareness on the importance of land degradation issues and appropriate land management in the sustainable economic development of the semi-arid Sertão region; (iii) increased environmental services provided by sustainable land use in the project area and likely to be sustainable; (iv) establishment of a monitoring and evaluation system to monitor project progress and track the impact on peoples’ livelihoods and the ecosystem, and to support replication of lessons learned and successes in other regions of Brazil and Latin America; and (v) a model for participatory management implemented capable of ensuring the achievement of the projects objectives and goals.

The GEF Alternative will achieve these objectives at an incremental cost of US\$ 15.08 million<sup>1</sup>, the proposed contribution by GEF of US\$ 5.94 million, and co-financing of US\$ 9.14 million, from the following sources: (i) US\$ 4.34 from National Government (Ministry for the Agrarian Development – MDA), US\$ 4.74 from Helder Câmara Project (PHHC), financed by IFAD; and (ii) US\$ 0.06 million from the contributions of the proposed project beneficiaries.

The main **types** and associated **causes of land degradation** which affect the structural and functional integrity of the project area ecosystems are :

- **Erosion** caused mainly by i) deforestation of Caatinga for annual cropping or livestock, particularly in hilly areas; ii) overgrazing (pastures and rangeland), and iii) inappropriate agricultural practices; erosion is more severe when related to intense rainfall in hilly agricultural areas with low vegetation cover;
- **Elevation of the groundwater table** caused by excessive irrigation from groundwater;
- **Salinisation** caused by irrigation using water of a high salinity, the lack of a drainage system in irrigated areas, the elevation of groundwater table in soils rich in salts;
- **Loss of organic material and nutrients**, caused by unsustainable cropping practices including slash and burn, leading to erosion and leaching; and
- **Deforestation** caused by the increased pressure on land for pasture or subsistence agriculture, which is also leading to a reduction in the fallow periods (shifting agriculture); during this transition process from forest into agricultural land, forest biomass is removed for use as fuelwood (smallholdings) and charcoal.

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<sup>1</sup> This value do not include preparation resources, i.e. GEF Block B and co-financing from FAO and GM.

Inadequate farming practices that produce land degradation are clearly identified in the semi-arid region. However, they are a result of complex mechanisms. The following **constraints** are interfering with achieving progress leading to the adoption of improved cross-sectoral approaches that address the aforementioned issues and lead to sustainable land management:

- i) Limited human and institutional capacity to create an enabling environment needed to support sustainable land management and to combat desertification;
- ii) Barriers to adoption of more sustainable land use practices are significant, and include particularly knowledge barriers, which can be addressed through capacity building, and input and labour costs in switching to the new practice and possible loss of income in the transition period (in this case, upfront incentive payments are needed);
- iii) Lack of compensation mechanisms for the environmental services provided by farmers but enjoyed by other local and global users;
- iv) Limited or inexistent adoption of successful and replicable pilot experiences that turn into future permanent public policies to support sustainable development in the semi-arid Sertão;
- v) Absence of a continuous monitoring and evaluation system, which tracks policy and institutional failures that may drive further land degradation, and which facilitates the refinement and adoption of innovative sustainable land management practices and technologies to create new livelihood opportunities;
- vi) Lack of data and information necessary for decision-makers to incorporate sustainable land management considerations into production activities; and
- vii) The need to capitalise on the existing (though limited) cross-sectoral approaches which have been introduced in the Semi-arid in the last few years, such as those adopted by the on-going baseline PDHC programme on sustainable development of agrarian reform settlements in the Semiarid Northeast (see baseline programs below).

There is a need for decision-makers to incorporate elements of sustainable land management into farming activities. Therefore, in order to promote sustainable land management, it is vital for all actors to develop a clear perception of the causes of land degradation and of its consequences, as well as of the benefits related to practices which reduce land degradation..

## 2. Baseline

Baseline calculations were based upon a selection of programmes underway that are relevant to the proposed project, estimated to be implemented over the next 6 years (see Attachment A of this Appendix). After being identified, their relevance was evaluated with respect to each component component of the proposed project. Only the costs of baseline programme components or activities previously identified as being relevant to the objectives of the proposed GEF Sertão project components were considered for inclusion in the baseline. The baseline cost estimates are limited to the estimated investments by these programs in the areas area covered by the proposed project. All identified projects/programmes are implemented by public institutions with vast experience in the agrarian development and family farming sectors, mainly the Ministry for Agrarian Development, and national NGOs (such as PDHC's Executing Partners - PEDs). The identified financial support included those coming from: (i) public funds (national); (ii) external funds; and (iii) farmers who are beneficiaries of the programmes:

**Table 1. Baseline Activities per Project Component**

Program and Project Baseline	Project Proposed Components				
	Sources of Funds	Capacity Building and Environmental Education	Environmental Incentives	Project Monitoring and Evaluation	Project Management and Information Dissemination
Dom Helder Camara Project (PDHC)	Brazilian Government, IFAD, BNB, and Beneficiaries	X	X	X	X
PRONAF (Credit and Infra-Structure)	Brazilian Government (FAT / OGU) (*)	X	X	-	X
National Land-Tenure Credit Program	Brazilian Government and World Bank	X	X	-	-

(\*) FAT – Workers’ National Support Fund; OGU – Federal Budget / Treasury.

### Summary of Baseline Costs and Benefits

**Baseline Costs.** In the absence of incremental GEF co-funding, the implementation of the above mentioned baseline programs and activities will contribute to some extent to the project objective. Costs are estimated in US\$ 88.1 million (see Matrix 1). Baseline sources of funds include the Brazilian Government (Federal Treasury), IFAD, Northeast Brazil Bank (BNB), World Bank, and family farmers.

**Baseline Benefits.** Baseline programs and activities will predominantly produce national benefits that will contribute to the sustainable economic development of both the northeast and the country. These include: i) basic education; ii) the strengthening of local, participatory processes for the social development of the settlers and smallholder farmers partnering with the organizations involved in territorial development; iii) improved farm productivity and diversification, with a consequent growth in income levels and jobs; iv) access to land for farmers with little or no land; v) improved social infrastructure, (vi) increased access to markets; and vi) improved coordination of public policies.

Although the baseline generates significant socio-economic benefits and, to a certain extent, contributes towards an improved perspective of the semi-arid region’s environmental problems as perceived by the population and decision-makers, it does not ensure effective prevention and control of degradation and desertification of the semi-arid lands. It would not address more far-reaching interventions to guarantee global environmental benefits associated with combating land degradation, in particular through the conservation of biodiversity and the sequestration of carbon. Specifically, the baseline investments would not support necessary interventions such as capacity building and incentive measures for adoption sustainable agricultural and rangeland/pasture management, and the restoration and further protection of degraded vegetation in areas currently used for livestock production, which contribute to these global benefits. Additional investments will be necessary to achieve this level of effectiveness.

### 3. Justification of GEF Co-Financing

The baseline scenario reflects national priorities that address the development-related dimension of land degradation, through supporting the three previously-mentioned programmes which are valuable efforts primarily aimed at promoting sustainable development, poverty alleviation and land tenure security. These programmes provide a sound foundation for complementary efforts that may address the constraints and negative impacts associated with land degradation on the Caatinga ecosystem and its underlying functions and services. Particularly the PDHC, supported by IFAD, adopts a sound cross-

sectoral approach to rural development that integrates the social, cultural and economic dimensions of poverty issues, with effective participation of stakeholders at all stages, including women and Afro-American minorities.

Nevertheless, until now, there has been no attempt to integrate an ecological dimension into the PDHC processes, focusing on the prevention and control of land degradation, hence accelerating actions on sustainable land management to protect and restore the Caatinga ecosystem, reduce carbon dioxide emission and stabilise or reduce sediment release into waterbodies. More specifically, the baseline scenario does not plan, design, and implement activities designed to support a cross-sectoral approach to land management that integrate an ecological dimension into the socio-cultural and economic dimension already adopted for example by the PDHC project. This situation is resulting in reduced efficiency and lost opportunities for combating desertification and generating global benefits within the context of sustainable development, such as those related to increased conservation and/or protection of biological diversity and improved carbon sequestration.

Reversing this situation and trends will require investments in the development of appropriate strategies that take into account global environmental values and institutional frameworks, including incentives for incorporating global environmental concerns into the actions of public and private stakeholders. It will also require piloting a strong capacity building effort to develop a collective and clear consciousness of the need to combat land degradation in the Semi-arid Sertão, by undertaking educational activities that will facilitate the knowledge generation processes to be implemented through participatory planning, pilot adaptation and adoption of appropriate technical models for smallholders, as well as monitoring and evaluation activities that demonstrate results and benefits to local as well as national and global stakeholders. Information dissemination, institutional coordination and participatory management at the local and national levels will be essential to turn successful and replicable pilot experiences into future permanent public policies to support sustainable development in the semi-arid Sertão.

