



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: FULL-SCALE

TYPE OF TRUST FUND: GEF

PART I: PROJECT IDENTIFICATION

Project Title:	Sustainable land use management in the semi-arid region of North-east Brazil (Sergipe)		
Country:	Brazil	GEF Project ID:	
GEF Agency:	UNDP	GEF Agency Project ID:	3066
Other Executing Partner:	Secretary for Extraction and Sustainable Rural Development Ministry of Environment and State Secretary of Environment and Water Resources (SEMARH)	Submission Date:	17th January, 2013
GEF Focal Area:	Land Degradation	Project Duration (Months)	48
Parent program	NA	Agency Fee (\$):	362,443

A. FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	GEF (\$)	Co-finance \$
LD 1: Maintain or improve flow of agro-ecosystem services to sustaining the livelihoods of local communities	Outcome 1.2: Improved agricultural management. Outcome 1.3 Sustained flow of services in agro-ecosystems	1.2. Types of innovative SL/WM practices introduced at field level (70,000 ha) 1.3 Suitable SL/WM interventions to increase vegetative cover in agro-ecosystems (70,000 ha)	GEF	1,381,191	10,505,575
LD 3 LD-Reduce pressures on natural resources from competing land uses in the wider landscape	Outcome 3.1: Enhanced cross-sectoral enabling environment for integrated landscape management Outcome 3.2: Integrated landscape management adopted by local communities. Outcome 3.3: Increased investments in integrated landscape management	1. Integrated land management plans developed and implemented 2. INRM tools and methodologies developed and tested 3. Appropriate actions to diversify financial resource base 4. Information on INRM technologies and good practice guidelines disseminated	GEF	2,252,326	5,601,865
Sub-total				3,633,517	16,107,440
Project Management Costs				181,675	847,760
Total Project Costs				3,815,192	16,955,200

B. PROJECT FRAMEWORK:

Project Objective: Strengthening SLM frameworks to combat land degradation processes in the semi-arid region of Sergipe State in the NE of Brazil					
Project Component	Grant Type	Expected Outcomes	Expected Outputs	GEF (\$)	Co-Finance (\$)
Governance framework strengthened to avoid, reduce and revert land degradation in the State of Sergipe.	TA	Strengthened governance framework contributes to reducing land degradation over the 10,982 km ² of Sergipe state territory susceptible to desertification-ASD- (as per PAE-SE) and as measured by : - agricultural practices of small-scale farmers incorporate SLM practices appropriate to degree of desertification risk - commercial irrigation does not expand into LD hotspots - increased efficiencies in environmental licensing as measured by reduced time for emitting permits and	1.1 Sergipe State-level policy and planning framework supports integrated SLM in its ASD (49.81% area) <ul style="list-style-type: none"> State Program for Combating Desertification PAE-SE) expanded and updated (e.g., completed baseline LD measurements; detailed procedures & institutional and sector roles for implementation; estimated funding needs). State level land-use planning, and sector programs incorporate the PAE-SE priorities and appropriate SLM practices. Cross-sector and inter-institutional mechanisms at state and municipal levels facilitate integrated land use planning, institutional coordination and incorporation of SLM practices in baseline investment in the state ASD (includes the consolidation of State Commission for Combatting Desertification and mechanisms that link state pluri-annual planning and budget allocation to priorities of PAE-SE). 	1,634,628	4,582,800

		<p>increased % compliance with SLM improved standards defined by State</p> <ul style="list-style-type: none"> - % compliance with rural licensing processes post 2014 - Up to 50% of annual planning and budgetary processes involving ASD areas include links across 3 sectors (agriculture; water and forestry) and make specific reference to State PAN (PAE-SE) - Increased in capacity of SEMARH and key municipalities in Alto Sertao as measured by a capacity index <p>This results in reduced deforestation LD as measured by</p> <ul style="list-style-type: none"> • No net loss of forest in forest patches > 500 ha • Legal reserves and uptake of SLM practices improve connectivity in forest patches <smaller than 50 ha • Water deficiency index improves at least 5 % (to be confirmed in PPG) • No negative change in land degradation status in ASD 	<p>1.2. State land-use permitting (licensing) processes incorporate adequate protection to LD hotspots. This will be achieved through institutional strengthening of the State OEMA-SEMARH and where relevant municipalities for both agriculture and livestock initiatives that require type 1 licenses and forest management activities that require type 2 licenses.</p> <ul style="list-style-type: none"> • EIA/RIMA procedures for larger works such as dams and roads with specific guidelines developed for LD hotspots and ASD. <p>1.3 Land-use enforcement improved for SLM implementation in LD hotspots.</p> <ul style="list-style-type: none"> • Training program for SEMARH and IBAMA officers for land use oversight processes • LD monitoring and evaluation system consolidated and linked to the implementation of the Environmental Regularization Program with a fully operational Rural Environmental Cadaster (CAR) that enables identification of LD areas and oversight of effective SLM practices for reverting LD in these areas. • Strengthening of municipal governments for enforcement of environmental licensing in LD hotspots within the Alto Sertão <p>1.4 Supportive national-level governance framework increases adoption of SLM in Sergipe & facilitates replication in NE:</p> <ul style="list-style-type: none"> • Procedures for the issuance of permits under federal domain (IBAMA) are revised to incorporate SLM criteria and practices • Norms and technical directives to prevent, reduce and mitigate LD for Caatinga ecosystems and degradation levels in NE region are developed through the National Commission for Combating Desertification & National Environment Council CONAMA • Semi-arid SLM/SFM knowledge management and information dissemination system incorporates practices from Sergipe 		
Uptake of SLM practices increased in Sergipe's priority Areas Susceptible to Desertification (ASD)	TA & Inv	<p>Strengthened extension services, availability of best practice models and financing increases SLM adoption in Sergipe and reduces land degradation in the Alto Sertão as measured by:</p> <ul style="list-style-type: none"> - Increase in % of SLM guidance delivered in extension services - Land degradation index in Alto Sertão stays stable or improves for the majority of municipalities - At least 7,000 farming households in Territory of Alto Sertão (c.10%) adopt sustainable agricultural practices, 	<p>2.1 SLM best practices implemented the Alto Sertão (7 municipalities) provides guidance for permit process & controls LD processes</p> <ul style="list-style-type: none"> • In areas of moderate LD : Soil erosion control techniques (e.g., dry farming, mulching, zero tillage, diversification of crops, improved livestock and range control including control of pests for livestock and pasture management); • In areas of accentuated soil LD, reduction of soil salinization from irrigation with water management practices (e.g., water harvesting, drip irrigation); • In areas of severe LD, restoration of legal reserves and alternative production (e.g., honey production) <p>2.2 State extension services incorporate SLM directives to desertification risk areas and deliver targeted support to the Alto Sertão</p> <ul style="list-style-type: none"> • Training programs provided on SLM practices for sustainable subsistence and commercial agriculture, irrigation projects, livestock rearing and SFM. Development of rural extension plan for Sergipe to promote joint action on SLM by MDS, MDA with the IFAD Dom Tavora project 	1,998,889	11,524,640

	<p>improved grazing systems and integrated SLM/ SFM practices</p> <ul style="list-style-type: none"> - Increased investments in SLM practices in Sergipe (baseline and targets to be established during PPG phase) 	<p>2.3. State-level access to diverse funds improved for uptake of SLM in ASDs</p> <ul style="list-style-type: none"> • State level finance facility established to assist deal flows for SLM • Training of civil society and smallholder farmer leaders for project proposal formulation for SLM activities and to public officers to strengthen project review skills • Coordination with regional and state-level banks to facilitate credit for SLM to civil society organizations and local associations <p>2.4. National-level framework for financing SLM increases adoption of SLM in Sergipe</p> <ul style="list-style-type: none"> • Ministry of Environment (MMA) Department to Combat Desertification promotes budgetary integration with Min. Social Development and other relevant agencies, to channel resources to LD hotspots for SLM activities • BNDES Bank expands Climate Fund reimbursable funding to SLM Sergipe ASD 		
Sub-total			3,633,517	16,107,440
Project management Cost:			181,675	847,760
Total project costs			3,815,192	16,955,200

A. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Co-financing for baseline project	Name of Co-financier	Type of Co-financing	Amount (\$)
State Government	Multiple State agencies and sector programs through <i>Sergipe mais justo</i> (eg SEMARH; SEAGRI; SEPLAG; SEINFRA)	Grant	13,245,565
State Government	SEMARH	In kind	697,135
National Government	Ministry of the Environment (National Environment Fund - FNMA/ Climate Fund)	Grant	2,434,375
National Government	Ministry of the Environment	In kind	128,125
Non-Governmental Organization (NGO)	Articulação do Semi-Árido (ASA)	In Kind	100,000
Non-Governmental Organization (NGO)	Articulação do Semi-Árido (ASA)	Grant	100,000
GEF Agency	UNDP	Grant	250,000
Total co-financing			16,955,200

B. GEF/LDCF/SCCF/NPIF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY

GEF Agency	Trust Fund	Focal area	Country name/Global	Grant amount (a)	Agency Fee (b)	Total c=a+b
UNDP	GEF-TF	LD	Brazil	3,815,192	362,443	4,177,635
Total GEF Resources						4,177,635

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1. THE GEF FOCAL AREA STRATEGIES:

1. This project will address land degradation (LD) in the state of the Sergipe in the Brazilian Northeast (NE) and will contribute to GEF LD objectives L1 and L3. It is designed to optimize and coordinate baseline programs to engender a shift from unsustainable to sustainable land management, arresting land degradation in a state where c49% of land is susceptible to desertification and only 13% the original Caatinga vegetation remains. It will do so by strengthening the state environmental governance framework to better addresses the main drivers of land degradation and desertification focusing primarily on the escalating conflict of land uses and unsustainable agriculture practices in degraded agro-ecological landscapes where LD is already high causing soil erosion, soil nutrient depletion, damaging

hydrological system integrity and undermining ecosystems services. Key elements will be strengthened land use planning; environmental permitting and enforcement of land use to avoid, reduce and mitigate LD in areas susceptible to desertification (ASD). Through strengthened institutional and farmer capacities and facilitation of access to existing funding sources, uptake of SLM practices will be increased principally in the area of highest LD in the state – the Alto Sertão. This has been identified as a state priority and constitutes a Citizen Territory – an area targeted nationally in a program to reduce hunger. By reducing LD and maintaining vital ecosystem services the project will improve the livelihoods in an area with high poverty and social hardship indices, particularly among smallholder farmers and those in agrarian reform settlements. Strategic action at the national level through the Ministry of Environment, Secretary of Extraction and Sustainable Rural Development–Department to Combat Desertification and Land Degradation (MMA/DCD) and the National Commission for Combatting Desertification (NCCD), will enable this State SLM governance model to be disseminated to other states of the NE thereby facilitating replication across the entire Brazilian semi-arid region and evoking further GEB in the long term.

A.2. NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS:

2. The project will help Brazil to meet its commitments to the United Nations Convention to Combat Desertification (UNCCD), ratified in 1997. The project advances the strategic objectives of the UNCCD 10-year strategic plan namely: 1) To improve the living conditions of affected populations; 2) To improve the condition of affected ecosystems; 3) To generate global benefits through effective implementation of the UNCCD. It addresses all five operational objectives of the 10-year UNCCD Strategic Plan: 1) Advocacy, awareness raising and education; 2) Policy framework; 3) Science, technology and knowledge; 4) Capacity-building; and 5) Financing and technology transfer.

3. The National Action Plan to Combat Desertification and Mitigate the Effects of Drought (2004), known as PAN-Brasil, has four objectives: i) Fighting poverty and social inequalities; ii) Enhancing sustainable production capacities; iii) Preservation, conservation and sustainable management of natural resources, and; iv) Institutional strengthening and democratic governance. The project will help to achieve these objectives through its focus on promoting sustainable production in areas of high poverty; reducing LD and contributing to the conservation of the remaining forest in Sergipe; and significant institutional strengthening in permitting, enforcement and extension. Furthermore it will facilitate the implementation of the PAE-SE- State Action Plan to Combat Desertification (2011) contributing directly to four of the Plan's five objectives, including reducing poverty and decreasing the rural exodus; ensuring food security and nutrition by promoting sustainable production; guaranteeing conservation, preservation and sustainable use of biodiversity; and developing mechanisms to ensure that policies, programs and projects to combat desertification are being implemented effectively. The Plan establishes priority actions, some of which are covered by existing sectoral programs but these require tailoring and coordination to optimize their role in SLM. Other key actions are not covered by ongoing or planned programs, and these – together with developing the coordination mechanisms and procedures for guiding sector programs to combat desertification, represent the entry point for the GEF project. The PAE-SE identifies the Alto Sertão as its priority, an area defined for priority action through Brazil's Zero Hunger program and the focus of many of this project's components.

4. The project also advances a number of broader national and state-level strategies and plans. Amongst these is “Brasil sem Miséria” (Brazil without Misery), a national public plan to eradicate extreme poverty, which has a substantial focus on the semi-arid region of the Brazilian NE, where 85% of the country's poor live. The GEF project will mainstream SLM considerations in the programs funded by this plan and channel resources to Sergipe for actions to reduce LD. The project is also in line with National Policy on Climate Change, which highlights the need to reduce LD and deforestation from agriculture and other forms of land use to mitigate climate change. The project will help implement the Policy's action plans for arresting and controlling deforestation in the Caatinga and Cerrado biomes by promoting the conservation of Sergipe's remaining forest through strengthened enforcement of legal reserves and permanent protection areas and promotion of forest restoration, where feasible. These actions will also contribute to advancing Sergipe's Forest Program that was elaborated through the completed MMA UNDP GEF Caatinga project. This outlines a program to recover and conserve the vegetation of Sergipe over the next 25 years, which sets out the theoretical base for the State Forest Policy.

B. PROJECT OVERVIEW

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

4. **Context:** Brazil is the largest country in South America with an area of 8.5 million km² and a population of 200 million inhabitants. A variety of landscapes are present, including coastal mountain ranges, highlands, semi-arid region and the Amazon plains, which are located in the country's six biomes: the Atlantic, the Amazon, Cerrado, Caatinga, Pantanal, and Campos Sulinos biomes. Brazil contains semi-arid and dry sub-humid areas, according to the

UNCCD classification, both of which are considered Areas Susceptible to Desertification (ASD). These ASD occupy an area of 1.34 million km² and sustain 17% of Brazil's population over 11 federal states, nine in the Northeast and two in the Southeast region. ASD are defined based on three criteria: annual precipitation under 800mm; an aridity index of 0.5 or lower (based on the balance between rainfall and evapotranspiration) and a drought risk index higher than 60%. The ASD can be subdivided into the semi-arid area (63% of the land area of the NE region with 64% of the population) and the dry sub-humid area (37% of the NE region's land with 36% of the population). As a result of LD, ASD had lost 41% of their natural vegetation by 2002 and an estimated additional 3% between 2002 and 2008. In many areas of the ASD, soil losses are estimated at between 11 and 15 t/ha/year on degraded land without vegetation cover. This is leading to increasing nutrient and water losses over large land extensions.

