

UNITED NATIONS DEVELOPMENT PROGRAMME
GLOBAL ENVIRONMENT FACILITY
CONCEPT PROPOSAL FOR PIPELINE ENTRY
(PIMS 3005)

Country:	Cuba
Focal Area:	Land degradation
Operational Programme:	OP 15: Sustainable Land Management
Strategic Priority:	SLM 1 and SLM 2
Country Partnership Programme:	Supporting Implementation of the Cuban National Programme to Combat Desertification and Drought (NPCDD)
Project 1 Title:	Strengthening the Cuban Integrated Land and Soil Conservation Programme
Duration:	NPCDD Programme 10 years. First GEF Project: 4-5 years
Programme Funding Request:	GEF 3: US\$ 10 million co-funding US\$ 70-80
First Project Funding request:	Total 30-40 million t.b.d. GEF 3-5 m; Co-funding GoC US\$ 25-30 million; and others 2-5 ¹)
First Project Requesting IA:	UNDP
Technical Cooperation Agency:	First Project FAO
Block A Grant Awarded:	Not requested
Council submission:	May 2005

SUMMARY

1. Fourteen percent of Cuba is affected by desertification, and land degradation processes leading to this phenomenon affect 76.8% of its productive land. This severe land degradation is affecting the livelihoods and the quality of life of a large number of Cubans and as well as causing deterioration in the structure and functional integrity of ecosystems throughout the landscape of this small island state. This is aggravated by periodic droughts that potentially affect the entire country and that have doubled in frequency over the last sixty years. The Government of Cuba (GoC) is committed to addressing these phenomena and has developed a comprehensive National Action Programme to Combat Desertification and Drought (NPCDD) and allocated resources from the national budget for its implementation. Given the enormous challenges to be faced, implementation of the NPCDD will not be at a level and scale sufficient to abate Cuba's land degradation processes enough to avoid continued deterioration of ecosystem integrity. Under this scenario, the opportunity to capture significant global benefits through the implementation of the NPCDD, alongside domestic ones, will be lost.

2. In view of this, the GoC is seeking to develop a GEF Country Programme Partnership (GEF-CPP) to strengthen the implementation of the ten year NPCDD ensuring this fully achieves its long term goals. The result would be that by 2015, the global environmental benefits of reduced land degradation and promotion of ecosystem integrity would have been captured alongside the fulfilment of the NCDDP targets for sustainable development and increased food security - contributing to Cuba's attainment of Millennium Development Goals for poverty reduction, environmental sustainability. The NPCDD is a comprehensive document that would provide programmatic guidance for implementation of the Country Programme Partnership. This Partnership in turn has been conceived to directly implement this guidance

¹ To be confirmed during preparatory work. Potential sources are NGOS e.g. Agroaccion Alemana, FAO, UNDP

and provide an overall framework for the implementation of projects assisted through various GEF agencies in a coordinated, synergic and logical manner.

3. The proposed GEF-CPP is in full accordance with GEF guidance for Operational Programme 15 and its strategic priorities. It would have two main objectives. The first would be to provide support for mainstreaming SLM principles into national, regional and local planning frameworks and building capacities, thus being an SP1 fit. The second would be to implement site-specific interventions to demonstrate practices for the prevention of degradation and the conservation and rehabilitation of ecosystem integrity, thus falling under SP2.

4. Within these broad objectives, the GEF-CPP would deliver the following broad outcomes amongst others: (i) SLM principles integrated into planning frameworks and co-ordination mechanisms developed for SLM related plans and programmes; (ii) Strengthened capacities and technological inputs for monitoring and evaluation of land degradation processes; (iii) Human resources in key institutions strengthened for SLM and the prevention and combat of desertification and drought; (iv) Enhanced control over land –use and soil resources, and enforcement of respective legislation; (v) Increased awareness in a broad range of stakeholders of the severity of land degradation and its effect on social, economic and environment conditions in the country (vi) Sustainable and locally adapted solutions and land-use practices for preventing land degradation in specific scenarios, halting the advance in others and restoring ecosystem integrity through land rehabilitation practices.

5. The different projects in this GEF-CPP would be identified in detail in further preparation work, however each would have both capacity building and site-specific elements. The relative importance of these elements would vary between projects in the Programme, with the first ones placing more emphasis on capacity building and subsequent ones on site-specific interventions, once capacities have been raised. Collectively the interventions would include sites that cover the country's priority watersheds, address the main types of land degradation in Cuba, and the challenges and barriers that need to be overcome to adopt SLM. The following intervention areas have been identified in Cuba's three main regions: West: the southern plains of Pinar del Río and the plains of Habana Matanzas; Central: the north of Villa Clara and Sancti Spiritus; East: the Maisí Guantanamo coastal strip and Cauto watershed.

6. While preparatory work would be required for further design, the main focus of the first project in the GEF-CPP has been identified through evaluation of the NPCDD and preliminary work undertaken in 2003. This *first project* would be submitted with UNDP as Implementing Agency and with technical cooperation from FAO. The selection and design of this first project has the explicit goal of achieving maximum effect on land degradation while maintaining complexities at a level that can be addressed through one project. It would focus on strengthening **the Cuban Integrated Soil Conservation and Improvement Programme (CISCIP)**, that seeks to halt the advance of the most important soil degradation processes in the country. This provides a strategic entry point for the GEF-CPP as soils represent a cross-cutting factor throughout all fields of agricultural production - recognized to be the main cause of land degradation in Cuba. This first project would contribute substantially to the first Objective of the CPP by mainstreaming SLM at national, regional and local levels, developing decision-making tools and strengthening the capacities of key stakeholders to address land degradation related issues. These tools would include systems for monitoring and evaluating land degradation processes and the impact of intervention and an early alert system for drought to enable rapid responses particularly for the Pinar del Río State that is Cuba's most vulnerable area for extreme climatic events.

7. The first project would also include on the ground action in one intervention area thus contributing to the GEF-CPP second objective of demonstrating practices and procedures to halt, prevent and redress land degradation in key areas. The area selected is the Maisí Guantanamo coastal strip in the East representing the most intense and extensive land degradation in Cuba and, as a result, the highest vulnerability in terms of food production.