In order to support interventions which specifically address the previously-mentioned social and environmental issues and underlying causes which contribute to land degradation, as well as the *constraints* impeding the implementation of scientifically sound and cross-sectoral approaches in the semi-arid Sertão (complementary to the existing cross-sectoral approach adopted under the baseline scenario), GOB requested IFAD assistance in the preparation of a proposed GEF-financed project to complement the MDA's existing programs, and in particular the PDHC, PRONAF and PNCF. The proposed project (GEF Alternative) would support the achievement of incremental benefits related to these baseline programs. Interest in the protection of some of the country's environmental assets such as the xeric formations of *Sertão* reaches beyond Brazil as these provide positive international externalities (e.g. biodiversity conservation and carbon sequestration).

#### **4. GEF Alternative**

The GEF Alternative would expand the scope of the baseline, including the financing of incremental costs that contribute to minimise the cause and the negative impact of land degradation on the structure and integrity of *Caatinga* ecosystems, considered to be of global importance, by means of sustainable land management practices, but also by contributing to improve the livelihood of poor family farmers and their economic welfare in a sustainable manner. Such expansion would happen as follows: i) training, planning, experimenting and implementing actions that lead to the adoption of sustainable production systems by the project's target group; ii) establishing and operating an incentive mechanism for the environmental services provision related to sustainable land use practices, which address land degradation and increase the ecological integrity and productivity of the Caatinga system; iii) developing alternative sustainable funding options for selected services; iv) monitoring, evaluating and disseminating project information, aiming to follow-up the progress of the project and the replicability of its outcomes and best

practices in the semi-arid region, in other regions of Brazil, and in Latin America; and v) implementing a participatory management model capable of minimising the causes and negative impact of land degradation in the project demonstration areas, to be replicated across PDHC's wider implementation area (Phase II), and in the semi-arid region as a whole.

**Costs.** GEF Alternative's total estimated cost is US\$ 103.2 million (see Matrix 1), divided into: (i) US\$ 31.8 million for education, training and experimenting for sustainable system planning and implementation; (ii) US\$ 57.6 million in land access investments, productive and community investments, and environmental incentives; (iii) US\$ 1.9 million in monitoring and evaluation; and (iv) US\$ 11.8 million in community empowerment, participatory management and information dissemination.

**Benefits.** In the GEF Alternative, the Brazilian Government will be executing a challenging program that comprises both national and global benefits. **National benefits** would include: (i) improvement of the economic productivity of agricultural production through the adoption of sustainable management practices. As the preliminary studies for the design of the environmental services component indicated, the sustainable land management practices promoted by the project will in most cases be equally or more profitable for farmers than the current degrading practices, and the project will provide important national benefits by reducing the barriers to adopting more profitable and environmentally beneficial systems. (ii) increased economic benefits flowing to rural communities derived from the local ecological "goods and services" associated with improvement of land management, including a reduction in erosion (and consequently in siltation and downstream salinity), improvement in water quality for productive, consumptive and recreational use, and aesthetic improvement of the landscape; (iii) improved management skills at local and national levels; (iv) improvement of institutional and human-resource capacity in order to promote the sustainable use of natural resources; (v) strengthened structure related to political, regulation, and socio-economic incentive aspects, to address rural poverty and their ties with land degradation as a model to be replicated all over the Brazilian semi-arid region; and (vi) an improved policy and planning/institutional framework to support sustainable land management concepts and practices facilitating the adoption of sustainable on-farm practices and off-farm interventions, while improving livelihood opportunities. (vii) increased income from the provision of global environmental goods and services such as carbon sequestration and biodiversity conservation.

**Global benefits** will include: i) Sustainable use and protection of biological diversity by adopting sustainable pastoral and agricultural management practices; recovery and increased protection of the degraded *Caatinga* vegetation in areas currently used for animal husbandry, promoting the preservation of the ecosystem integrity and recovery of its functions and services and, concurrently, improving beneficiaries' quality of life; and ii) Increased storage of greenhouse gases in agro-ecosystems, which could be achieved by the adoption of sustainable pastoral and agricultural management practices, and by the restoration and more consistent protection of the degraded vegetation in areas currently used for animal husbandry.

## **5. Incremental Costs.**

The difference between the costs of GEF Alternative and the Baseline is the Increment, estimated in US\$ 15.1 million (see details in the Incremental Cost Matrix, presented below), split into: (i) US\$ 6.4 million for training and experimenting for sustainable system planning and implementation; (ii) US\$ 5.8 million in environmental incentives; (iii) US\$ 0.9 million in monitoring and evaluation; and (iv) US\$ 1.9 million in participatory management, institutional coordination, and information dissemination.

**Matrix 1. Incremental Cost Matrix**

Component	Cost Category	US\$ (Million) (*)	National Benefit	Global Benefit
<b>Comp 1 Building Capacity for Sustainable Land Management and Increasing Envir. awareness</b>	Baseline	US\$ 25.4	Basic education and strengthening of local, participatory processes for social development of settlers and family farmers.	Limited perception of land degradation mechanisms and their consequences.
	GEF Alternative	US\$ 31.8	Family farmers, agrarian reform beneficiaries, rural and Afro-American communities aware of the environmental issues and constraints, and supporting prevention, reversion and arrest of the land degradation process. Improvement of institutional and human-resource capacity in order to promote the sustainable use of natural resources	Clear perception of land degradation mechanisms and their consequences, as well as the benefits of reversing degradation processes, and more willingness of the society to prevent and minimize the cause and the negative impact of land degradation on Caatinga ecosystems.
	Incremental	US\$ 6.4	<i>Note: GEF (US\$ 3.0 million); Government (US\$ 1.9 million); IFAD (US\$ 1.5 million).</i>	
<b>Comp 2 Environmental Incentives</b>	Baseline	US\$ 51.8	Farmers' access to land, increase and diversification of production with consequent growth in income levels and jobs; improved social infrastructure and increased access to markets.	Increase and diversification of production, capable of generating a reduction (although limited) in the environmental pressure on the Caatinga.
	GEF Alternative	US\$ 57.6	Transition from inadequate production systems to sustainable systems, by adapting and adopting new and better practices, improving knowledge and establishing financial incentives linked to environmental services. Improvement of the economic productivity of agricultural production through the adoption of sustainable management practices	Transition to sustainable production systems, minimizing the negative impact of land degradation on the structure and integrity of Caatinga ecosystems. Increased provision of environmental services through protection of biodiversity, carbon sequestration and a reversal of land degradation.
	Incremental	US\$ 5.8	<i>Note GEF (US\$ 1.6 million); Government (US\$ 1.1 million); IFAD (US\$ 3.1 million).</i>	
<b>Comp 3 Project Monitoring and Evaluation</b>	Baseline	US\$ 1.0	Monitoring of socio-economic impact and limited follow-up of the environmental impact; M&E skills developed.	
	GEF Alternative	US\$ 1.9	Instruments in place to measure progress in attaining socio-economic and national environmental benefits	Instruments in place to measure progress in attaining global environmental benefits
	Incremental	US\$ 0.9	<i>Note: GEF (US\$ 0.5 million); Government (US\$ 0.1 million); IFAD (US\$ 0.3 million).</i>	
<b>Comp 4 Project Management and Information Dissemination</b>	Baseline	US\$ 9.9	Strengthened social capital and management capacity.	Limited global benefit associated with improved though limited capacity for land management
	GEF Alternative	US\$ 11.8	Implemented participatory management, capable of assuring the attainment of both national and global objectives of the project. Improved management skills at local and national levels	Participatory management capacity for implementing integrated and cross-sectoral approaches to sustainable land management
	Incremental	US\$ 1.9	<i>Note: GEF (US\$ 0.8 million); Government (US\$ 1.0 million); IFAD (US\$ 0.1 million).</i>	
<b>Total (**)</b>	<b>Baseline</b>	<b>US\$ 88.1</b>		
	<b>GEF Alternative</b>	<b>US\$ 103.2</b>		
	<b>Incremental</b>	<b>US\$ 15.08</b>	<i>Note: GEF (US\$ 5.94 million); Government ( US\$ 4.34 million); IFAD ( US\$ 4.74 million); project beneficiaries ( US\$ 0.06 million)</i>	

(\*) Kindly note minor differences in totals are due to rounding error; (\*\*) These values do not include preparation resources, i.e.(GEF Block B and co-financing from FAO and GM.