5. **Land degradation in Sergipe:** This project is focused on the state of Sergipe, with an area of 21,900 km², which displays many of the issues facing Brazil's other ASD. The state is composed of a semi-arid strip with high risk of desertification and acute land degradation problems; a central strip running along the north to south axis of the State which contains sub-humid dry areas at risk of desertification processes and with moderate levels of land degradation; and a narrow coastal strip with no desertification risk. A total of 49% of its land area, covering 48 of the 70 state municipalities, is classified as being susceptible to desertification (i.e., ASD). This is in part due to climatic and edaphic conditions. Temperatures in Sergipe range from 26 to 32° Celsius. Sergipe has erratic precipitation levels, as in much of the NE, typically below 700 mm per year and a dry season lasting seven to eight months, although there is considerable variation between years. The state has high and increasingly frequent drought incidence. Water deficits are significant with irregular and intermittent river courses. Of the six river basins present within the state, only Sergipe river, which originates in the Alto Sertão area, is entirely within the state boundaries. Sergipe falls within the lower Sao Francisco river basin and the river supplies 70% of the water for the State capital Aracaju, while also providing water for energy generation and irrigation.

6. Inland and in all of the ASD, the dominant vegetation type is the xerophytic Caatinga, found only in Brazil, interspersed with isolated small patches of Cerrado. There are three types of Caatinga: i) Shrub Caatinga, dominated by shrubs with only a few individual trees under 4 m, which is the most common Caatinga in Sergipe and in Alto Sertão. As with all Caatinga it has a herbaceous strata of grasses; ii) Caatinga shrubs and trees not exceeding 6 m with the tree crowns touching in most areas allowing for full soil cover; and iii) Arboreal Caatinga comprised primarily of individual trees with an average height of 8 m forming a closed canopy, allowing complete soil cover, with few individual shrubs. The Cerrado in Sergipe is characterized by the relatively open savanna categories of *cerrado-campo limpo* (natural pastures) and *campo sujo* (natural pastures interspersed with occasional very low scrub). As recently as 2003 17% of the Caatinga vegetation existed (Santana 2003) but a recent forest diagnosis indicates this has dropped to 13% (MMA 2010). Large forest blocks are rare; 90% of Sergipe's forest land is concentrated in 51 forest patches of a size greater than 500 ha, while the remaining 10% of the forest land is made up of small forest areas that are predominantly smaller than 50 ha.

7. Despite the broader classification of LD undertaken in the national PAN, more detailed data on land degradation in the entire state is patchy. However, vegetation cover is a clear indicator as its loss is one of the anthropic major drivers of land degradation (see paragraphs 10-14) The above figures indicate the gravity of vegetation loss and it is not surprising that land degradation levels are also high. The highest levels of LD are found in the Alto Sertão, which covers 4,908 km² over seven municipalities- six of which are classified as semi-arid and one as dry sub-humid.

Table: Land degradation in Alto Sertão Territory, Sergipe: Existing and Potential levels (under present land use)

Municipality*	Land Degradation Level*				Potential Land Degradation		
	Soil	Vegetation	Erosion	Aridity Index	Soil	Vegetation	Erosion
Canindé do São Francisco	Accentuated	Severe	Accentuated	0.30	Severe	Severe	Severe
Gararu	Accentuated	Severe	Accentuated	0.65	Accentuated	Severe	Accentuated
Nossa Senhora de Glória	Moderate	Accentuated	Moderate	0.42	Accentuated	Severe	Accentuated
Monte Alegre	Moderate	Severe	Moderate	0.54	Accentuated	Severe	Accentuated
Poço Redondo	Accentuated	Severe	Moderate	0.38	Accentuated	Severe	Accentuated
Porto da Folha	Accentuated	Severe	Accentuated	0.35	Accentuated	Severe	Accentuated

Data not available for Nossa Senhora de Lourdes. *Land degradation index: absent < slight < moderate < accentuated < severe;

Source: Panorama da Desertificação em Sergipe. <http://www.mma.gov.br>; Accessed Dec. 2010.

8. **Socio-economic issues:** The ASDs, including Sergipe, have the worst human development indices of the NE region based on indicators such as poverty, illiteracy and mortality rates. Sergipe has a population of 2,019,679 (IBGE 2009), including 1.4 million inhabitants living in absolute poverty (average household income of up to 0.5 a minimum salary), the vast majority of which are in extreme poverty with the average household income being less than 0.25 of the minimum salary. The Alto Sertão has 137,926 inhabitants, 58.61% in absolute poverty and 52% in extreme

poverty. Illiteracy rates in the semi-arid areas are high, with 36.3% of 7-14 year old children unable to read and write; 43% of 12-17 year olds and 60% of adults. The average IDF, an index used to measure levels of family development based on factors such as resource availability and living conditions, is 0.54 (compared to the level for Brazil of 0.699).

9. The economy in Sergipe is based on services (40%), public administration (24.5%), industry (31%) and agriculture (4.6%). Traditionally, subsistence farming was common with the production of crops such as cassava. Increasingly maize has become important and now represents 35% of the State's temporal crops, with increased expansion into the ASD including Alto Sertão. Livestock production is mostly concentrated on cattle raising (1 million heads state-wide in 2008), although goat and sheep production is growing fast (170,000 animals in 2008), mainly for meat, but with growing rates of milk production. A total of 55% of the population is rural (76,478) and family-based agriculture plays an important role. There are 12,833 agricultural families; 3,486 settlers, two quilombola settlements (hinterland settlements founded by people of African origin) and one indigenous territory. In 2003, an estimated 88% of the registered properties (6,720) in the Alto Sertão were mini-holdings which are classified as <70ha. These covered 34.8% of the area of rural holdings. Smallholdings (70-280 ha) represented 9% of the total number of holdings and 23% of the area; medium (280.1- 1,050 ha) represented 2.4% of the holdings and covered 24% of the area and large (>1.050.1ha) represented 0.46% of the number of holdings covering 18.1% of the area (INCRA 2003). The large areas are concentrated almost exclusively in two municipalities with irrigation projects. Sergipe is carrying out an extensive agrarian reform program to establish squatters in settlements.

10. **The main anthropic drivers of land degradation** are unsustainable agricultural practices and livestock rearing and forest degradation and loss from the harvest of trees and shrubs for fuelwood (both for domestic and industrial purposes). Removal of vegetation and subsequent land use for agriculture and livestock rearing is the most important cause that triggers the process of LD as it leaves the soil unprotected from exposure to high temperature and wind. Rain events when they do occur are often torrential and exposed soil is very vulnerable to formation of gullies, etc. Extreme soil loss following removal of vegetation has also led to the depletion of seed banks, making recovery of native plants slow. Increased use of pesticides and removal of vegetation has also resulted in the loss of pollinators, further reducing recovery times.

11. **Agriculture** of areas less than 100 ha makes up the bulk of Brazilian food production and takes up about 40% of the total production area in the semi-arid region of the NE (1.5 million rural establishments over a land area of 16.9 million ha). The main crops are cassava (87%), beans (70%), and maize (46%), cultivated in lowland depressions on deeper alluvial soils and on sloping land. This farming is mainly rainfed, with limited use of modern technology and inputs, and land is left fallow to recover soil productivity. Such farming practices are becoming increasingly unsustainable due to factors such as reduced fallow times, which do not allow the soil sufficient time to recover productivity; uncontrolled use of fire, which can cause deforestation and affect soil properties; and cultivation on unsuitable land such as steep slopes without the adoption of soil conservation techniques.