COUNTRY ELIGIBILITY

8. Cuba is eligible for UNDP assistance and signed the UNCCD in 1994, the UNCBD in 1992 and the UNFCCC in 1992. The Governmental Focal Point for the UNCCD has played an active part in the preparation of Concept Paper through the Environmental Education, Management and Information Centre (CIGEA) of CITMA, that is the technical focal point of UNCCD and that coordinates the National Group that elaborated, controls and monitors the NPCDD. The GEF Focal Point also closely accompanied the development and negotiation of this Concept and fully supports its submission to the GEF.

COUNTRY DRIVENNESS

9. The National Environment Strategy identifies land degradation as one of Cuba's five main environmental problems, with 76.8% of the productive land affected by processes leading to desertification, and the corresponding soils classified as having low to very low productivity. Cuba's remaining four problems also relate to land degradation directly or indirectly. These are deforestation, contamination of terrestrial and marine water, biodiversity loss and sanitation in communities. In recognition of the gravity of land degradation in the country, and as an expression of the priority the GoC places on addressing this issue, a National Programme to Combat Desertification and Drought (NPCDD) has been developed by the National Group to Combat Desertification and Drought under the co-ordination of the Centre for Environmental Management, Education and Information (CIGEA) and with the support of the CCD Secretariat, FAO, IFAD and the Global Mechanism.

10. The main objective of this Plan is to prevent and control the causes of processes that lead to desertification. By applying practical measures to detain and revert these processes, and mitigate the effect of drought, the Plan seeks to contribute to sustainable development in affected zones and raise the quality of life of their inhabitants. It defines four main challenges as follows: (i) to prevent and arrest desertification processes in areas of low or no degradation; (ii) to rehabilitate the productivity of areas suffering medium-level degradation by applying corrective measures; (iii) to recover the productivity of extremely degraded areas through rehabilitation and sanitation; and (iv) to prevent and mitigate droughts. The NPCDD also identifies lines of action as follows: (i) Economical and social development of affected areas; (ii) Perfecting and application of judicial, economic and administrative instruments for the application, monitoring and control of NPCDD progress; (iii) Integration and coordination of policies and strategies; (iv) Environmental education and public participation; (v) Scientific research and technological innovation; (vi) Institutional strengthening and (vii) International cooperation.

11. It also identifies a series of priority regions and projects, each covering several challenges and action lines, and indicates that the principal strategies for implementation would be to build on, and integrate with, the existing national, territorial and sectoral programmes and plans². Thus the NPCDD provides a comprehensive document that would provide guidance for the implementation of the Country Programme Partnership. By supporting the implementation of the NPCDD the GEF-CPP would thus clearly comply with national priorities both in the structure and goals programmatic framework and

² These projects include Strengthening the National Programme for Integrated Land and Soil Conservation; Integral and Sustainable Development of the Cauto Watershed, Combating Desertification and Drought Processes; Rehabilitation Degraded Areas in the Pinar del Río plains; Integral and Sustainable Development of National Priority Watersheds to Prevent and Reduce Land Degradation and Drought; Institutional Strengthening and Capacity Building for the Combat of Desertification and Drought and Monitoring Synergies between Environmental Conventions; Municipal Sustainable Management of Ecosystems in Isla de la Juventud to Combat Desertification and Drought. The programmes and plans include in addition to the CISCIP the following: the National Reforestation Plan, and Turquino-Manatí Mountain Development and Conservation Plan; the Programme for Recovery of Hydraulic Systems; Food Action Plan; National Health Programme; National Science and Technology Programme; and the Sectoral Strategies and National Education Programme.

through its individual projects that would be aligned with elements of those priority projects included within the NPCDD.

12. The proposed GEF Country Programme Partnership (GEF-CPP) would build capacities through crosscutting actions and on-the-ground pilot interventions in locations that will be carefully selected to cover the range of different desertification processes, levels of degradation prevalent in Cuba and the country's major watershed. Thus it would fall within national priorities contributing to overcoming the challenges outlined in the NPCDD by providing site specific tangible benefits in the short term in sites indicated as national priority and providing information essential for up-scaling these to the landscape level. It will also address the issue of prevention of droughts through components on strengthening capacities for monitoring climatic events and developing mitigation measures. Existing evidence suggest that the recorded increases in drought frequencies in Cuba are a result of climate change and as such the GEF-CPP would provide synergies with Cuba's Adaptation Programme to Climatic Change.

13. Elements of the site-specific interventions would focus on alternative agricultural practices to prevent, and halt land degradation. These would include practices to enrich soil fertility and natural productivity of ecosystems affecting not only production activities but contributing to the restoration of ecosystem functions and conservation of integrity. As these intervention sites fall within areas of globally renowned biodiversity, advances attained in ecosystem conservation will also induce biodiversity benefits particularly in those areas where the practice of monocultures has led to simplification of habitats increasing the abundance of some species to the expense of the extirpation of many others normally registered in natural ecosystems (see paragraph 22 and 23, Santana, 1991 and WWF 1997). In this respect the GEF-CPP would also provide synergies with the Cuba's National Strategy on Biodiversity (1999).

14. The GEF-CPP would also be inline with the objectives set forth by the National Environment Strategy that incorporates agreements reached at the Sustainable Development Summit in Johannesburg, contributing to the environmental and poverty related MDGs. It is also in compliance with approaches and goals set out in the Barbados SIDS Action Plan, and the actions derived from the agreements adopted at the Environment Minister Meetings of the Latin America and the Caribbean Region (LAC) and the LAC Regional Action Plan to Combat Desertification.

15. The first project would be guided by the overall GEF-CPP framework, and would focus on the strengthening the National Integrated Programme for Soil Conservation and Improvement, defined by the NPCDD as a priority, thus also clearly comply with national priorities. The CISCIP places emphasis on promoting soil improvement and conservation measures that increase agricultural productivity, create employment, particularly for women, build capacities for environment conservation in the agricultural sector and reduces the food production vulnerability in the most vulnerable zones. The on-the-ground intervention for the first project would focus on Guantanamo again underlining the accordance with national priorities as this is the area most affected by land degradation and drought and is the one with highest food production vulnerability.