## Appendix 1 - Attachment A

### Baseline Scenario – Profile of the Selected Programs and Projects

**PDHC Project Camara.** This project will strengthen local, participatory and solidary processes of social construction, of the settlers and family farmers partnering with organizations involved in territorial development, in the perspective of living along with the semi-arid region, managing social, political, environmental, cultural, economic and technological resources. Its main *purposes* are: i) to ensure training and basic education; ii) to improve the production development and marketing achieved; iii) to make available rural credit and financial services; iv) to strengthen social capital and management capacity; and v) to ensure gender equity and generational relations.

**PRONAF.** This program will be building a pattern of sustainable development for family farmers and their families, aiming to increase and diversify production, leading to growth in income level and jobs, providing social welfare and quality of life. Its main *purposes* are: i) to support public infra-structure services for the development of family farming; ii) to offer financial support for family farmers to develop production activities; and iii) to develop rural outreach programs, to promote vocational training programs for farmers and their families, provide to capacity building to the technicians involved, and financial support to research on family farming.

**National Land-Tenure Credit Program.** This program will finance land access to farmers with little or no land available (tenants, partners, share croppers, possessors, mini-property farmers, and others), who meet the eligibility conditions for acquiring land tenure credit, as well as the necessary investments for the organization of their production units, and technical advice. Its main *purposes* are: i) to effective the financing of small family farmers for land acquisition; ii) to carry out investments in capacity building and technical advice; and, iii) to carry out investments in productive and community activities.



## Appendix 2: PROJECT LOGICAL FRAMEWORK

Project Objectives	Impact Indicators	Means of Verification	Assumptions
<p><b>Development Objective</b> To contribute to an increase in the sustainable development and the quality of life of communities affected by land degradation in Brazil's semi-arid northeast, through promoting a cross-sectoral approach in support of productive activities and poverty reduction.</p> <p><b>Global Objective</b> To minimise the causes and negative impacts of land degradation on the integrity of the Caatinga biome ecosystems in Brazil's semi-arid northeast, through the implementation of sustainable land use systems</p>	<ul style="list-style-type: none"> <li>▪ Incidence of poverty reduced in the six territories with Project activities – with income levels on FISP Ecológico sites improved by at least 10% (by PY6)</li> <li>▪ Sustainable agricultural and rangeland/pasture management practices adopted on 8,000 ha by PY6 (2,000 ha by PY3)</li> <li>• By PY6, functional and structural integrity of the Caatinga agro-ecosystems ensured across 20,000 ha, thereby reversing land degradation, enhancing soil structure stability, conserving biodiversity and increasing carbon sequestration, as measured by: <ul style="list-style-type: none"> <li>▪ 10% increase in Caatinga plant species diversity in land management systems (including rangeland/pasture management, agroforestry, agrosilvopastoral and annual crop systems)</li> <li>▪ reduction of at least 10% in sediment concentration downstream plots where sustainable land management options have been adopted</li> <li>▪ Additional carbon sequestered on project demonstration sites (tons of carbon/area/year) as a result of adoption of sustainable land management practices (incremental amount of sequestration to be estimated in PY1, after completion of baseline studies)</li> </ul> </li> <li>▪ By PY6, improved capacity to facilitate and implement sustainable land management, including governmental institutions (at least 30), NGOs (30), community leaders (150) and young smallholding farmers (150)</li> <li>▪ Greater awareness in 200 rural communities, 120 rural schools and by society at large in relation to the theme of sustainable land management</li> <li>▪ Level of satisfaction with the innovations promoted by the Project and adhesion of rural producers to the practices of sustainable land management</li> <li>▪ By PY5 the establishment or strengthening of commodity market-based incentives for sustainable agricultural production, as measured by a 10% increase in the number of market outlets for native and organic products</li> </ul>	<p>Project progress reports</p> <p>National Statistics (IBGE)</p> <p>Mid-term and ex-post evaluation reports</p> <p>Structured interviews</p> <p>Field surveys</p>	<p>Long-term policy agreements and financial support at the Federal level to arrest land degradation in the semi-arid Sertão</p>

Outcome, Outputs and Activities from each component	Outcome/Output Indicators	Means of Verification	Critical Assumptions
<p><b>Component 1: Building Capacity for Sustainable Land Management and Increasing Environmental Awareness</b></p> <p><b>Outcome 1:</b> Development of a collective vision or “culture” for the protection of natural resources and fight against land degradation in the semi-arid Sertão</p>	<ul style="list-style-type: none"> <li>By PY6, improved capacity to implement sustainable land management, including governmental institutions (30 municipalities, MDA, INCRA, 6 States), NGOs (30), community leaders (150) and young smallholding farmers (150)</li> <li>Increased awareness in 200 rural communities, 120 rural schools and by society at large (60,000 rural and 30,000 urban inhabitants) of the importance of sustainable land management</li> </ul>	<p>Project progress reports</p> <p>Structured interviews</p> <p>Mid-term Review</p> <p>Final Evaluation</p>	<p>Smallholders interested and motivated in modifying their current farming behaviour and practices which are leading to environmental degradation</p>
<p><u>Subcomponent 1.1. Capacity Building and Environmental Education</u></p> <p><u>Activity 1.1.1 Training of facilitators</u></p> <p><u>Output.</u> Facilitators with the capabilities to encourage the process of handling knowledge in the service of sustainable land management.</p>	<ul style="list-style-type: none"> <li>By PY6, 24 training events/sessions aimed at 150 project technical staff, 150 community leaders and 150 young farmers, including preparation sessions on i) raising project awareness and ii) implementing the environmental education program in the communities (12 events by PY2)</li> <li>Training events for the generation of distance-learning by 50 technical staff, 50 community leaders and 50 social mobilizers.</li> <li>By PY6, 20 training sessions to implement the environmental education program in rural schools targeted on 600 rural school teachers (400 teachers by PY3).</li> </ul>	<p>Training reports</p> <p>Project progress reports</p> <p>Structured interviews</p> <p>Mid-term Review</p> <p>Final Evaluation</p>	<p>Continuity of governmental actions</p>
<p><u>Activity 1.1.2: Environmental Education</u></p> <p><u>Output.</u> Perception of land degradation issues by all stakeholders and partners in the six territories</p>	<ul style="list-style-type: none"> <li>By PY6, environmental education activities will have taken place in 120 schools (60 by PY3)</li> <li>Holding environmental education sessions in 200 rural communities by PY6 (100 by PY3)</li> <li>Holding environmental education sessions in 30 municipalities by PY6 (15 by PY3)</li> </ul>	<p>Project Reports</p> <p>Instruction Manual for environmental education</p>	<p>Smallholders interested and motivated in modifying their farming behaviour practices</p>
<p><u>Activity 1.1.3. Production of methods and didactic materials.</u></p> <p><u>Output.</u> A full set of didactic materials being made available, constructed jointly to replicate experiments in drawing up sustainable production systems.</p>	<ul style="list-style-type: none"> <li>5 booklets, 2 videos and 3 CDs on land degradation produced by PY6,</li> <li>100 reference booklets on the farmer field trials undertaken in demonstration sites by PY6 (40 by PY3)</li> <li>3 manuals produced by PY1, for facilitators (on knowledge generation and environ. education) and rural schools teachers (on environ. education)</li> <li>3 manuals for pupils produced by PY3, for environmental education (1 in PY1, 1 in PY2)</li> <li>A set of materials produced for 10 radio stations throughout life of project</li> </ul>	<p>Project progress reports</p> <p>Publications/materials</p>	
<p><u>Sub-component 1.2. Participatory Planning and Development of Sustainable Productive Systems</u></p> <p><u>Activity 1.2.1. Planning for sustainable land management.</u></p> <p><u>Output.</u> A plan for sustainable land management in the five territories with PDHC activity.</p>	<ul style="list-style-type: none"> <li>6 detailed socio-environmental diagnostic studies to underpin the planning process in the six project Territories, and 50 sustainable land management plans prepared with communities by PY3.</li> <li>Agenda of priorities, commitments and actions built up, negotiated, monitored and updated with interest groups (LMIGs) between PY2 and PY6.</li> <li>150 smallholders involved in planning actions for field trials by PY6 (60 by PY2)</li> </ul>	<p>Diagnostic reports and plans</p> <p>Site visits</p> <p>Mid-term Review</p> <p>Final Evaluation</p>	<p>Coordination between the different levels of decision-makers create favourable conditions for collective planning</p> <p>Innovative actions in accordance with environmental legislation</p>