12. Larger agricultural estates produce maize, export fruits, castor beans, *jatropha*, herbaceous cotton, as well as soy beans and sugar cane for the production of biofuels, primarily in the sub-humid areas. The use of irrigation schemes for water on such estates can have negative impacts on LD when inappropriate practices are utilized. Large scale irrigation projects within the Alto Sertão is limited to projects in two municipalities with 333 farms involved covering 3,980 hectares of which 1360 ha is based on irrigation with aspersion, which requires high capital costs and uses water pumped from the Sao Francisco river. Despite the high costs of setting up aspersion irrigation, these more modern techniques lack adequate soil conservation practices. Outside the irrigation projects, there is an increase in irrigation by direct flooding of the soil. Excessive flooding of soil has caused run off channels and gullies, increased soil erosion, the collapse of stream and river beds, siltation of river courses, and reduced soil quality. Agriculture is being increasingly mechanized with tractor dragging modern ploughs replacing traditional ploughs, with little observance of contour lines, resulting in deeper furrows and increased soil erosion, compacting, and loss of infiltration capacities. This mechanization is associated with increased maize planting, reduced land preparation time, less crop rotation, and reduced soil quality. High use of herbicides, pesticides and fertilizers without proper management is also contributing to soil degradation.

13. **Animal husbandry** of cattle and goats is widespread (both small-scale and commercial) and an essential component of the region's livelihoods. There has been a recent increase in milk production using European breeds that are not as resistant to drought and harsh conditions, leading to problems with pest control and inappropriate use of chemicals. Native vegetation is typically completely removed, including stumps, for the establishment of artificial exotic pastures. These cultivated pastures are grown with excessive and inappropriate use of herbicides, leading to negative effects on soil microbiology and on animal health, soil compaction and soil erosion.

14. **Fuelwood harvesting** is widespread over the entire NE region. This is used to provide energy for industries such as gypsum and ceramics production, and for commercial and residential purposes and feeds over 30% of the energy

matrix of the region. In states where Caatinga vegetation is still extensive work undertaken by UNDP/FAO in the NE over the past 20 years has shown that SFM for fuelwood is feasible and regenerated forest can reach same volume and species composition after 15 years. However, in the case of Sergipe where forest remnants are so low this is a less attractive option and management for conservation and restoration is required. In Sergipe, there are 80 brick and tile industries using fuelwood to manufacture raw clay into bricks and tiles. As the industrial sector expands, pressures for fuelwood extraction will continue to rise, and strengthened enforcement is required to ensure extraction from remaining forest in the State is controlled. In the semi-arid areas, encroachment into existing forest reserves by peasants still occurs especially during the dry season and between harvests, when wood extraction and sale complements household income. Encroachment of legal reserves is a problem linked to weak enforcement.

15. As the economy of Sergipe grows, an increasing number of development projects (roads, dams and other infrastructure works; tourism development) are adding to the pressures being exerted on the land from the agricultural and fuelwood extraction sectors, leading to increasing land use conflicts and exacerbating LD. In the face of these multiples land uses, the management approach being adopted is fragmented and based on a sector-specific lens, rather than multi-sectorial and integrated.

16. **Land management governance:** There are three levels of government in the Federative Republic of Brazil: national; state and municipal. Every state and municipality is fully responsible for planning, executing and monitoring its expenditures. Minimal standards for land use policies are defined at the federal level but individual states have the flexibility to develop specific standards tailored to their needs. In many environmental matters, the three levels share responsibilities. As regards environmental licensing, Brazilian environmental legislation provides that environmental permits are required for the construction, installation, expansion or operation of any activity that uses environmental resources or is considered to be actually or potentially degrading/ polluting to the environment. This ranges from activities at the farm level to major public construction works. Under current law, renewable natural resources use such as agricultural projects and forest management are the responsibility of state environmental authorities (OEMAs) *a priori* except when areas are equal to or greater than 50,000 hectares; when the impacts are considered regional (two or more states); when the property or project area cover more than two states; and when a rural settlement is established by a federal agency, in which case IBAMA is responsible for the process. Municipalities with environmental units can undertake permitting processes for works that have impacts falling entirely within the municipal territory. The requirements for obtaining licenses vary, being more stringent for large companies and/or those with greater environmental impacts. Type 1 licenses are for agricultural activities that remove vegetation and Type 2 licenses for forest management. Both need to provide proof of ownership of the land and land use information, and need to define the legal reserve for forests and permanent preservation areas (APP) (areas defined according to the new Forest Code that cannot be cleared). For Type 2, in addition to these requirements, an approved forest management plan (individual or community) authorizing the extraction of forest timber production, must also be prepared. Enforcement of compliance with the permitted land use falls under the respective jurisdiction of those emitting the permit. Failure to comply with agreed conditions may trigger administrative, civil and criminal liability, subject to various penalties ranging from simple fines, indemnification and suspension.

17. **Baseline:** In line with Brazil's drive to promote sustainable socio-economic growth to reduce extreme poverty, Sergipe state has taken steps to address low HD and human development indices and is increasingly aware of the links between these and LD. Through a participatory process in 2011 the PAE-SE was developed following the same 5 thematic areas of the PAN. Within these the PAE-SE identifies c.90 actions and provides an initial mapping for funding through existing and planned sector programs that incorporate some elements needed to address LD. These and more recently planned investments constitute a baseline for the proposed project that has been estimated at a total of US\$ 121.5 million over a period of four years.

18. Of this US\$ **28.35 million** will be channeled to strengthen land use governance as follows. As part of Brazil's agrarian reform that seeks to normalize land tenure, 62 agrarian settlements have been created in Sergipe covering 59,053 hectares with approximately 3,486 families. The highest numbers are in the Poco Redonda municipality in the Alto Sertão. Land tenure regularization is vital for increasing buy-in for more SLM and for access to diverse funding sources. In the baseline this program will continue with an estimated expenditure of 2.67M. Of significance much of the remaining forest fragments are in the agrarian settlements and these need environmental licensing to enable settlers to access finance for approved land use. The state is moving forward in this process and will direct an estimated 13.24M for licensing in the agrarian reforms and other landholdings in ASDs (staff recurrent costs, actual licensing and some enforcement). However, these do not include specific guidance on SLM nor identify the different LD levels and complexities of managing conflicting land use in increasingly degraded areas where actions in one site may have negative synergies with those in surrounding areas. Given shared responsibilities in land use governance, the licensing process is complex in Brazil and requires a sophisticated system to ensure complementarity. Under the new Forest Code a national program for regularizing land (PRA) will be set up to increase compliance with environmental regulations regarding forest reserves and this also constitutes a key element of the baseline. A central tool in the PRA

for this will be the mandatory registration (CAR) of rural landholdings and settlements in an electronic database with environmental information that will help in monitoring and combating deforestation. The system will be operated by the state with equipment provided by the national level. It requires the localization and measurement of forest lands within landholdings along with their classification in terms of degradation and identification of set-asides for conservation according to the Forest Code (legal reserves; riparian forest etc.). The registry also includes time-bound commitments in terms of action to a) comply with set asides; or b) restoration of degraded areas that had been illegally cleared. Fines for past and present incompliance can be in the form of farmer paid action channeled to restoration as part of a program for environmental restoration, also part of the PRA.

19. To advance coordination of land use across different levels of governance and sectors, Sergipe has set up a Commission for implementation of the PAE-SE and is taking steps to improve integrated water and environmental permit processes. This includes the development of a program to start 2013 with state and World Bank resources. A component will involve institutional strengthening for improving water management, set up a Sergipe River Basin committee and develop a state-level EEZ. An estimated 10.36M will be invested in this and the coordination work. These present opportunities on which to build but require expanding to better include LD issues, include other priority ASD and ensure close coordination PAN-SE priorities. At the national level an estimated 2.08.1M will be spent on supporting a knowledge network for SLM in ASD that is relevant to Sergipe, and support to states in the development and early implementation of PAEs that will enable lessons exchange and offer a channel for replication.