CONTEXT

Physical and Environmental Context

16. The Republic of Cuba is the westernmost archipelago, of the Greater Antilles in the Caribbean Sea and lies between 19° 49'38'' and 23°17'9'' N and 74°8'3'' and 84°57'7'' W. It is divided political-administratively into 14 States and 169 municipalities, including the special municipality Isla de la Juventud and covers 110,860 km². Of these, 106,599.53 km² correspond to the Island of Cuba, 3,122.73 km² to the Island of La Juventud and the 1,600 to the remaining 4,196 smaller islands and keys. The Island of Cuba is the fifteenth largest island in the world and is long and narrow with coasts stretching over 5,746 km. The

relief varies greatly. Four mountainous systems occupy 19,594 km², equivalent to 18% of the country's total area. The highest elevation point is Pico Real del Turquino with 1,974 m.a.s.l. The plains represent 82% of the total area, with a diversity of origins, including typical coastal and river plains, with processes of carsic, biogenic and climatic origin. The lowest zones correspond to marshes and wetlands.

17. From a geo-economic standpoint, three regions are recognized: West, Central and East. The predominant climate type is warm, tropical with summer rains (Köppen), seasonally humid and with maritime influence. Nonetheless, other climate types are found with precipitation being most varied. For example in the higher mountainous systems rainfall is heavy all year whereas the southern coastal strip of the Santiago de Cuba and Guantánamo States are relatively dry. In most of the territory however, two basic seasons are recognized: rainy (May to October) and dry (November to April). About 80% of the total annual rain falls during the first one. The mean relative humidity is high, with averages approaching 80%. Temperatures are also generally high, with annual averages of 24°C in the plains and above 26°C at the eastern coastline and with daily temperature variation higher than the annual variation. High levels of evapo-transpiration are registered, reaching up to 2,300 mm in the Cauto valley and on the southern coast of Guantánamo. The most significant climatic events are the tropical cyclones (TC).

18. Five terrestrial ecoregions can be defined in Cuba. These are Cuban Dry Forest in 70% of the archipelago; Cuban Xeric Shrub (2.5%), Cuban Pine Forest (5%); Cuban Moist Forests (18%) and Cuban Wetlands (11.7). Four of these have been classified as housing globally significant biodiversity (Dinerstein et al, 1995). While the larger part of the intact habitat blocks of these ecoregions are under protection in Cuba's protected areas, elements of this biodiversity are found throughout the productive landscape. The above- and belowground hydrological resources are limited. Due to the long and narrow configuration of the island, the rivers present small watersheds, short runs, low flow rates and fast evacuation into the ocean. The subterranean water sources are related to the strong carsic development and satisfy the demand of water to a lesser or greater extent, in particular that of the population. Cuba presents a vast array of soil types, classified by their origin in ten groups. The most representative ones are: Ultisols, Ferrasols, Luvisols, Cambisols, Vertisols, Gleysols, Fluvisols and Arenosols, which constitute the basis for potential agricultural and forestry activities.

19. Approximately sixty percent of the country is classified as agricultural land. Slightly over half of this area is cultivated, with 39% dedicated to permanent crops. Sugar cane is the most predominant of permanent crops representing 68% of the area. Indeed, the sugar cane based industries (sugar, alcohol, and bagasse production) are still the principal economic base of the country and employ 13% of the work force and constitute the economic base for 2.1 million people. Other permanent crops include coffee, cacao, banana, citrus fruit and pastures. Temporary crops make up the remaining cultivated land including rice, tobacco, grains, vegetables and potatoes among other. Of the 2.9 million hectares of non-cultivated agricultural land, 75% are natural pastures. Two million hectares are dedicated to cattle rearing of which 23% are cultivated pastures, 52% natural areas and the remaining areas are still under forest cover. Land classified as non-agricultural covers 4.29m hectares, with forests occupying 2.57m ha. In the last 43 years the forested area grew by 1,072,100 ha from 13.4% to 23.2%.

Land Degradation Status and Causes

20. The edapho-climatic and topographic conditions described above, together with above land-use patterns, have lead to increasing land degradation and desertification throughout Cuba. The NPCDD indicates that 14% of Cuba is affected by desertification and drought, particularly those in the low coastal plains up to 40 m.a.s.l. and those plains associated with the mountain ranges up to 500m. Additional areas have at least one of the main degradation processes significantly advanced. For example, 1.0 million hectares are affected by salinity (representing 14% of agricultural land); 2.9m by medium to strong erosion (43% of agricultural land); 2.7m by bad drainage (40% of agricultural land); 1.6m by high levels

of compaction (24% of agricultural land) 2.7m by high levels of acidity, pH KCL<6, (40% of agricultural land); and 4.7m by low organic material content (70% of agricultural land)- MINAGRI 1996.

21. According to the NPCDD, and ratified in the Concept preparation workshop, the main reasons of this severe land degradation can be found in human related factors, such as a series of issues related to agriculture, and deforestation, and also in climatic factors. These are summarised below:

22. Land preparation and cultivation practices. Inadequate land preparation techniques, such as tillage down gradients rather than along them or with overly deep troughs in shallow soils, are leading to soil erosion. This becomes especially important in sloping terrain, such as in the central region, north of Villa Clara, where 180,000 ha are affected by erosion, representing 24% of the total area of the State. Excessive levels of surface runoff, directly related to poor soil management in this region, accelerates this erosion and leads to downstream damages such as sedimentation and contamination of reservoirs as well as deposits on fertile soil layers. The consequences are evident, with negative effects on the ability of the ecosystems to produce both crops and environmental services. It also has consequences on the biodiversity rich coastal, marine and coral habitats in the Sabana Camagüey Archipelago bordering this State (WWF 1997).

23. Land clearing using fire is also common throughout the country and poor management of this results in fire spreading to natural habitat stands adjacent to cultivated areas. Despite the National Programme for Fire Management, forest fires caused by poorly controlled slash and burn activities have particularly affected natural areas of dry and pine forest. Moreover, plantation forests that do not always incorporate fire mitigation management techniques facilitate the spread of wildfires. Once cleared the use of overly heavy machinery on land, especially in extensive areas with monocultures such as sugar cane, has also lead to increasing soil compaction restricting water infiltration and root development, consequently reducing crop yields. In the plains of Habana/Matanzas, in the west of Cuba, this intensive and sustained level of production is reported to have caused soil structure damage leading to such compaction in 400,000 ha, or 60% of the plains. Since these are the best and most productive soils in Cuba and provide food for the capital, the economical and environmental significance of this degradation is evident. Soil compaction also depletes soil micro-fauna and in turn other organisms that depend on this, with further loss of soil fertility. When these areas are subsequently used for livestock rearing the quality of natural pastures in this impoverished environment is low, reducing the per area holding capacity of the land for grazing or requiring large investments for enriching pastures.