Outcome, Outputs and Activities from each component	Outcome/Output Indicators	Means of Verification	Critical Assumptions
	<ul style="list-style-type: none"> <li>50 demonstration projects/sites receiving support from environmental incentives component by PY4 (10 by PY2).</li> </ul>		
<p><u>Activity 1.2.2. Development of sustainable production systems.</u></p> <p><u>Output.</u> Practices for the sustainable land use duly implemented and working and serving as concrete reference points for improving the lives of families in the area where the project has activity.</p>	<ul style="list-style-type: none"> <li>By PY6, five seminars held (1 per year) to exchange experiences between the LMIGs in participatory on-farm and agro-ecological trials</li> <li>150 on-farm and agro-ecological trials implemented (involving 1,000 small-holders) by the end of PY4 using sustainable land management practices</li> <li>2,100 persons/day of technical specialists recruited for the implementation and monitoring of participatory field trials by PY6</li> </ul>	<p>Report on the No. of groups formed per year</p> <p>Report on No. of trials</p> <p>Mid-term Review</p> <p>Final Evaluation</p>	<p>Small-holders use project resources for field trials, as a lever for developing sustainable production systems</p> <p>Sustainable production systems made viable based on natural resources and using low inputs</p>
<p><u>Activity 1.2.3. Technical training in support of implementing practices of sustainable land management.</u></p> <p><u>Output.</u> Facilitators trained to give technical guidance on field trials at the ecosystem/agro-ecosystem level</p>	<ul style="list-style-type: none"> <li>42 training events for facilitators/animators in sustainable land management practices by PY6</li> <li>720 exchange visits by PY6 (144 visits by PY2)</li> <li>720 field days undertaken inside each entry at the end of PY6 (144 by PY2)</li> <li>A program for spreading knowledge drawn up and tested by the end of PY1.</li> <li>Information dissemination program among farmers within and across territories undertaken throughout the life of project</li> </ul>	<p>Project progress reports</p> <p>Mid-term evaluation report</p>	<p>The process of training in participatory experimentation creates the conditions for implementing and managing experiments.</p> <p>Continuity of governmental actions, in particular with reference to the technical assistance institutions.</p>
<p><b>Component 2: Environmental Incentives</b></p> <p><b>Outcome 2.</b> Environmental services provided by sustainable land use increased in the project area and likely to be sustainable</p>	<ul style="list-style-type: none"> <li>Sustainable land use practices adopted on 8,000 ha by PY6 (2000 ha by PY3).</li> <li>Income levels on FISP Ecológico sites improved by at least 10% (by PY6)</li> <li>Pilot schemes for payment of environmental services related to watershed protection established in two watersheds in the project area by PY6.</li> </ul>	<p>Project Progress Reports</p> <p>Baseline and final evaluation</p> <p>FISP M&amp;E reports</p>	<p>No radical changes in economic conditions affecting agricultural production</p> <p>No major climatic or environmental incidents that disrupt agricultural production</p> <p>Implementation of water resources legislation and institutional framework progresses sufficiently to permit PES development in project area</p>
<p><u>Subcomponent 2.1 . Providing incentives for environmental services provision from sustainable land use</u></p> <p><u>Output.</u> Farmers adopt sustainable land use practices</p>	<ul style="list-style-type: none"> <li>FISP Ecológico established by year PY2 and disbursing payments for environmental services to farmers</li> <li>Monitoring and verification system established to measure changes in biodiversity,</li> </ul>	<p>Project Progress Reports</p>	<p>Outreach to farmers through education and experimentation component is sufficient to generate proposals to implement land</p>

Outcome, Outputs and Activities from each component	Outcome/Output Indicators	Means of Verification	Critical Assumptions
as a result of payments for related environmental services provision from the FISP Ecológico	<p>carbon sequestration and erosion in FISP Ecológico</p> <ul style="list-style-type: none"> <li>Farmers receive payments to adopt sustainable land use practices leading to an increase in environmental services provision on at least 8,000 ha (2,000 ha by PY3).</li> </ul>		use changes which can be considered under the FISP Ecológico
<p><u>Subcomponent 2.2. Developing markets for environmental services</u></p> <p>Output. Markets for watershed protection services and carbon sequestration developed in project area</p>	<ul style="list-style-type: none"> <li>At least 2 watershed committees and executing agencies trained on payments for watershed services (all by PY3).</li> <li>Pilot schemes for payment of environmental services related to watershed protection established in two watersheds in the project area by PY6.</li> <li>Capacity of 20 NGOs built to support farmers in accessing the developing carbon market.</li> <li>2 carbon projects prepared in line with potential buyers' guidelines by PY6</li> </ul>	<p>Project Progress Reports</p> <p>Mid-Term Review</p> <p>Final Evaluation</p>	<p>Implementation of water resources legislation and institutional framework progresses sufficiently to permit PES development in project area</p> <p>Carbon market development will provide sufficient demand for carbon credits from sequestration</p>
<p><u>Subcomponent 2.3. Developing commodity markets for indigenous and organic products</u></p> <p>Output. Farmers in the project area produce and sell indigenous and organic products</p>	<ul style="list-style-type: none"> <li>200 farmers producing and selling indigenous fruits or crop varieties (50 farmers planted by PY3)</li> <li>150 farmers producing and selling organic produce (30 farmers adopted organic farming practices by PY3)</li> </ul>	<p>Project Progress Reports</p> <p>Mid-Term Review</p> <p>Final Evaluation</p>	<p>Local and regional markets for indigenous and organic products can be identified which provide sufficient returns to farmers</p> <p>Expertise available in the project area to provide high quality capacity building to technical advisory staff and farmers</p>
<p><b>Component 3: Project Monitoring and Evaluation</b></p> <p><b>Outcome 3.</b> A M&amp;E system implemented, with a view to monitor project progress and track the impact on people livelihoods and the ecosystem, and to support replication of lessons learned and successes in other regions of Brazil and Latin America</p>	<ul style="list-style-type: none"> <li>Instruments in place to measure progress in attaining global benefits in PY1, and functioning throughout the project</li> <li>Geo-referenced data bank and management information system working throughout the project</li> <li>References produced</li> </ul>	Project progress reports	Focus on participatory monitoring and integration with other GEF projects and with PDHC will generate new M&E experiences

Outcome, Outputs and Activities from each component	Outcome/Output Indicators	Means of Verification	Critical Assumptions
<p><u>Subcomponent 3.1: Monitoring</u></p> <p><u>Output.</u> A monitoring system for the project implemented, measuring project results and impacts on the generation of national and global benefits, and providing adequate project performance reports</p>	<ul style="list-style-type: none"> <li>Monitoring network established (end of PY1, after completion of baseline study)</li> <li>MIS functioning in PY01 and throughout the project life</li> <li>At least two areas (microwatersheds) with environmental monitoring (from PY 2)</li> <li>At least 5 initial inventories and 5 final ones on carbon sequestration in 5 areas among the 50 foreseen project demonstration sites (first in PY2 and final in PY6)</li> <li>At least 10% of the project demonstration sites (including FISP Ecológico pilots) being monitored in the socio-economic and environmental dimension (from PY3); other areas, to complete the 50 sites, will have simplified monitoring using participatory evaluation tools</li> <li>Local and regional events presenting project monitoring results (at least 1 per year)</li> </ul>	<p>Project progress reports</p> <p>Demonstration site visits</p> <p>Maps</p>	<p>Resources provided in accordance with the chronogram and the guarantee of minimum monitoring infrastructure, associated with joint actions with other projects and the effective involvement of the community (e.g. use of DRP tools) will guarantee a less expensive and at the same time effective monitoring system</p>
<p><u>Activity 3.2: Evaluation of the Project</u></p> <p><u>Output.</u> Ex-ant (baseline study), mid-term and final (ex-post) external evaluations carried out to assess results and impacts of GEF-supported activities</p>	<ul style="list-style-type: none"> <li>Baseline study carried out in PY01</li> <li>External mid-term evaluation carried out in PY03</li> <li>Final (ex-post) evaluation carried out in PY05</li> </ul>	<p>Baseline study report</p> <p>Evaluation reports</p> <p>IFAD Supervision reports</p>	<p>Definition of easy-to-measure parameters and correct sample sizing, as well as the use of participatory tools for data collection will guarantee more efficient outputs</p>
<p><b>Component 4: Project Management and Information Dissemination</b></p> <p><b>Outcome 4.</b> A model for participatory management implemented capable of ensuring the achievement of the projects objectives and goals</p>	<ul style="list-style-type: none"> <li>Participatory management structure working at the regional, state and territorial/local levels from PY1</li> <li>PMU established and functioning, building on existing PDHC's PMU (PY01)</li> <li>Collaboration and exchange of experiences held in a systematic way, including other relevant national GEF programs and projects in Brazil working on project and/or in the Caatinga</li> <li>Develop webpage, media campaigns and materials to disseminate the project at local, national and international levels (from PY01)</li> </ul>	<p>Project progress reports</p> <p>Mid-Term Review</p> <p>Final Evaluation</p>	<p>Continuity of policy as adopted by the current government throughout the project</p> <p>Effective liaison between the different decision-making levels.</p>
<p><u>Subcomponent 4.1. Project Management and Institutional Coordination</u></p> <p><u>Outputs:</u> (i) a participatory management structure in place, able to ensure the achievement of the project objectives and goals; (ii) network of partners widened and consistent with actions coordinated and functional in the territories; (iii) MDA and partner institutions better trained to support multi-sectorial actions which promote the poverty alleviation while</p>	<ul style="list-style-type: none"> <li>PMU established and functioning, building on existing PDHC's PMU (PY01)</li> <li>Participatory management structure working at the regional, state and territorial/local level from PY1</li> <li>Greater number of governmental and non-governmental stakeholders active in the widened network of partners, by PY05 30% more, by PY03 15% more.</li> <li>More investments in public policies by governmental Organizations in the territories by PY05.</li> <li>Project reports prepared and submitted to IFAD and to the project management</li> </ul>	<p>Project Annual Report.</p> <p>Report on activities and terms of cooperation agreements</p>	<p>Continuity of policy as adopted by the current government throughout the project</p> <p>The processes for formulating proposals passes to small-holders families thus placing the proposals under the communities' supervision</p>