20. An estimated **US\$ 93.15M** will be invested in the baseline in activities that offer opportunities for increasing the link between poverty reduction and combating desertification. This includes actions in the above mentioned state water program through components for developing more modern, sustainable and efficient irrigation methods for farmers to reduce pressure on scarce water resources and rehabilitation of environmental protection areas such as riparian forests degraded by years of inappropriate or nonexistent environmental management (21.87M). Through further state allocation of resources within the “*Sergipe mais justo*”, support will be provided to small farmers in sustainable use, agro-ecological practices and the provision of seeds (12.04M). This will be complemented with the recently approved Dom Tavora program, in part funded by IFAD, which will develop value chains, identify and mobilize producers’ groups, identify and formulate business plans, provide technical assistance to implement these and training on business (39.79M). It will be carried out in the poorest municipalities amongst which are XX in the ASD, however, it will focus mainly on business plans and extension and does not include specific uptake and dissemination of SLM practices or cover the seven municipalities of the Alto Sertão where desertification processes are most severe.

21. As part of this 93.15M baseline, investment will be made for SLM finance and incentives in Sergipe estimated at 17.27M. This includes insurance for harvest losses (PRONAP); and a number of national program that execute resources at the state level including the school food and food acquisition programs and other programs associated with the flagship plan *Brasil sem Miséria* that aims to increase per capita income for families under extreme poverty conditions; provide access to public services (such as water and electricity) for social well-being, and expand work opportunities and income. A substantial focus is on the NE region of Brazil, including Sergipe. The Ministries that define the goals, programs and priorities under this plan are coordinated at the national level through an inter-ministerial group set up to determine the application of resources for implementing the plan (2.015M). The resources are implemented directly by states with the participation of civil society (eg the NGO-ASA-Brazil implements the water-safety program), however, increased coordination with state priorities and resources is needed.

22. **Long term solution.** Despite this extensive baseline there is a risk that sector actions will be fragmented, will following a unisectoral vision and will not be optimized for addressing the increasing LD resulting in loss of ecosystem services and worsening of socio-economic parameters in the 49% of the state territory that contains ASD. The long-term solution to mitigating land degradation in the NE region of Brazil is to implement a multi-sectoral, landscape level management approach that takes into consideration the multiple pressures on soil and land resources from various sectors. Land uses permitting and enforcement will be based on a detailed EEZP and appropriate protection for LD hotspots. This solution will depend upon strong inter-sectoral and inter-agency cooperation, a strengthened governance framework, and increased uptake of SLM as a result of financial and human resources channeled toward the promotion of SLM and where appropriate, SFM. The achievement of this long-term solution is undermined by two main barriers.

<p>Barrier 1: Weak governance framework to promote SLM in Sergipe state</p> <p>Weak existing governance framework and structures to avoid conflicting land uses and optimize multisectoral programs are leading to an inability to control the multiple pressures on land being exerted from different sectors, such as small-scale and commercial agriculture and fuelwood extraction for domestic and industrial use. The PAE-SE provides an adequate description of existing programs and state-level priorities to reduce LD, but is lacking in detail, for example, in terms of comprehensive baseline measurements, a full delineation of institutional roles and responsibilities and procedures for sector interventions and</p>
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funding needs. This undermines its utility as a planning tool to guide decision making. Other state level programs and plans do not consistently promote SLM practices; in fact some programs originally intended for social protection have had adverse and unexpected environmental effects, such as the existence of insurance to cover harvest losses which has led to increased high-input maize cultivation that does not adhere to SLM principles.

Land use planning is critical to control land use particularly in areas at risk of desertification, however, it has not been undertaken at the scale required to control land degradation in Sergipe. A federal level Ecological and Economic Zoning Plan exists, some work is being carried out on the Sao Francisco Basin and SEMARH/World Bank will be carrying out an EEZ for Sergipe, requires specific methodologies and guidance to include the INRM and SLM lens. There are no plans to produce a detailed EEZ of the Territory of Alto Sertão, which has been identified as the LD priority in Sergipe and which is needed to better plan and oversee the permitting processes effectively. As a result, productive activities are proceeding without due regard to soil type, land degradation status and future risk, or social and economic criteria. Furthermore, coordinated inter-sectoral landscape level action is not being carried out at the state level with all key stakeholders. While the State Commission for Combatting Desertification exists it has not yet been consolidated. Furthermore, the Secretariat of Planning (SEPLAN), which is responsible for the formulation and management of the state's participatory planning, including the Pluri-year Plans (PPA) and annual budget, has not yet been brought on board vis-a-vis the need for integrated planning to reduce LD.

Institutional weaknesses within SEMARH translate into a situation in which licensing of land use changes and vegetation suppression is not based on a consideration of LD hotspots or SLM criteria nor on a broad understanding of the multiple pressures on the land. Nor is the planning of permanent protection areas and of legal reserves for type 1 licenses (agriculture and animal husbandry activities) consistently undertaken in accordance with the recently approved Forestry Code and or with LD criteria. There are also no clear directives to speed up approval of sustainable practices in different ecosystems of the Caatinga and procedures and suitable SLM practices to link with the different types of licenses are often unclear to those involved.

Enforcement of land use is also undermined by capacity limitations within SEMARH, IBAMA and municipalities and insufficient understanding of existing instruments for control and oversight. Under the new Forest Code, the Rural Environmental Cadastre needs to be implemented by 2014 but it is in the early stages and will stretch state resources for land use enforcement even further. There is an urgent need to set up state capacities so that the Cadastre can be effective and incorporate SLM principles, thereby optimizing the PRA as a tool for combating land degradation. At the national level, the procedures for the issuance of permits under the federal domain (for example, for areas larger than 50,000 ha) require tailoring to take into account SLM criteria and practices. At the municipal level, despite Brazil's policy of decentralization, which promotes the increased assumption of environmental responsibilities by municipalities, the latter are ill equipped to take on these new functions, including licensing and of oversight of activities within their boundaries.

Finally, **replication, upscaling and mainstreaming** of positive small-scale experiences of civil society organizations and others in the promotion of SLM at the project level is limited due to insufficient information dissemination, contributing to the poorly developed knowledge base on appropriate SLM practices for Sergipe.

Barrier 2: Uptake of SLM in Sergipe impeded by capacity and finance issues.

Previous individual initiatives to demonstrate SLM practices and identify best-bet land uses in different socio-economic scenarios exist such as those carried out with the UNDP GEF project in the Caatinga and recent work on goat production. However, these remain at a small scale and have not been tested on the ground in Alto Sertão.

State-level extension services which are the responsibility of EMDAGRO have insufficient technical and operational capacity to meet growing needs, and lack experience in some areas such as agro-ecological principles and rural business promotion. As a result, SLM practices receive little promotion in mainstream extension services.

Financial incentives to promote uptake of SLM are limited, both because many of the financial instruments do not specifically target SLM actions and because many stakeholders lack capacity to access existing instruments. Funds available from different agencies such as MDS and MDA are not integrated and channeled to priority LD hotspots to combat desertification. Substantial amounts of funding are available, for example through programs associated with the *Brasil Sem Miséria* plan and through the Climate Fund, but SLM criteria are not integrated into the process of accessing the funds. As such, these and other funds may be used to support projects that are not adapted to the different Caatinga ecosystems and to the levels of land degradation and that may even facilitate land conversion for unsustainable agriculture, animal husbandry and other practices. Also funding and other financial instruments that could be used for SLM activities in Sergipe are underutilized as access is complex and costly, and project proposal quality is low. This due to institutional weakness in project development and also to low project preparation capacity within civil society and farmer organizations in part to low literacy levels.