24. Land use, monocultures and crop selection. The predominance of sugar cane, rice and tobacco monocultures in the country has led to losses in species diversity and reduced ecosystem stability as a result of the simplification of habitats and ecosystems (Santana 1991). These simplified ecosystems show increased abundance of some species resources and the extirpation of majority of the others normally present in natural ecosystems. Soil associated fauna as well as some vertebrate groups, such as birds and mammals are particularly sensitive to these changes in the resource abundance, causing the extinction of species and subspecies on the one hand and the emergence of both native and alien pests on the other hand (Olson & Dinerstein 1998, Vales et al 1998). Historically, habitat transformation and resources imbalances linked to monoculture practices are the cause of over 75% of Cuba's endemic biota now being threatened, and 36% classified as globally endangered (MINAGRI ,1996, Valdes *ibid* , IUCN, 2000).

25. High acidity levels in Cuban soils are also directly related to extensive areas under cultivation with soil impoverishing crops such as sugar cane. Overexploitation of agricultural soils without sufficient application of fertilizers and amendments has also pushed these ecosystems beyond their equilibrium threshold, surpassing their natural resilience and leading to loss of fertility and associated natural biodiversity in the surrounding watersheds. This has been particularly noted in the Pinar del Rio plains, in the westernmost part of Cuba, where the following limitations have been reported as percentages of the

State's soils affected: acidification: 41.24%; erosion: 37.75%; low fertility: 30.28%; bad drainage: 18.80%; stoniness 48.8%; salinity: 2.29%. Even though this area contributes the highest percentage of arable land to the State, the most important crops being tobacco, rice, vegetables and citrus as well as cattle, investigations have shown that the ecosystem's balance threshold has been surpassed in several locations due to the overexploitation of natural resources. Out of the 520 species of the local flora in the white sands of the south-western plains, 177 are endemic and 90 are listed in different threatened species categories. Production choices such as the poor selection of crops for given soils, restricted rotation of crops and long periods of land exposure to weathering is further increasing soil erosion, run-off and sedimentation of water courses, all contributing to failure in ecosystem functioning in and around the agricultural areas.

26. Crop management techniques. The restricted use of soil fertility enrichment practices such as the incorporation of crop residues, the use of mulch and other organic fertilizers contribute to decreasing organic matter content in the soil, which has found to be low in more than 4.6 million ha. For instance, in citrus producing areas of the Pinar del Rio State, severe reductions in crop yields have been noted due to this problem. High mineral content fertilizers as well as insufficient use of appropriate soil amendments also lead to the excessive acidity levels recorded in Cuban soils. The extensive use of fire as a harvest preparation technique, further impoverishes the organic matter content in soils, especially in sugar cane plantations. The insufficient adoption of appropriate crop rotation and crop association schemes further contributes to land degradation processes, especially to the decrease in soil fertility and organic matter content. This affects ecosystem balance, reducing its resilience and ability to deliver acceptable crop yields among other environmental services, such as carbon sequestration and water balance. Areas most affected by this problem are the southern plains of Pinar del Rio, the Cauto watershed and the coastal strip of Maisí-Guantánamo, all intensively cultivated with short-term crops of high nutrient extraction capacity and high land preparation requirements.

27. Irrigation and drainage related issues. Inadequate use of irrigation in arid and poorly drained soils contributes to land degradation process particularly salinisation. This is exacerbated when salt-enriched water is used in irrigation or where subterranean waters are mineral rich and water tables high and often infiltrated with seawater, such as in the eastern States of the country. The LD problems related to bad drainage affect 2.7 million ha or 40% of the country's agricultural land and are particularly noticeable in the central and eastern regions, such as the Cauto watershed, Guantánamo and Villa Clara, in descending order. Design weaknesses in irrigation related dams and drainage canals and poor maintenance of these, intensifies degradation processes. The use of high-pressure aspersion irrigation, and amounts of water that exceed natural absorption rates of the soil, also lead to soil erosion and high run-off rates, blocking natural waterways and impacting sensitive wetland and coastal ecosystems down stream.

28. High levels of agro-chemicals and agro-industrial related effluents not only affect the quality of irrigation water, contaminating crops but also impact soil quality. The combination of inadequate irrigation in arid soils, poor drainage and contaminated water is increasingly affecting productivity, for example, in the rice production areas of the north of Granma State and south of Sancti Spiritus and La Sabana and Pinar del Rio. This is not only leading to increased amounts of chemicals to maintain productivity, increasing production costs, reducing profit margins and undermining cost effective livelihoods, but also intensifying soil quality losses and deteriorating ecosystem functions. The high use of agrochemicals, on the other hand affects the quality of irrigation water also leading to loss in soil quality. In some areas where salinisation is very advanced, cultivated lands are often turned over for livestock production. When carrying capacities are exceeded, soil compaction occurs, undermining still further ecosystem integrity. The effects on productivity and ecosystem functions related to salinity are particularly high in the Cauto watershed and the Villa Clara area.

29. Deforestation of coastal areas, riverbanks and catchment areas to develop agriculture and cattle grazing areas and for timber demand was particularly intense in the XIX and XX century. This led to erosion regardless of subsequent land use clearly affecting ecosystem structure and functions, such as water harvesting and balance as well as carbon sequestration. This is particularly the case in Cuba's mountainous areas that support species rich forests and that are particularly vulnerable to land degradation due to the high gradients and rainfall once protective vegetation cover is removed, severely restricting adequate water infiltration thus affecting ecosystem integrity and undermining potential land uses.