Outcome, Outputs and Activities from each component	Outcome/Output Indicators	Means of Verification	Critical Assumptions
prevent and control land degradation; (iv) Sertão Project collaborating with other relevant GEF Projects in Brazil	<p>committees and chambers, in a systematic way, throughout the life of project.</p> <ul style="list-style-type: none"> <li>▪ Annual Operative Plans and procurement and disbursement plans drawn up in a systematic way throughout the life of project</li> <li>▪ Sertão Project activities (5%) undertaken jointly with other GEF projects</li> </ul>		Relevant projects have continuity and identify areas of common interest for cooperation
<p><u>Subcomponent 4.2. Project Information Dissemination</u></p> <p><i>Outputs.</i> (i) Lessons learned systematized and project information disseminated nationally and internationally; (ii) target public sufficiently informed and participatory management exercised; (iii) relevant rural development institutions well versed about the Project; (iv) collaboration among relevant national programs and GEF projects relevant to poverty reduction and natural resources management in the Caatinga; (iv) lessons shared with other GEF projects in Brazil and abroad.</p>	<ul style="list-style-type: none"> <li>▪ Booklets produced on the outcomes of M&amp;E (print run of 10,000 copies in PY6; 4,000 by PY3) and at least 2 folders about the Project (10,000 by PY1)</li> <li>• Project webpage developed in the first 6 months from project initiation and regular updated information</li> <li>▪ Calendar with information about land degradation and best practices) (print run of 6 thousand – from PY2)</li> <li>▪ At least one media campaign undertaken at the state and national level (by PY6)</li> <li>▪ Material produced available in the different circles of dissemination (didactic and technical material drawn up by Component 1 and informative material and project experiences in general) (by PY6)</li> <li>▪ Publicity events held (6 events at the end of PY1 – base-line and 12 events from PY3 – one per territory in PY3 and in PY6)</li> <li>▪ Two seminars for the exchange of experiences between teams from GEF Projects (PY3 e PY6).</li> </ul>	<p>Reports of the M&amp;E system</p> <p>IFAD supervision reports</p> <p>Visit webpage</p>	Information flows among the various intervention levels of the Project and allows the lessons learned to be systematized and disseminated

## **Appendix 3: RESPONSE TO PROJECT REVIEWS**

### **A) STAP EXPERT REVIEW AND RESPONSE TO STAP COMMENTS BY THE PROJECT TEAM**

The project team is grateful to the STAP reviewer for comments and constructive suggestions to strengthen the contents and presentation of this proposal. Below is a description of specific actions taken in response to the STAP comments which were provided in two separate rounds (answers in italic following the original STAP comment).

Project reviewer: B. L. Turner II, Director & Higgins Professor of Environment and Society, Graduate School of Geography, Clark University

#### STAP REVIEW #2 OF: Sustainable Land Management in the Semi-Arid Sertão Project

My first or draft review noted what I thought were the major strengths and weaknesses of the project in question. I offered it as a draft only in regard to questions of overstepping my charge or raising issues that were outside the expectations of the award in question. The comments offered here, review #2, represent my responses to the changes and amplifications in the project proposal made in response to review one. I do not reiterate in any detail the comments made in review #1 but list a few that were not addressed in the second document sent to me. That any of the comments in review #1 remain cogent, I refer the reader to the initial review.

I also emphasize that the detail of my critiques must be understood in light of the overall quality of the proposal. It is precisely its attention to detail in its many domains that permits the various critiques. The last are not intended to detract the proposal but to guide it to the means a making it even stronger.

#### **Overall assessment**

I am much impressed with this proposal. As noted previously, it is “an exhaustive programmatic treatment of an environment-development project building upon sustained work in semi-arid reaches of northeastern Brazil, an area of considerable poverty and apparent land degradation, and according to the proposal, one in which the ecological dimensions have been underappreciated [but see linked projects below]. Its programmatic-administrative architecture is tight, and once past the paucity of consideration about ‘what land uses are sustainable and economical’, not much is missed in terms of base understanding of the area, its people, land degradation dynamics, and the need for a fully integrated, participatory effort to seek to improve the environment and the economic outcomes of its use.”

The project appears committed to addressing several reservations that I expressed, although the answers remain less than I would like. I list the major issues below.

#### **1. Comment: What are the global environmental connections?**

I asked for a justification and substantive documentation that the region is a priority one for biodiversity loss and, perhaps, carbon—the two justification themes. The biodiversity one has been answered via the Dinerstein citation. I am not sure that this references addresses carbon, however, and I am not certain that the area in question is high on carbon source-sink list globally. The case for watershed protection rings true but as noted in round one, no documentation is provided.

Despite the various additions, such as the claims added to page 1, little documentation is provided. As an example, a claim is added to paragraph 3, page that land degrading activities may be leading to

desertification (I assume this means reduced precipitation) in a way that is more pronounced than that suspected from global climate change. Work by IGBPs BHAC program, including that in Brazil, makes me take this claim seriously, However, not one wit of evidence is provided as support, nor is recall to BHAC offered as a rationale for this supposition.

*Response by the project team:* A key outcome of the project is enhanced conservation of wild and agricultural biodiversity in the project areas, which provide global environmental goods. The project area is unique in its capacity to supply some of these global benefits due to the distinctive features of Caatinga ecosystem, and the native tropical products which have evolved in this area. This aspect of the project benefits has been more clearly identified through the addition of indicators relating to both wild and agricultural biodiversity impacts. Additional information on the potential for carbon sequestration has been added to Project Brief (PB) Section I.A (para.6). It should be pointed out that the per hectare carbon storage potential in the Caatinga as in all drylands is moderate to marginal in comparison with tropical humid forests. However the vast expansion of drylands open up the potential that even small marginal changes if scaled up over large areas, can have significant impacts. The GEF project will attempt to provide demonstration impacts which lead to scaling up well outside the project area.

*Regarding the importance of watershed protection:* In all project states, watershed committees have been established, in particular in critical, degraded watersheds and in irrigation areas, recognizing the need for more comprehensive and collaborative approaches to watershed management between users and watershed stewards. This demonstrates the importance of watershed protection measures in the project area.

*Regarding the degradation/desertification, the reviewer's point is taken and the document has been adjusted (mainly in para.3 of PB, Section I.A).*

2. Comment: Throughout, the document relies on internal reports and various NGO documents almost all of which are not readily available to community at large and have not been vetted through the critical eye of the research community. In one sense, use of these materials demonstrates hands-on, local attention and knowledge; in another, it places the reviewer in a difficult circumstance, asking the reviewer to accept claims absent recall to the basic foundation of science—peer-reviewed evidence and arguments. Adding a few references here and there does not reconcile this problem. (I note, however, that this proposal differs little from others I have read and thus may be consistent with the programs demands.)