B. 2. INCREMENTAL COST REASONING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS:

23. The project objective is to strengthen SLM frameworks to combat land degradation processes in the semi-arid region of Sergipe State in the NE of Brazil. The project strategy includes two main components to directly address the barriers that undermine widespread adoption of SLM practices in the state. The first will lead to the establishment of an improved governance framework through the revision of state level plans and sector programs, effective cross-sectoral and inter-institutional coordination mechanisms in Sergipe, strengthened permitting and enforcement processes, and a supportive national-level governance framework. The second component will promote increased uptake of SLM through the implementation of best practices, strengthened state-level extension services and increased access to financing.

24. Sergipe state presents a number of opportunities for impact since it has completed its PAE- SE and has identified priority actions to reduce levels of LD. Various state baseline programs exist, which the project can influence over the project lifetime to ensure that SLM considerations are taken into account. Sergipe also has significant political will

and buy-in from SEMARH to move forward to implement this plan and to take action on SLM and on poverty reduction. The focus on one state will enable the project to have substantive on-the-ground impact and will provide a model for replication throughout the Areas Susceptible to Desertification. Such replication to other states will be encouraged through information dissemination, knowledge management and national-level project elements.

Component 1: Governance framework strengthened to avoid, reduce and revert land degradation in Sergipe state

25. In order to improve the policy and planning framework in Sergipe, the project will support the collection of detailed information lacking in the State Program for Combatting Desertification, including updated information on LD within priority semi-arid areas of the state (the Alto Sertão) and LD hotspots within the remainder ASD in the state; completed baseline LD measurements with indices and monitoring procedures to guide decision-making; final prioritization of actions identified in the PAE-SE; detailed procedures to optimize relevant sector intervention for these priority areas; clear institutional roles and responsibilities in the implementation of the PAE-SE; and lastly, detailed funding needs for PAE-SE actions and funding sources for those that are not presently covered by existing programs. This will provide the baseline information and strengthen the planning framework to support implementation of the PAE-SE. In addition, state-level land use planning and sector program will incorporate key elements from the PAE-SE and identify appropriate SLM practices for different types of Caatinga vegetation and differing degrees of land degradation. This will require collaboration with the state-level Ecological and Economic Zoning (EEZ) process, the development of a more detailed EEZ for the Alto Sertão region and specific mechanisms that link the EEZ process with the permitting process. Cross-sectoral and inter-institutional mechanisms will be strengthened to facilitate integrated land use planning by making the recently established State Commission for Combatting Desertification operational to facilitate integrated and streamlined decision making processes among different sectors and program. In addition, mechanisms to link state pluri-annual budget allocations to PAE-SE priorities will be established to put in place integrated multi-sectoral budgetary processes for LD hotspots in the ASD.

26. A significant entry point for the project to impact LD will be the strengthening of the land use permitting process to enable SEMARH and municipalities, where appropriate, to ensure that LD issues are taken into account. This will involve staff training, the definition of procedures and processes for SLM practices, and clarification of roles and responsibilities for officers involved in permitting procedures. For agricultural and livestock initiatives that require type 1 licenses, the main focus of this project, the issuance of licenses will require the incorporation of SLM practices in proposed agricultural and livestock activities, adherence to the new Forestry Code requirements regarding legal reserves and permanent protection areas, and the identification of degraded areas that require restoration. For type 2 licenses for SFM activities, the permitting process will be linked to the EEZ that defines where SFM may be appropriate and the Rural Environmental Cadastre (CAR) that shows where recovery is needed from past non-compliance with legal requirements. The project will support the development of guidelines for these areas and for restoration actions in degraded areas or compensation. As part of the permitting process, EIAs for larger works such as dams and roads will include specific guidance for LD hotspots and ASD, outlining measures for prevention of LD and, where necessary, restoration.

27. To complement the strengthened permitting system, the project will enhance land use enforcement. A training program will be carried out for officers involved in oversight processes at the state and federal levels (SEMARH and IBAMA, respectively). There will also be support to SEMARH in the implementation of the Environmental Regularization Program with a fully operational CAR; farmers need to be registered in the Cadastre and adhere to the SLM guidelines in order to access finance. This includes training of SEMARH in the Cadastre and its links to LD and SLM monitoring and oversight, as well as ensuring full access to satellite imagery and equipment via the MMA. Municipal governments will be strengthened to enforce environmental licensing for activities within their boundaries through the provision of training in licensing, SLM and the EEZ and through support for existing or new environmental units.

28. For project permits under the responsibility of IBAMA, such as those covering an area over 50,000 ha, the procedures for the issuance of permits will be revised to incorporate SLM criteria and additional norms and directives to reduce LD will be developed for different Caatinga ecosystems and degrees of degradation. This will be achieved through the National Commission to Combat Desertification. Finally, in order to support the creation of an enabling environment for replication, the project will promote knowledge management and information dissemination to target populations on best practices in SLM based on experiences in Sergipe.

Component 2: Uptake of SLM increased in Sergipe's priority Areas Susceptible to Desertification

29. SLM best practices will be showcased in the LD hotspots in the Alto Sertão, serving as a tool for extensionists and providing guidance for the permitting process under Component 1. These practices will be tailored to the level of land degradation. Soil erosion control techniques will be demonstrated in areas with moderate LD, water management practices to reduce soil salinization from irrigation for areas with accentuated LD and restoration of legal reserves and alternative production practices will be promoted in areas of severe LD, among other possible practices to be

established (see table below for details). Sites will be selected on criteria including amongst others degree and type of LD; type of vegetation; farmer interests; cofunding availability and partnerships. Priority will be given to agrarian settlements where possible.

30. In order to address the limited incorporation of SLM content in extension services, SLM directives and policies will be incorporated in the state-level extension services coordinated by EMDAGRO. Training material on appropriate SLM practices will be developed for areas with desertification risk. In addition, targeted capacity building of extensionists and farmers will be achieved through the implementation of training programs in the Alto Sertão on SLM practices for sustainable subsistence and commercial agriculture, irrigation projects, livestock rearing, and recovery/protection of legal forest reserves identified through the CAR and Environmental Recovery Program. Support will also be provided for the production of a rural extension plan for Sergipe with MDA to ensure that this gives sufficient weight to SLM issues. The focus on smallholder farmers and the development of suitable SLM-related extension content will facilitate the implementation of the recently adopted National Policy of Technical Assistance and Rural Extension, which calls for increased extension work with this target group.

31. A critical element of this component will be the provision of adequate financial incentives to promote greater uptake of SLM practices. This will require action both at the national level and the state level and will entail both ensuring that funds and financial instruments specifically target SLM actions, and that capacities to access funds are strengthened. At the state level, a finance facility will be set up to provide guidance, coordinate deal flows and enable timely access to available funds for farmers and other stakeholders interesting in carrying out SLM activities in Sergipe. The project will build local capacities to access funds in order to increase the financial resource base for SLM in Alto Sertão by providing training in project proposal formulation skills for civil society and smallholder farmers and training for public officers to strengthen their project review skills. The project will also work with regional and state-level banks to revise credit-based financial products to include funding for SLM activities. National-level financing for Sergipe ASD's will be increased by strengthening coordination between the MMA-DCC and the State Commission for Combating Desertification and by promoting budgetary integration with the Ministry of Social Development and other relevant agencies, to channel resources to LD hotspots for SLM activities and PAE priorities. These actions are expected to address the current bottlenecks that prevent full utilization of approved budgetary and other resources and to provide the needed financial resources for greater SLM adoption in Sergipe.

32. **Global Environmental Benefits:** The project will contribute to global environmental benefits primarily through reduced soil erosion, reduced risk of degradation and desertification, and increased maintenance of biodiversity. It is expected to lead 98,000 ha and 42,000ha of agricultural and pasture land under SLM practices respectively; and no net loss of forest in Sergipe's 50 forest patches of more than 500 ha (targets to be confirmed in the PPG stage).