30. Deforestation rates are now much lower, however, in specific areas it still contributes to land degradation. For example, in the eastern areas of the country, specifically in the Cauto watershed, and the valley of Guantanamo timber exploitation still occurs and practices do not always adopt sustainable management techniques or respect those areas particularly prone to degradation once forest cover is removed. The GoC has defined an ambitious reforestation programme that seeks to reforest 1 million hectares by 2015 combining both productive and protective forests. The productive forest will contain a mix of native and exotic species for timber and at least 10% of fruit species to assist in supplementing national diets. In addition the Sugar Conversion programme plans to change land-use in one million hectares much of which will be reforested. Despite the significant advances in prevention of land degradation that will be made through these programmes, their contribution would be greater if clearer links and coordination mechanisms existed with land-use planning and land degradation vulnerability assessments, better guiding reforestation and aforestation plans and ensuring they adopt SLM principles.

31. Drought and other climatic phenomena. The combination of climatic and edaphic characteristics in Cuba makes certain areas particularly susceptible to droughts. This is particularly common in Pinar del Rio, the Cauto watershed (Granma, Santiago de Cuba, Holguin and Las Tunas) as well as Guantánamo. While in the latter, eastern part of Cuba the threat to ecosystem integrity is probably derived first and foremost from the duration of the drought periods itself, in the western part e.g. Pinar del Rio State, it is mainly the intense alternation between drought periods and those of heavy rainfalls (up to 400mm/day) produced by tropical storms and hurricanes which has led to the most significant areas of erosion on flat ground nationwide. In the first part of the last century the areas mentioned before suffered from drought every five years. During the second half of the century this frequency has increased to every two and half years, accelerating the processes of land degradation in these areas. Drought most severely affects the eastern part of the country, represented by the Cauto watershed and the Maisí-Guantánamo coastal strip, which are the two semiarid regions with the lowest annual precipitation rate (200 mm) while showing evapo-transpiration rates above 1300 mm per year. The effect of drought on land degradation is further exacerbated by the increase in extreme climatic events, such as hurricanes and cold fronts, particularly in the west of the country during the same period, also increasingly thought to be caused by climate change.

Barriers to the Adoption of Sustainable Land Management

32. Underlying these principal causes of land degradation are a series of root causes including institutional, technical and financial factors, as well as a series of barriers that impede the successful adoption of more sustainable land management (SLM). These are summarized below.

33. Deficient knowledge base for a range of key issues including the prevention of land degradation through the adoption of alternative agricultural practices and the correction of it through land rehabilitation techniques. In relation to the former Cuba's historical economic dependency on sugar cane and tobacco has resulted in comparatively limited hands-on experience and knowledge for alternative

agricultural products and techniques. Following the economic crisis in the early nineties³, the GoC is making changes in the agricultural sector seeking to diversify production and has recently introduced a sugar cane conversion programme which targets reforestation of 1 million hectares of previous sugar cane cultivations. Another programme of IS/MINAGRI includes the establishment of pilot areas, called “reference areas” to specifically address LD issues in scenarios showing different levels of degradation through practical demonstration of appropriate agricultural conservation techniques. While these programmes are important, the low levels of knowledge in SLM in general and more specifically in agricultural practices more compatible with conservation of ecosystem integrity may undermine their success. The Soils Institute of MINAGRI and the Sugar Cane Research Institute of MINAZ presently execute an annual capacity building programme for producers and technicians containing some SLM principles. However, given the complexity of the issues and the rate at which the technology transfer can be executed, it has not yet been possible to address the principles of SLM in comprehensive and integral form as far as contents and geographical coverage of priority areas are concerned.

34. Insufficient sharing and disseminating of existing information between and within sectors from central to local levels, intensifies the effects of limited knowledge and know-how on agricultural practices and land-use alternatives. Furthermore, production requirements of commodities and produce to satisfy national demand often take priority over considerations regarding adequate crop adaptation and rotation. Cuba has a broad programme for environmental education targeting local communities and the principal productive sectors, including actions within the Soils Institute to create awareness and facilitate the rational use and management of soils, emphasizing the importance of obtaining sustainable yields and improved living conditions. The CISCIP proposes the use of means of mass communication for this and the inclusion of SLM principles, however environmental implications are still not sufficiently addressed. More significantly, the ability to reach local stakeholders (producers and farmers) directly or indirectly is severely limited by logistical shortcomings, making it difficult to mainstream SLM issues in the agricultural productive sector. In addition, although there is an environmental strategy for the main productive sectors this tends to adopt a narrow sectoral perspective rather than the integrated approach required for SLM.

35. Incomplete understanding and monitoring of the natural processes that exacerbate anthropic related land degradation and the severity of land degradation in the country, impedes the identification of more appropriate land uses to prevent land degradation in sensitive areas. There is an incipient system for climate surveillance that could play a key role in forecasting extreme climatic events and thus allowing for appropriate actions to be put in place to reduce the impact of these on land degradation processes. However, it requires updating and expanding to fulfil this potential role. The barriers for adequate monitoring of processes involving soils, water, forestry, etc. are mainly obsolete technology and systems with insufficient geographical and thematic coverage to expand their sphere of influence towards areas directly or indirectly related to land degradation.

36. Poorly integrated planning procedures between productive sectors and the absence of an integrated framework for sustainable land use management (SLM) in development planning has weakened government action in the existing Land and Conservation Programme. The GoC plans to take action in land use planning and regulation based on agro-productivity studies and updating of information on limiting factors at the watershed level. This would allow adequate zoning for crops, better regulating the respective growing areas and rotation for a more efficient use of land and the protection of soils in

³ The disintegration of the USSR and the socialist countries, in the early 1990's, referred to as the *special period*, had significant economic repercussions for Cuba with its GNP dropping 40% between 1990 and 1993, (Cuban National Statistics Office 1998).

areas prone to degradation. However, this action is limited by deficient planning capacities and regulation in territorial zoning.

37. Legislative gaps concerning strategic policies as well as insufficient initiatives on incentives to promote good SLM practices, or disincentives to avert bad ones in relevant sectors, also impede more widespread mainstreaming of these issues. The GoC operates a professional national inspection system to gain closer control over land use as well as soil management and conservation on a municipal level, through the Offices for Changes in Land Use. This allows furthering the participation with the national forest ranger system in application of the current law for the protection use and conservation of soils (Decree 179), through an agreement between the implicated sectors (MINAGRI, MINAZ, CITMA and MININT). To achieve adequate thematic and geographic coverage, however, this system requires institutional strengthening and adequate equipment, as well as targeted capacity building to strengthen staff towards enforcement of pertaining regulation and protection of natural resources.