*Response by the project team:* Point taken. The team would like to emphasize that, from the viewpoint of development literature, internal reports (e.g. from the Brazilian Ministry of Environment) or NGO working papers discussing program progress and lessons have in many cases been the only documentation available to support project preparation. Grey literature in the biological, agricultural and social sciences relevant to land degradation in the Sertão includes documents produced by government agencies, professional organizations, research centers, universities, public institutions, special interest groups, and associations and societies whose goal is to disseminate current information to a wide audience. In addition, although this grey literature cannot be found easily through conventional channels such as publishers, it is frequently original, highly relevant and usually recent. Where directly relevant academically vetted literature was available to support the preparation analysis, this has been used, but the team has tried to build upon the most relevant study and research results from all possible sources and in all formats.

3. Comment: I challenged the project to demonstrate that it understands the distinctions between the issues it addresses and desertification narrowly defined, and to recognize the huge critique of the UN's use of this term.



Sufficient changes in the word desertification to “land degradation” and a sentence or two noting that the fundamental issue in the area is arid land degradation indicate that some of the proposal’s authors understand the issues at play here.

(Note to officials. I am not attempting to be petty. The UN undertook the desertification convention on legitimate grounds; legitimacy and best science, however, don’t always coincide.)

*Response by the project team:* Point is taken and the document has been adjusted (most changes are in Section I.A, para. 3).

5. Comment: The proposal is long on administrative organization and template design for development implementation (e.g., participation efforts, pan-project links), and short on the documentation of the scale-magnitude of environment degradation and of the best practice production systems that might offer some sort of win-win (lessen environmental degradation and provided improved income). This lacuna is interesting given the amount of funds expended for development projects in greater region. (see that listed under #6 below)

Small disconnects exist in the document such as the claims about degradation processes and implied links to small-holders given the proposals orientation to bring the impoverished small-holder into sustainable practices. For example, “extensive cattle” and “salinization” imply large holder ranches and upscale irrigation.

*Response by the project team:* The team is aware that there the report is short on the documentation of the scale-magnitude of environment degradation. Indeed a significant amount of information was collected during preparation, but it was not included in the proposal in view of discrepancies among data provided (in comparison with other well-referenced or known sources of information) and, in some cases, lack or insufficient reference to the source of information. This problem related to scarcity of hard data and discrepancy is stressed in the recently presented UNCCD NAP (Ministry of Environment, August 2004). To illustrate, some of the information quoted mostly in informal documents of the Ministry of Environment, which was not included in the project brief: i) Desertification studies carried out in Brazil indicate estimate that 20% of the total semi-arid Sertão land area of North-East Brazil (i.e. 197,897 km<sup>2</sup>) is already affected by desertification (at different degrees of severity), threatening directly or indirectly the livelihood of about 15 million people (i.e. 78% of the semi-arid population); An estimated 10% of the total semi-arid land area (i.e. 98,595 km<sup>2</sup>) is affected by high desertification levels; 8.3% (i.e. 81,870 Km<sup>2</sup>) is affected by very high desertification levels; iii) an estimated 30% of the irrigated land area (i.e. 180,000 ha) is affected by salinization, water erosion and soil compaction; iv) An estimate of the accompanying economic costs associated with desertification is US\$ 300 million per year.

With respect to the best practice production systems, see our response to comment 6 below and to comment 2 above, concerning grey literature and internal reports. Further, the practices listed in Table 2 of PB Appendix 8 and the related analysis on the 68 existing (mostly degrading) and potential/improved production systems (see Table 2 of PB Appendix 8) were put together by a project team member who has written more than 150 scientific publications on the theme of sustainable farming practices in the Caatinga/Sertao region. Some of these references are now quoted in PB Appendix 8.

Regarding disconnects in the document such as the claims about degradation processes and implied links to small-holders, we have addressed this in PB Section I.B; Section I.A of the document refers to major types and causes of land degradation associated with agriculture, both small- and large-scale farming. However, in Section I.B (particularly in para.16, sub-section I.B2), specific references are made to small-holder activities and implied links to land degradation.

6. Comment: Various observations are made about “known” degrading practices and “best management” practices that guide the administration of this effort. Very few concrete examples are provided however, and in some cases, apparent discrepancies exist in the rationale offered. This rephrasing of my original concern has been dealt with in some cases but not others.

[i] On page 16 we are told that those practices that generate land degradation are understood. I have no reason to believe that they are not known but few specifics are given other than a passing comment about, for example, plowing against as opposed to with the contour. Also note on page 6 (bullet 6) we are told that there is a “lack [probably insufficient rather than lack] of data and information necessary for decision-makers to incorporate sustainable land management considerations into production activities! This implies that best practices are not known.

[ii] In this same vein, the questions about salinization and elevated groundwater table have not been answered. On page 22 (appendix 8), Oliveria (1996) is cited as stating that *there is little data on the importance of salinization in the area!* I note, however, this section presents the issue in much more problematic way than does the text of proposal, indicating a serious group of researchers seeking honest answers.

Is this problem, should it prove to be important, created by small-holders—the identified subject of this proposal. Or, is it generated by medium and larger holders? If the last, will this project really address the problem?

[iii] The report is strong on identifying the general qualities of what sustainable, smallholder practices might look like across the landscape, such as those bulleted at the top of page 17. Here, however, we are told there must be wiggle room for quasi-subsistence producers (fine), although how does this mesh with statements elsewhere about increasing market presence? We are told that risks must be reduced with nary a word about how the mere increase in participation in the market increases risk while increasing opportunity for increased income. And, what does it mean to give “value” to existing production? I assume this means “creating” product markets that don’t currently exist or are very thin.

[iv] Permit me a specific example of non-specificity. In another well known development effort beyond Brazil, much attention has been given to subsidizing the use of nescafe (a ground cover legume) as a best practice known to enhance local production. In reality, not one wit of real evidence exists to demonstrate that nescafe use, over the long haul, is superior to any other crop combination for sustained cultivation and reduced environmental impacts. Similarly, it is difficult to assess the claim on page 22, citing an internal document, that known (but non-specified) land practices increase profitability. I did search the web page address given as back up material, but it provided nothing by way of analysis on sisal and nothing on the fruits (or the other 44 spp.). On page 22 of the annex, references are provided (although I do not have access to them). They seem to demonstrate that there is hope of markets for the species in question. One wonders, however, if a market exist, why is it apparently so thin? Competition from other areas?

[v] I find the idea about organic production interesting, potentially offering a market niche. Again, no details are provided, however. The appendix adds a few additional sentences, but nothing in detail.

[vi] On page 27 (middle), real-world objectives are given: environmentally friendly practices that “yield greater returns per hectare” and once adopted will continue to be used because they are more profitable. This is precisely the correct metric to be used. Can a skeptic, however, be persuaded that such systems, and that they can be identified and implemented successfully over the long term? My argument

throughout is that a reviewer would be far more comfortable answering in the affirmative if recall to establish examples (peer-reviewed outlets) were provided as support.

It is also noteworthy that the document avoids the issue of winner and losers in the development of any such agenda. Again, I could provide a list of projects and areas that have been successful (e.g., Machakos, Kenya) in the sense that highly degraded landscapes have been brought under reasonable control by most any environmental metric (e.g., enhanced NDVI, lessened runoff, etc). More so, many farm households have experienced increased income and stability. But also, many former farm households have ceased to exist. That is: more benign use of the environment and increased well being of people required that many people cease to use the land directly. I suspect this will be the case for true sustainable development in northeastern Brazil.

[vii] Little information is given on what can be done for watershed protection. Indeed, on page 22 of annex the wording is: “The watershed protection services which are *likely* to be ...”. This implies that, in fact, no research has yet to pinpoint the watershed linkages or prioritized them. Importantly, I suspect that such services will require landscape level answers as much as individual farmer’s decisions.

Summarizing comment #6: My comments about the paucity of specific information remain applicable, although some information has been added. Given the amount of work in northeast Brazil and related development and environmental programs so well documented in this document and linked to by the proposed project, it is surprising that more cannot be said about the specific land practices causing “degradation” (as in the case of the increasing frequency of cut-burn of same plot) and the “sustainability” of alternatives. Does degradation rest primarily with the increasing frequency of cultivation for subsistence absent correct inputs? If so, what alternatives exist that, given the relatively low labor and capital inputs to this system, will yield as much staple or commercial products? Why don’t we know more about the actual land practice causes and solutions? This is the single largest concern I have.

*Response by the project team:* The team agrees with the reviewer’s comment that the reviewed draft did not contain sufficient specific information on existing degrading and potentially sustainable alternative practices. The specific practices reviewed in the preparatory analysis, including improved technologies which would be promoted by the project, are listed in Table 2, Appendix 8. Additional information summarising the key elements of the main sustainable land management practices to be promoted by the project has been included in Project Brief Section B.1: Smallholder Agriculture Profile (paras.12-14).