33. The project will trigger SLM through strengthened permitting and enforcement, enhanced extension services, facilitation of access to existing sources of funding and institutional capacity building. The project strategy will lead to greater implementation of various alternate production systems, which are outlined in the following table, along with their associated benefits.

Table: Identification of benefits associated with alternative production systems promoted by project.

Current practices	Alternative production systems	Expected benefits*
Limited adoption of soil management practices (increased mechanization, failure to observe contour lines, increased monocultures, etc.)	Soil erosion control techniques: eg. dry farming, mulching, zero-tillage, hedge management and windbreakers, crop diversification, mulching systems, terracing.	Reduced soil and nutrient losses and soil compaction; higher soil moisture and increased water availability; improved soil biological/chemical quality and productivity
Excessive and inappropriate use of chemical inputs (herbicides, pesticides and fertilizers)	Biological control; adherence to requirements for chemical inputs; mulching systems; crop rotation to reduce pests; management of fallow to restore nutrients	Reduced groundwater contamination; improved soil quality; improved worker health
Irrigation (aspersion irrigation and irrigation by flooding) without appropriate water and soil management practices	Water efficient technologies (e.g., water harvesting, drip irrigation, efficient use of water runoff)	Reduced soil alkalinisation, salinization and erosion; improved soil quality; increased productivity; improved water availability; reduced siltation of river courses.
Cultivated pastures with excessive use of herbicides	Promotion of appropriate herbicide use	Improved soil microbiology, improved animal health
Introduction of less drought resistant species for animal husbandry; inappropriate pest control	Reintroduction of native breeds; promotion of appropriate pest control measures	Improved productivity (increased net primary production in pastures)

Degradation of forest due to encroachment on legal reserves for fuelwood extraction that in some case and subsequent agriculture use	Maintenance/ protection of existing legal reserves and appropriate fencing; enforcement of environmental recovery program for restoration of forests; including where appropriate licensing for alternative production, such as agroforestry systems and beekeeping for honey.	Reduced deforestation:- no net loss in forest patches of more than 500 ha; improved connectivity in forest patches <smaller than 50 ha through enforced legal reserves Reduced soil erosion ; reduced biodiversity loss
Uncontrolled burning to clear land	Prescribed burning; rehabilitation of burned lands	Improved soil structure; increased vegetation cover; biodiversity benefits

* Targets to be defined in PPG phase

B.3. SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT INCLUDING GENDER DIMENSIONS:

34. This project will provide significant socio-economic benefits to the inhabitants of Sergipe living in the ASD (which comprises c49% of the state area- numbers of beneficiaries to be confirmed during the PPG phase) with the establishment of a strengthened state-level and national governance framework and increased access to diverse funds to promote SLM. In addition, the project will work more directly and benefit at least 10% of the rural population of the Territory of Alto Sertão (c7000 farming households) as a result of the demonstration of best practices in SLM, strengthened extension services and increased capacity to access funding opportunities. The increased adoption of SLM practices will increase well-being through:

- Greater food security resulting from increased agricultural productivity, crop diversification and adoption of more sustainable agricultural practices;
- Increased water security from improved ecosystems services in river basins through land restoration/recovery
- Reduced vulnerability to climate change (e.g., extreme climatic events such as drought) with the adoption of more sustainable approaches that are adapted to changing conditions;
- Reduced economic vulnerability and increased incomes through diversified activities (including crop diversification, beekeeping, sustainable forestry management, silvopastoral activities, etc.), enlargement of markets and increased access to credit for SLM activities, which could also reduce rural-urban outmigration.

35. The project will adopt a highly participatory approach to ensure the active participation of all key stakeholders, including through the establishment of an inclusive Project Steering Committee, and the strengthening of the intersectoral State Commission for Combating Desertification. Gender issues will be taken into consideration to enable the project to address the specific challenges faced by women in the ASD of Sergipe, and to ensure that training and extension are adapted to women's needs and are carried out with adequate involvement of women.

36. **Institutional and financial sustainability:** The project emphasis on clarification of institutional roles and procedures; training on licensing, enforcement and extension; strengthening of state-level land use planning; and consolidation of inter-institutional mechanisms to facilitate integrated planning will all promote institutional sustainability. Financial sustainability will be assured through the mainstreaming of SLM into large existing baseline programs and through support for increased access to funding for SLM activities.

B.4. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS AND MEASURES THAT ADDRESS THESE RISKS:

Risk	Rating	Mitigation
With Sergipe's growing economy, increased pressures on land will overwhelm state-level permitting, oversight /enforcement capacity	Low	The development of an Ecological and Economic Zoning Plan with LD considerations included will establish the framework for permissible activities in ASD, in line with the differing levels of land degradation. Together with the strengthening of inter-sectoral mechanisms to promote coordination action, this will permit the adoption of an integrated approach to reduce land-use conflicts and manage pressures from sectors. The project will also focus on strengthening state-level permitting and enforcement capacities and environmental and social safeguards defined for land use so as to reduce LD in ASD.
Insufficient buy-in from Ministry of Social Development and other relevant agencies undermines the ability to mainstream SLM in baseline programs and to channel resources to Sergipe	Low	The Brazilian government is strongly committed to poverty reduction and has recognized the link between poverty and LD. Furthermore, the state of Sergipe is fully supportive of all proposed project elements. The specific manner in which funds will be allocated to Sergipe from large baseline programs has not yet been determined and Sergipe therefore has the opportunity to influence this process to ensure that SLM considerations are taken into account and that LD hotspots are targeted.
Impacts of climate change exacerbate land degradation and increase	Medium	Climate change is expected to lead to serious consequences in the region that are already beginning to be felt, such as longer, drier and hotter dry seasons, and more frequent and less predictable drought events. The project will identify and promote the implementation of

pressures on remaining soil and forest resources	SLM and SFM practices and species that are adapted to a changing climate and will therefore help to reduce the vulnerability of farmers to climate change. In addition, an important part of the project involves increasing learning and information exchange on semi-arid production systems, including the expected impacts of climate change on such systems and existing practices that have produced positive results in this context and could be replicated.
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B.5. STAKEHOLDERS INVOLVED IN THE PROJECT:

STAKEHOLDER	RELEVANT ROLES
State Secretary of the Environmental & Water Resources (SEMARH)	The environment regulatory agency in Sergipe in charge of oversight, licensing and control of land use changes. The project will carry out institutional strengthening of SEMARH in licensing and oversight processes.
Ministry of Environment (MMA)/ (DCD)	MMA provides the regulatory framework for environmental issues and is in charge of coordinating the work of the DCD (responsible for the implementation of PAN-Brasil) and also administers various environmental funds, such as the Climate Fund. The Project Management Unit will be installed in the central office of the Secretary of Extraction and Sustainable Rural Development.
IBAMA – Brazilian Institute for the Environment	National agency in charge of implementation of the Forest Law (oversight, licensing of land use changes). The project will support the revision of procedures for issuance of permits under the federal domain to incorporate SLM criteria and will implement a training program on oversight processes.
State Commission for Combating Desertification ¹	The State Commission is in charge of managing the effective implementation of the PAE-SE and identifying priorities for implementation, and will be consolidated through this project. The project will work with the National Commission to Combat Desertification to develop norms and technical directives to prevent, reduce and mitigate LD for different Caatinga ecosystems and degradation levels.
Ministry of Social Development and Fight Against Hunger (MDS)	The project will work closely with MDS, as the agency responsible for the implementation of the Brasil sem Miséria plan by providing the technical content to promote SLM and SFM within the associated funded programs.
Ministry of Agrarian Development (MDA)	MDA implements programs in support of land reform and regularization of land deeds. Partnership with MDA will strengthen the content of the technical agenda for land reform settlements to ensure that SLM and SFM are promoted.
Ministry of Integration (MI)	This Ministry is in charge of formulating and implementing integrated national development policy, formulating regional development plans and programs, monitoring and evaluating national development programs, and water infrastructure works. They will have a role in resource allocation to baseline projects and the project will work with them to ensure continued support and inclusion of LD concerns.
National Institute for the Semi-arid (INSA)	Regional institution that collaborates in the implementation of PAN Brasil. The project will work with INSA to further SLM and SFM knowledge management and partnerships for information exchange.
National/regional banks	The project will work with banks such as Banco do Nordeste and BNDES (Brazil's National Development Bank) to channel more resources for SLM and SFM in selected ASD.
ASA (Articulação do Semiárido)	This is an umbrella organization for civil society initiatives in the semi-arid region and is a key organization channeling resources from the “1 million cisterns” program. ASA will be an important partner in the transfer of knowledge among farmers.
Local communities (men and women)	As the ultimate target groups for this project, the local communities of the semi-arid region of the NE will receive substantial socio-economic benefits from increased implementation of SLM practices.