38. Complex institutional coordination. The adoption of sustainable land management requires the close coordination of governmental institutions within a given sector and between sectors. This is even more important in Cuba as an underlying principle for implementation of the NPCDD is to act through existing programmes and plans rather than independently. Cuba's complex institutional set up further exacerbates this co-ordination across sectors, institutions and programmes. In the agricultural sector, that has such critical role in land degradation processes recent changes make both intra-and inter-sectoral coordination hard. The National Group to Combat Desertification and Drought (NGCDD) has played a key role in co-ordinating the definition of priorities and the elaboration of the NPCDD and has the mandate to co-ordinate its implementation. As such it is coordinated by the CIGEA (see paragraph 6 and footnote 2) and integrated by 24 governmental and non-governmental institutions. Nevertheless, in the absence of a specific headquarters and depending on the actions of a wide range of different institutions, the current mechanisms available to the NGCDD for fulfilling its mandate are insufficient.

39. Land tenure. Historically the land tenure makeup in Cuba has been such, that large production cooperatives were the foremost producers of agricultural commodities and still are to a significant extent. Recent changes in land tenure, especially the transfer of productive land areas to individual farmers have certainly changed the overall scenario including the centralized control of and influence on cultural and harvesting practices, extension work, as well as irrigation planning and management. These factors among others greatly affect the possibilities of mainstreaming SLM practices and require updated planning and implementation of respective measures, to guarantee an adequate management and conservation of natural resources within the realm of agriculture as well as integrated watershed management. Furthermore, the new land tenure scenario constitutes an underlying issue that poses new requirements for more specific and targeted capacity building and environmentally related awareness building among stakeholders now facing a diverse, new and unusual land tenure situation.

PROGRAMME AND POLICY CONFORMITY

Programme Designation and conformity

40. The proposed Country Programme Partnership would be presented under GEF Operational Programme 15 as it is in direct alignment with the objectives of this OP that are "to mitigate the causes and negative impacts of land degradation on the structure and functional integrity of ecosystems through sustainable land practices as a contribution to improving people's livelihoods and economic well-being". The GEF-CPP would achieve these objectives in Cuba by building national capacity for SLM and land degradation control including developing local and national SLM frameworks and strengthening institutional capacities for knowledge, permanent monitoring for prevention and combat of the desertification and drought. This would be complemented by on the ground demonstrations in sustainable

agriculture, pasture woodland and rangeland management and reducing food risk vulnerability in sensitive areas. Thus the objectives and lines of action of the proposed GEF-CPP fit under both OP 15 Strategic Priority 1 (Targeted Capacity Building) and OP15 SP 2 (Implementation of Innovative and Indigenous Sustainable Land Management practices). In view of the long-term nature of the proposed intervention this is to be expected however, each project would also maintain elements of the both SPs but with varying weights afforded to these as capacity reach levels for more extensive site-specific implementation of SLM practices.

41. Concept Preparation has included a participatory workshop with representatives from a range of institutions related to the land degradation problem and design to date has followed GEF eligibility criteria. It has also followed guidance provided by the draft GEF Sec Paper on Pilot Country Programme Partnerships that indicates priority will be afforded to SIDS for these partnerships. Cuba satisfies the selection criteria of this Programme, as its NAP has clearly identified priority institutional building and/or investments to address land degradation, there is strong political will and commitment to address land degradation, the GoC has commitment to provide funds from budgetary sources for the partnership, and there is interest by several donor to provide financial assistance to support land degradation prevention and control activities. It is also consistent with priorities of the UNCDD and has incorporated guidance from the CoP 6 held in Havana in late 2003.

Project Design Rationality and Objectives

42. Problem Statement. Large areas of Cuba, principally those involved in agricultural production, suffer high levels of land degradation including advanced processes of erosion, salinisation, compaction, loss of organic matter and acidification of soils, as well as desertification in some areas. This is causing loss of the natural productivity of land with the result that productive activities are progressively being affected, undermining food security, increasing poverty and lowering of the quality of life of a large number of Cubans. Further consequences are the loss of the integrity of ecosystems and the functions and services these provide. This not only exacerbates the loss of natural productivity, causing a spiralling circle of further land degradation, but also creates links to other global environmental issues. The increasing soil erosion is causing local depletions in species diversity of terrestrial ecosystems of global importance. The related high sedimentation levels of the main rivers in this island environment are also affecting critical estuarine, coastal and marine habitats renowned for their global value. Furthermore, evidence suggests that the aggravation of land degradation in at least the western part of Cuba is linked to climatic change as droughts frequency in this region has doubled over the last 60 years.

43. The GoC is taking action to address these high levels of land degradation and recognises the barriers that need to be overcome to achieve this (paragraphs 32-39). To provide a framework to address these it has developed a ten-year National Programme to Combat Desertification and Drought (NPCDD). This aims to prevent and control the advance of the main processes leading to desertification, contribute to sustainable development in affected zones and raising the quality of life of their inhabitants. The implementation of this plan will occur through existing sector programmes and plans with specific budgetary allocations. However, this funding will prioritise those interventions that achieve maximum socio-economic returns. Furthermore, they will not necessarily be at a scale sufficient to avert deterioration of ecosystem integrity or adopt the full range of sustainable land management practices required. Under this scenario, the opportunity to capture significant global benefits through the implementation of the NPCDD, alongside domestic ones, will be lost. Moreover, under sub-optimal implementation of the NPCDD, current land degradation processes are projected to increase in the next fifteen years as follows: Desertification 2.9% increase in area affected; salinisation 7.5%, erosion 8.9%, compaction 4.5%, poor drainage 8.9% (MINAGRI, 1998) with the attendant negative impacts on environmental parameters of global significance.