*Regarding organic production and production of indigenous products:* Anecdotal evidence suggests that local and regional markets for organic produce especially in urban centres are growing and that there is potential for increased supply of organic produce from the project area. Some additional information regarding existing market data and promotion programmes for organic production and indigenous products has been added to PB Appendix 4 ( para.37). However, detailed market information was not readily available at preparation stage, therefore the project plans to undertake two thorough assessment studies of the market situation and opportunities for organic and indigenous products respectively in Year 1 prior to engaging in specific training and market promotion activities. The assessment will also consider ongoing activities of other projects supporting organic production and indigenous products in the area, in order to ensure that GEF activities are complementary.

*With respect to the absence of peer reviewed literature quoted on profitability of farming practices:* Peer reviewed published information on the profitability of different degrading and improved land management practices in the project area is not readily available. It is precisely for this reason that this analysis was included in the Terms of References for the preparation report to assess the potential and best options for the development of payment mechanisms for environmental services.

*As far as watershed protection is concerned, the project team agrees with the reviewer's comment that such services require landscape level answers. It is precisely for this reason that the project aims to support selected watershed management committees in defining a watershed protection approach based upon incentives for land managers – predominantly in critical watershed areas. In watersheds where active land management covers a significant part of the watershed area, the landscape level solutions will require actions by individual land managers, for instance to increase vegetative cover to aid infiltration, control run off and reduce erosion and downstream sedimentation (the exact appropriate technologies will be site specific). Restoration of riparian vegetation will play an important role in watershed rehabilitation and the protection of aquatic biodiversity, including through the establishment of agroforestry systems in riparian zones.*

#### 7. First review comments not addressed.

[i] On sustainable practices. p.21: The proposal does not overtly recognize problems of the use of financial incentives to promote sustainable land practices. Studies elsewhere demonstrate that once these incentives are gone (e.g., direct payments or subsidies), the practice stops and that direct payments designated for one environmental issue are used in a perverse way, such as the use PROCAMPO monies in Yucatán designated for agricultural intensification on extant lands for deforestation and investment in pasture.

Klepeis, P. and C. Vance (2003). "Neoliberal Policy and Deforestation in Southeastern Mexico: An Assessment of the PROCAMPO Program." *Economic Geography* 79(3): 221–240.

Response of the project team: *The project team is aware that there are examples where the discontinuation of incentive payments has led also to a discontinuation of the incentivised practice. However, this critically depends upon whether the practice adopted, once barriers of adoption are overcome, is more or less profitable and acceptable to the farmer than other practices. The preparation report on the design of the economic incentive programme highlighted that most improved practices will be at least as or more profitable to farmers in the medium to long run. In that case the danger of reversal to "old habits" is greatly reduced. Positive experiences with short term incentives leading to long term adoption can be quoted from the Southern Brazilian No-Till programmes (for example World Bank loan in Santa Catarina), where one-off per hectare payments for adoption of no-till practices have led to continued and growing adoption of these technologies.*

[ii] p. 22 and elsewhere. I applaud attempts to pay farmers for the ecological services that they yield (in this case, water protection), but what do we really know about the willingness of the state to support this or the pros-cons of the practice. What lessons have been learned from, for example, G. Daily's book on payment for these services.

Response of the project team: *As for the state willingness to support such payments for environmental services schemes, the Brazilian government is committed to introducing such approaches, for example through the national PROAMBIENTE programme, as well as through the "Produtor de Água" programme started by the National Water Agency (ANA), which will provide incentives for rural producers who increase water infiltration and/or reduce downstream sedimentation and water turbidity. As in the case of PROAMBIENTE, the services will be certified by a third party institution and the programme costs are expected to be shared with the State governments, water utilities and producers.*

#### Other issues

The document remains oddly phrased in parts which I cannot document in detail here. As an example on page 4 (bottom): "... the small-holder farmers recognize they have difficulty in changing acquired

habitats.” This phrasing implies that practice is path-dependent in the sense that agents are reluctant to change what they have done in the past, even in the face new knowledge. While history does matter, I think the proposal intends to say that “the conditions in which small-holders operate make it difficult for them to consider alternatives.” Again on page 4 top we are told that “periodic” slash-and-burn is creating of problems of subdividing plots and so on. I think the proposal means that there is an “increase frequency” in slashing and burning owing to land pressures. Again on page 5 near the top: “New production systems ...have proven to be less aggressive to the environment”? I think the meaning is “more benign” or “less damaging.”

Minor comment: The implications of the evapo-transpiration figures would be improved with basic annual precipitation information or the number of months in which potential evapo-transpiration exceeds precipitation.

*Response of the project team: Points are taken. The project team has tried to address these in the text.*

**Final comment.** I reiterate that the overall objectives of this proposal are well developed as is the design-architecture of the program to be followed. Clearly much work and clear thinking has gone into its development. My comments are intended to drive home the missing details that, if provided, would make the case a smashing one.

## **B) RESPONSE TO GEF SECRETARIAT COMMENTS AT PIPELINE ENTRY**

### **1. Country Ownership**

#### **Country Driveness:**

Expected at work program inclusion: It has to be described how the proposed project responds to the priorities in the identified government frameworks.

*Response by the project team: Relevant priority programs, projects, policies and plans were identified and information provided in Section I.C of the Project Brief.*

### **2. Program and Policy Conformity**

#### **Program Designation and Conformity:**

Expected at work program inclusion: It has to be explained how this project fits the SP1 and 2 of the Land Degradation FA.

*Response by the project team: This is described in the Executive Summary, Section 3.C (also in Section VII.A of the Project Brief).*

#### **Project design:**

Expected at work program inclusion: It has to be presented how this design was discussed and agreed on with the WB and UNDP. The IFAD proposal has to show complementarity to the UNDP project in implementation and WB project in preparation. Both projects target the Caatinga Biome.

*Response by the project team: Through a series of electronic mails, working meetings and discussions agreements were made with the Local Teams of both projects (i.e. Preparation Team of the WB Project and PMU of UNDP Project) during preparation of this proposal, in order to ensure complementarity. These are summarised in Section 4.B of the Executive Summary (also in Section IX.B of the Project Brief). Minutes of meetings, aide memoires and original copy of agreements are available in the Project file. In*

addition, Tables 2 and 3 of Project Brief's Appendix 9 (Documents in the Project File and Record of Consultations and Agreements) includes a list of points included in the first set of agreements with these projects [including participation in the project steering committees – for this, see also PB Section VII.D (Stakeholder Involvement, para.152) and Figure 2 of PB Section IX.C (Project Management Structure, page41)]. Collaboration among the teams is expected to continue before appraisal and during implementation, in order to fine-tune the points agreed so far and discuss additional points that may arise during future meetings. Communications and meetings with the WB Task Manager and UNDP Staff responsible for their Project in Brazil are also documented in the project file (and referred in Table 1 of Project Brief's Appendix 9).

**Sustainability:**

Expected at work program inclusion: Concrete measures should be defined how to ensure the sustainability of the project impact after completion. This includes the financial sustainability.

*Response by the project team:* Please see: Section 3.B of the Executive Summary; Section VIII.B of the Project Brief (paras. 132-138); Project Brief's Appendix 8 (Background and Additional Considerations for the Establishment of Payments for Environmental Services Schemes in the Project Area) and response to STAP Reviewer Comments # 6 and 7[i] .

**Replicability:**

Expected at work program inclusion: The project had to develop a replication strategy for the best practices to be developed during the project. Means of and tools for the dissemination have to be identified.

*Response by the project team:* Please see Section 3.C of this Executive Summary (and Section VII.C of the Project Brief, paras.139-144)).

**Stakeholder Involvement:**

Expected at work program inclusion: A stakeholder involvement plan for the project implementation has to be presented. Information on stakeholder consultations has to be presented.

*Response by the project team:* Information has been provided in the Project Brief and Executive Summary on how the identified stakeholder groups have been engaged in the project preparation, and how their participation is foreseen at all levels during project implementation. Please see: Sections 3.D (Stakeholder Involvement) and 4.C (Implementation Arrangements) of this Executive Summary; Sections VII.D (Stakeholder Involvement) and IX.C (Project Management and Implementation Arrangements) of the Project Brief; and Project Brief's Appendix 9 (Documents in the Project File and Record of Consultations and Agreements).