B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

37. The project will build on and incorporate achievements and findings from previous GEF funded projects in the Caatinga. These include the completed MMA/ UNDP/GEF project *Demonstrations of Integrated Ecosystem and Watershed Management in the Caatinga* that validated IEM approaches at demonstration sites in other States in the NE and that could be up-scaled through component 2 of this project once the governance framework is in place. It also includes the GEF World Bank *Mata Blanca* project in Ceara and Bahia States that is reaching completion. Findings from this project will be reviewed to identify best approaches for successful mainstreaming IEM practices in State policies. Of particular relevance will be their approaches to creation of municipal environmental counsels at the municipal level in Bahia, state policies to combat desertification in Ceara and the strategic EIAs undertaken for intensive agroforestry systems, alternative energy sources, and recuperation of degraded lands. Close coordination will be sought with the water program in Sergipe in part funded by the World Bank. SEMARH is the executing agencies of both projects and has indicated its commitment to ensure complementarity particularly in the land use planning and

¹ Members includes representatives of state government sector institutions: SEMARH, SEPLAG; SEDETEC;SEIDES;SEAGRI, SEDURB; SETUR;DESO (respectively environment, planning/budget, economy, social inclusion, agriculture; urban affairs, tourism, basic sanitation); representatives from Alto Sertão ASD municipalities; federal institutions at State level such as IBAMA, INCRA, EMBRAPA; DNOCS (respectively environment, agrarian reform; agriculture; public works for drought); representatives of workers unions, civil society, academia and finance respectively- ASA; Sergipe Federation of Agricultural workers; Sergipe Federal University; Bank of Sergipe (BANESE) and Bank of Brazil (BNB).

institutional strengthening components and in efforts to modernize irrigation and improve water management in the ASD municipalities in the Sergipe River Basin. SEMARH has also committed to promoting collaboration with the Dom Tavora program in part funded by IFAD. Coordination will focus primarily on the delivery of the programs to extension workers and farmer leaders in the dry sub-humid municipalities of moderate LD to prevent the advancement of desertification processes; and on credit-based financial mechanisms to include funding for SLM activities.

38. In addition, the project will establish close coordination with a proposal under preparation by FAO for GEF funding. The two proposals represent complementary interventions within Brazil's plans for sustainable rural development. FAO will focus on the complexity of addressing SFM in semi-arid and dry sub-humid areas with Caatinga and Cerrado forest, defining methods, processes, species, and seeds to promote restoration of areas already degraded. Where forest cover is high it will promote sustainable fuelwood harvesting practices. It will not work directly in Sergipe but rather in sites selected in Pernambuco and/or Piauí. UNDP will focus on the governance mechanisms to avoid, reduce and revert land degradation in the State of Sergipe and promote the uptake of SLM in the Alto Sertão where forest removal has already reached critical levels and where SFM for fuelwood is not a primary option. It seeks the promotion of a wide array of SLM practices, such as soil conservation techniques and water management, by facilitating intersectoral coordination, enhancing implementation of the policy framework, institutional strengthening and increased access to financial resources. However, where relevant, practices developed through FAO will be incorporated, particularly in relation to the uptake of SLM in the Alto Sertão.

39. The UNDP/GEF Small Grants Program (SGP) includes the Caatinga and actions to support sustainable agriculture and SFM at the community level to avoid conversion to pasture and monocultures and maintain ecosystem services. The project will work in synergy with the SGP program so that small grants awarded in this area support this project's objectives and lessons learned are shared. The project will share information with the UNDP/GEF project *Mainstreaming Biodiversity Conservation and Sustainable Use into NTFP and AFS production practices in Multiple-Use Forest Landscapes of High Conservation Value*, particularly related to the work under that project on trade-off scenarios and reliable information on NTFP and AFS contributions to BD conservation and ecosystem services (e.g., productive capacity and production costs; contribution to rural family income; and economic feasibility) and sustainable harvesting limits for at least 12 BD species, some of which are from the Caatinga. Results would be taken into account in the licensing process and extension services.

40. Specific coordination mechanisms among the various GEF projects will be developed during the PPG phase, but may include periodic meetings among staff of the different projects to ensure information sharing and discussion on relevant topics, the formation of an inter-project working group, and dissemination of the results of each project's monitoring and evaluation reports. The project team will also work closely with a number of other key programs outlined in the baseline section to maximize project reach and impact.

DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

C.1. INDICATE THE CO-FINANCING AMOUNT THE GEF AGENCY IS BRINGING TO THE PROJECT:

41. UNDP has brokered US \$ 250,000 in co-financing.

C.2. HOW DOES THE PROJECT FIT INTO THE GEF AGENCY'S PROGRAM AND STAFF CAPACITY IN THE COUNTRY

42. This project will contribute to Outcome 2 of Brazil's CPD (Country Program Document) for 2012-2015: "Capacities for integrating sustainable development and productive inclusion for poverty reduction", as well as to the UNDAF Outcome (2012-2016): "Incorporating sustainable development, green economy and decent labour paradigms into national public policies" (outcome pending approval) and to the related strategic plan focus areas: environment and sustainable development. Under this UNDAF outcome, UNDP will contribute its knowledge on sustainable development and biodiversity conservation and will facilitate the articulation of the overarching goals of poverty eradication, productive inclusion and reduction of inequalities. UNDP has an extensive portfolio of SLM projects in Latin America and globally, many of which focus on establishing SLM governance at local levels in arid lands and is therefore poised to maximize inter-project learning. UNDP Brazil has implemented a number of projects related to SLM and to supporting small and medium rural producers and communities in alternative production systems as part of its poverty alleviation and environmental goals. These include the recently completed UNDP GEF project "Demonstrations of Integrated Ecosystem and Watershed Management in the Caatinga" (2004-2010), which promoted integrated land management in the Brazilian NE, and the project "Promoting biodiversity conservation and sustainable use of the frontier forests of the Northwestern Mato Grosso", which promoted agroforestry systems and NTFP to increase connectivity across the landscape. UNDP Brazil also has significant experience in capacity building and has consolidated strong relationships with a diverse array of stakeholders critical for the successful implementation of this project. Furthermore, a total of eight staff members will contribute to the overall management and supervision of the project, including the Environment Unit Coordinator, who will be responsible for project supervision.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT AND GEF AGENCY

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT ON BEHALF OF THE GOVERNMENT:

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Rodrigo Vieira	Operational Focal Point	MPGO	August 31, 2012

B. GEF AGENCY CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	Date	Project Contact Person	Telephone	Email Address
Adriana Dinu, UNDP/GEF Deputy Executive Coordinator		17 January 2013	Helen Negret, EBD RTA	507 3024805	Helen.negret@undp.org