44. Country Programme Partnership Objectives and Design Rationale. The Government of Cuba is seeking to develop a GEF Country Programme Partnership to strengthen the implementation of the NPCDD to ensure that this fully achieves its long term goals, on the one hand maximizing the capture of global environmental benefits, reducing land degradation and promoting ecosystem integrity, and, on the other, fulfilling national targets in relation to sustainable development including increased food security, poverty reduction, environmental sustainability and improved quality of life. This NPCDD is a comprehensive document that would provide programmatic guidance for implementation of the Country Programme Partnership. This proposed Country Partnership Programme in turn has been conceived to directly implement this guidance and provide an overall framework that will guide the implementation of projects assisted through various GEF agencies in a coordinated, synergic and logic manner maximizing the capture of global benefits as well as national goals.

45. The GEF alternative scenario would provide support to Cuba in the implementation of the NPCDD, developing mechanisms and conditions that allow mainstreaming SLM principles into national, regional and local planning frameworks and developing coordination mechanisms to ensure that existing plans and programmes maximize their input to combating desertification and land degradation at the landscape level, achieving positive environmental as well as socio economic results. It would also strengthen the institutional capacities, to monitor, prevent and combat those factors leading to land degradation nationwide, and build awareness in all relevant stakeholders of this phenomenon and its relationship between socio-economic activities, natural resource use and conservation. Site-specific demonstrations would also be included on prevention of degradation as well as conservation and rehabilitation of ecosystem integrity to reinforce and disseminate such knowledge with a cross-sectoral and multidisciplinary perspective. They would also provide tangible benefits in the short term and important lessons that would be replicated throughout the Cuba's main regions and nationally.

46. While the different projects in this GEF Country Programme Partnership (GEF-CPP) would be fully detailed in further preparation work, it is expected to support a series of projects that would each include capacity building components as well as on-the-ground demonstration. These on the ground actions would be undertaken in the three main regions of Cuba (West, Central and East) in interventions areas that show the most advanced land degradation processes and those most vulnerable to desertification. They would collectively cover the main types of land degradation in the country and the challenges and barriers that need to be overcome to effectively adopt SLM. They would also cover the six of the eight national priority watersheds. The remaining two national priority watersheds would not be targeted as one (Toa Basin) is under protection in Humboldt National Park and the other (Almendras Vento) is subterranean.

47. A step-by-step process would be adopted in the successive projects of the GEF-CPP to ensure that capacities are strengthened in key stakeholders and processes prior to the implementation of on-the-ground actions. Thus the first project would focus a significant amount of resources to mainstreaming and capacity building at national levels and on key institutions while limiting on the ground intervention to the area that requires most immediate action. It would also deliver more intense capacity building to the State or area that would receive on the ground demonstration in the next project. Successive projects would gradually increase the site-specific actions as levels of capacity have been raised through the actions of previous projects and lessons learnt. It is also expected that each project would progressively increase thematic complexity and geographical coverage so that at the end of the GEF-CPP the three regions of Cuba and the specific intervention areas would have SLM implemented at the watershed level and across all relevant sectors. The result would be that by the year 2015 Cuba would have achieved its national goals outlined in the NPCDD, contributing to the attainment of its Millennium Development Goals for environmental sustainability and poverty alleviation whilst achieving benefits in globally significant environment issues. This step-by-step process, objectives, main actions and interventions areas

of each Phase or Project of the GEF- CPP are illustrated in the Table in Annex 1 and are described in more detail in the paragraphs below.

Expected Outcomes and Activities of the Country Programme Partnership

Objective 1: Mainstreaming SLM at national, regional and local levels and strengthening the capacities of key stakeholders to address land degradation related issues

48. This line of action would strengthen SLM capacities in key stakeholders including policy, decision-makers, planners and rural communities starting from the agriculture sector and radiating out to other relevant sectors involved in land use and that may have an effect on land degradation. This would facilitate the implementation of the NPCDD in general as well as providing mechanisms for the transfer of lessons learnt through on-the-ground interventions in the GEF CPP and the up-scaling of their impacts to the landscape level. GEF would complement the existing national infrastructure and capacities of key institutions particularly within MINAGRI to provide the necessary information, tools, processes, skills and mechanisms to address land degradation, fulfilling national objectives of food security and poverty reduction and ensuring that ecosystem integrity is conserved. The complete range of actions at this level would be designed following the results of a capacity needs assessment as well as local participatory diagnostics to be undertaken through project preparation activities. These would deliver several different types of outputs including the following.

1.1. National, State (State) and Local (municipal) planning frameworks strengthened with SLM principles and implemented through improved inter-sectoral coordination mechanisms and decision-making tools.

49. This would be achieved by a series of activities including the review of *land use planning processes* at the National, State and Municipal levels incorporating SLM principles, increasing intersectoral *co-ordination* and enhancing the contribution of sector programmes and plans to the implementation of the NPCDD. This would include strengthening GoC actions in land use zoning based on agro-productivity and limiting factors at the watershed level, providing institutional strengthening and adequate equipment. Work would also include strengthening *decision-making tools* for identifying appropriate land uses in accordance with existing and potential land degradation risks, including systems for monitoring and evaluating land degradation processes and the impact of interventions taken to halt these. This would also include strengthening the National Climate and Drought Surveillance (SNVC) to enable rapid responses to potential droughts and natural disasters that aggravate land degradation processes. In this arena particular emphasis would be placed on those regions that suffer most drought and that are most vulnerable to the affects of climate change on this.

50. Other tools, such as *incentives and funding instruments* and *land-use enforcement mechanisms* would be developed to enhance the replication across the country of lessons learnt at the demonstration sites. This would include the strengthening of the national inspection system of land use and soil management and conservation through targeted capacity building to facilitate enforcement of pertaining regulation and protection of natural resources. Particular emphasis would be placed at the municipal level on strengthening the Offices for Changes in Land Use and furthering the coordination with the national forest ranger system in application of the current law (Decree 179). Each successive project would focus these actions on those municipalities that have demonstration projects.

1.2. Human resources in key institutions strengthened for SLM and the prevention and combat of desertification and drought.