**Monitoring and Evaluation:**

Expected at work program inclusion: A M&E system based on the logical framework has to be presented. Impact indicators have to be identified at goal/objective and outcome level. Indicators have to track the impact on people's livelihoods and the structure and integrity of the ecosystem; Risks identified have to be monitored and the project has to have a risk management strategy (e.g. regarding droughts)

*Response by the project team:* For information on the proposed project M&E system based on the logical framework, please see Section 3.e and Annex B of this Executive Summary (and Section VII.E of the Project Brief). For more detailed information, see description of Component 3(on M&E) in Project Brief's Appendix 4. Regarding risk management, please see potential risks and mitigations measures in Section V.B. (Assumptions and Risks, pages 26-28) of the Project Brief (see also Section I.B of this Executive Summary). With respect to a strategy regarding droughts, the team would like to express that

*the whole project has been designed to cope with droughts, adopting an approach for managing environmental aspects of droughts within the context of a broader integrated framework for coping with a semi-arid climate. This framework involves some central themes: i) reversing the process of land degradation, as it affects water availability for productive activities (to be measured through project Component3); ii) re-planning the agro-economic spaces (project Subcomponent 1.2); iii) change in land use to adopt appropriate practices and technologies (project Components 1 and 2); and iv) market development for products obtained from resilient native species (project Component 2, with support from and complementary to the PDHC Component on Marketing Development). Promotion of coping strategies is not an innovation of the project, as this is recognized by the majority of the government (e.g. <http://www.ana.gov.br/gestaoRecHidricos/UsosMultiplos/seca2.asp>) and non-government organizations throughout the semi-arid Sertão to be the most appropriate approach to address droughts.*

### **C) RESPONSE TO GEF SECRETARIAT COMMENTS AT WORK PROGRAM INCLUSION (Review Sheet of September 20, 2004)**

The project team held a bilateral project review meeting with GEFSEC. During the meeting, all the points raised in the Secretariat Concept Agreement Review Sheet were clarified (each comment and the team's response to it is presented below). This Executive Summary and new Project Brief respond to those comments.

#### **1. Country Ownership**

No comments.

#### **2. Program and Policy Conformity**

##### **Project design:**

GEFSEC Comment: The project is well designed. The defined components and subcomponents address well the identified barriers to SLM. Innovative financial mechanisms will be piloted such as the PES. There are, however, some issues that are of concern and need to be addressed:

1.-Timeframe. Currently, the project will be implemented in period of 5 years. Based on experience from other initiatives in dryland areas, these efforts need a realistic time frame (7-10 years). It would be useful to briefly discuss the timeframe also in the context of measurable impacts.

2.-Global Environmental Benefits/Indicators. The proposal seems to struggle with the clear definition of the GEB of this project that will be tracked through appropriate impact indicators. In the logframe the indicator at objective level says: "functional integrity of the Caatinga agro-ecosystems across 20000 ha is ensured". This is an outcome and not an indicator.

The project rational, second para, defines appropriately main environmental services provided. It is recommended to formulate indicators at objective level around these services to maintain coherence in the presentation and to give a solid basis for the global environmental benefits.

3.-National benefits. It is recommended to add a paragraph on the expected national/local benefits of this project - currently, there is only a paragraph on global benefits. In projects under OP 15, great importance is also given to the national/local benefits although (GEF will not provide funding for them).

Response by the project team:

1. *Timeframe: the implementation period has been changed to 6 years (see revised financing plan by year, Annex 5 of Project Brief), with ex-post evaluation to be undertaken eventually in the 7<sup>th</sup> year. The team proposes 6 years (and not more) due to two facts: i) two years of implementation of the associated IFAD loan (PDHC) has created an enabling environment in terms of institutional and organizational structure and community participation to support the GEF intervention. The team believes that this has saved at least one year of GEF project implementation; and ii) experience with NRM projects in Brazil involving transition to more sustainable land use practices has shown that the timeframe needed to measure impacts is 5-7 years.*

2. *Global Environmental Benefits/Indicators:*

*New indicators for Global Environmental Benefits (associated with the outcome “functional integrity of the Caatinga agro-ecosystems across 20000 ha is ensured”) have been added to the logframe (at objective level). They are:*

❖ *By PY6, functional and structural integrity of the Caatinga agro-ecosystems ensured across 20,000 ha, thereby reversing land degradation, enhancing soil structure stability, conserving biodiversity and increasing carbon sequestration, as measured by:*

- Reduction of at least 10% in sediment concentration downstream plots where sustainable land management options have been adopted*
- 10% increase in Caatinga plant species diversity in land management systems (including rangeland/pasture management, agroforestry, agrosilvopastoral and annual crop systems)*
- Additional carbon sequestered on project demonstration sites (tons of carbon/area/year) as a result of adoption of sustainable land management practices (incremental amount of carbon to be estimated in PY1, after completion of baseline studies)*

❖ *By PY5 the establishment or strengthening of commodity market-based incentives for sustainable agricultural production, as measured by a 10% increase in the number of market outlets for native and organic products.*

*The above quantitative indicator for reduction in sediment load is a conservative estimate which could be revised upwards after project year one when more detailed technical information is available. In the case of the specific quantitative measure for the indicators on carbon and wild biodiversity (Caatinga plant species diversity), the technical studies to be carried out in the first year in the context of the FISP Ecológico will provide better information to ensure that the quantitative target is ambitious but remains feasible. If a quantitative measure has to be indicated for these two indicators before the project becomes effective, the team would aim to provide an estimate by appraisal, which may have to be revised at Mid Term Review in line with the results of the technical studies and implementation experience.*

3. *National benefits. A paragraph on the expected national/local benefits has been added at the Executive Summary’s project rationale section (and at Project Brief, para. 89).*

**Monitoring and Evaluation:**

GEFSEC Comment: The logframe is well developed and follows a clear logic. A budget is allocated to M&E activities. As already mentioned, however, work is needed on the indicators for the GEB. See also comments under project design. Information is also needed on the status of the collection of baseline data



and information. This data and information will be necessary to monitor progress during project implementation.

*Response by the project team:* For the response to the point on indicators for the GEB, see the team's response to the previous comment on Global Environmental Benefits/Indicators. Regarding to the needed on the status of the collection of baseline data, the loan is currently conducting studies which are going to be used as part of the baseline information. It is basically on socio-economic data. Preliminary information on agro-biodiversity markets (particularly for native fruits) has also been collected during PDF B phase. The remaining baseline information will be undertaken during PY1. In addition, the M&E report prepared by the national consultant includes the methodology agreed with the Government for conducting baseline studies. This includes major features of the baseline plan to be completed after an inception Workshop scheduled for the first semester of project implementation. A para. on this has been added at the Executive Summary M&E section.

### **3. Financing**

#### **Financing Plan**

The proposed financing plan differs significantly from the proposed plan at concept/PDF-B stage. This discrepancy needs a satisfactory explanation. Now, the budget is US\$15.469mio (initial plan: US\$56.55) of which US\$5.943 mio will be requested from the GEF (initially US\$6mio). The GoB and IFAD will provide contributions in the amounts of US\$4.3mio and US\$4.7mio respectively. Other cofinancing entities will be FAO, the GM and the beneficiaries.

*Response by the project team:* This discrepancy/difference is attributable to the team's attempt to reconcile the original estimates with the new GEF Guidelines (GEF working document GEF/C.20/6/Rev.1 on Co-financing) on identification and consistent reporting of co-financing for baseline activities. Subsequent to the issuing of the guidelines (and following its clear definition of "associated financing"), we realized that US\$ 41.56 mio out of the original US\$ 56.55 mio included the "associated financing" for activities of the IFAD-supported project (with 50% contribution from IFAD loan and 50% from GOB counterpart for the loan) that are related to the GEF project but are not essential for the project's successful implementation. The project preparation team took care in identifying, negotiating and confirming levels of co-finance consistent with the aforementioned co-financing guidelines. This is reflected in the calculations of US \$-based co-financing for baseline activities (i.e., the IFAD loan/PDHC project), which totals US\$ 8.44 mio (US\$ 4.74 mio from IFAD and US\$ 3.70 million from GOB, the latter as counterpart to the loan for undertaking these activities). This amount was limited to financing specific activities only directly relevant to achieving GEF objectives. This in turn led to a further reduction in co-financing to US\$ 9.226 million, including US\$ 4.74 from IFAD, US\$ 4.34 mio from GOB, and US\$ 0.14 from other entities (GM, FAO, Beneficiaries). After following this conservative strategy, estimates still result in a co-financing ratio of 1 : 2.5. This point has been made more explicit in the document (further information on the aforementioned US\$ 41.56 million of "associated financing" has been provided in: i) the financing plan (page 1) and Section 3 (footnote of table of financial modality) of the Executive Summary (and cover page of Project Brief).