51. This would be undertaken at the national level, regional and local levels for key institutions particularly those in MINAGRI. Again a staggered approach would be developed throughout the GEF-

CPP with specific institutions being targeted in successive stages, strengthening these at all levels of their dependencies. It would include activities such as targeted training, assessment of staffing levels, and budgetary planning in institutions key to implement on the ground demonstration so as to commensurately complement demonstrations being under taken in that phase under the second line of action, or prepare for those to be undertaken in the successive stage. Activities would also include specific studies, workshops, seminars and exchanges of experiences. At the regional level, the Soils Institute of MINAGRI and the Sugar Cane Research Institute of MINAZ presently execute an annual capacity building programme targeted at local extension staff and communities. The GEF increment would support these activities on a national and regional level, ensuring that SLM principles are adequately addressed and the necessary information and capacities generated.

1.3. Increased awareness in a broad range of stakeholders of the severity of land degradation and its effect on social, economic and environment conditions in the country.

52. This would include a *national level campaign* to increase awareness at the generic level on the importance of land degradation in Cuba and the actions needed to address this. The GEF increment would complement existing awareness building, communication and dissemination actions that focus on sustainable yields and improved living conditions upgrading and up-scaling these to ensure that natural resource management and ecosystem integrity are adequately addressed. It would also provide an input to increased awareness of existing legislation in this arena thereby reinforcing the actions described in paragraph 53. While the first project would implement the bulk of this work, subsequent projects would maintain a small line of action in this arena to provide a mechanism for disseminating Programme advances in the successive stages that are being implemented. *Local awareness campaigns* would also be included to reach a broader range of stakeholders. These would cover more specific issues in those areas where on the ground demonstrations occur thus ensuring that the results are disseminated.

Objective 2: Implement On-the-ground Demonstrations of Practices and Procedures to Halt, Prevent and Redress Land Degradation in Key Interventions Areas

53. This second line of action would implement a series of demonstration interventions to provide on the ground experience in addressing Cuba's main land degradation processes under different land use scenarios. These would provide sustainable and locally adapted solutions for preventing land degradation in specific scenarios, halting the advance in others and restoring ecosystem integrity through land rehabilitation practices in areas of extreme degradation providing direct benefits in specific locations and also feeding into the more cross-cutting capacity building activities under the first line of action.

54. Over the entire period of the GEF-CPP, demonstrations would be undertaken in the three regions of Cuba: the West, Centre and East. Drawing from the guidance and priorities in the NPCDD and from preparatory work for this Concept, six intervention areas have been provisionally identified, two in each region. These are the southern plains of Pinar del Río and those of Habana Matanzas in the West covering the Cuyaguato and Almendares-Vento River Basins; the Maisí Guantanamo coastal strip and Cauto watershed in the East incorporating the Guantanamo-Guaso and Cauto River Basins; and the north of Villa Clara and Sancti Spiritus State in the East incorporating the Hanbananilla and Zaza River Basins.

55. The locations of these are provided in Map 1, Annex 2 and their main characteristics included in Table in Annex 1 along with the proposed scheduling of the interventions in successive projects of the GEF-CPP. While the ordering of these interventions has been agreed upon preliminarily, it would be reconfirmed during preparatory work along with a more exact definition of the scope of each project. Additionally further preparatory work would identify specific sites within each three intervention where pilots would be implemented. Criteria for this would include their position in national priorities; predominant and potential LD type and implications in ecosystem functions, the expected local and global

benefits that would be derived from the sites; the level of co-funding and local commitment to the demonstrations and the type of challenge or barrier that would be overcome through them. The following types of interventions are expected:

- i) *Alternative land-use practices to **prevent** LD.* These would be located in potentially vulnerable regions already showing certain advances of degradation. Pilots would include the survey and diagnosis of the area's vulnerability to land degradation, and action to prevent the advance to currently unaffected areas by correcting current deficiencies in natural resource management. The GEF increment would be to strengthen the regional technical (equipment) and knowledge capacities to support the survey and diagnosis procedures, and work with communities in these areas to identify and develop locally acceptable alternative land-use practices that would prevent land degradation processes. These would include demonstrations simple conservation measures, techniques and tools, such as contour farming, mulching, establishment and management of live barriers, crop residue management, vegetative hedges, adequate on-farm irrigation layout, establishment and management of agro-forestry systems, use of cover crops, gradual formation terracing, layout and construction of infiltration ditches (bench terracing), adequate drainage establishment, use of mineral and organic soil amendments, use of green manures, and the like. It would also support the necessary coordination between the agricultural and forestry sectors to cover key issues where these two sectors overlap with the objective of establishment of protective forests in areas of high vulnerability, fomenting forestry in mountainous areas and protective plantations in river margins, dams and coastal zones.
- ii) *Alternative land-use practices to **halt** LD.* In areas suffering moderate to high levels of degradation pilots would support activities to stop and revert the progress of land degradation by promoting adequate site-specific measures identified with local technicians and farmers to specifically relate to local conditions. For example, sites presenting erosion damages would emphasize erosion management (prevention and control) methods to reclaim these areas, while an area exposed to drought would concentrate on water harvesting, conservation, storage techniques to maximize water usage and alternative drought resistant crops or the establishment of agro-forestry systems. They would also include activities to support forestry practices ensuring that reforestation programmes focus vulnerable areas, and adopt strategies that protect ecosystem integrity. In those areas where timber exploitation is permitted, action would be undertaken to ensure felling adopts conservation measures and debris control to avoid the obstruction of natural waterways in areas of deficient drainage.
- iii) *Ecosystem **rehabilitation**.* In areas suffering high levels of land degradation such as deforestation along the riverbanks, extreme erosion and significant losses of natural fertility. Pilots would build-on the GoC activities to improve the sanitary conditions of communities, implementing practices to maximize the collection of rain water, developing improved irrigation systems and water budgeting methods and defining solutions for rehabilitation. In areas of severe erosion with extreme gullies and troughs this may entail intensive to rebuild land and soil structures. In other rehabilitations may be feasible through soil conservation and recovery techniques using sustainable agriculture, pasture, woodland and rangeland management evaluations. These areas would also serve to determine the economic cost incurred by current land degradation process and the benefits derived from the prevention rather than correction thus feeding into land use planning frameworks.

Projects within the Country Programme Partnership

56. Further preparation work would define the projects within the GEF-CPP, however based on the

guidance provided by the NPCDD, on the results of two workshops in 2001⁴ and on consultations held for the preparation of this Concept, a series of preliminary decisions have been taken to define the potential phases needed to support the implementation of the NPCDD. These are summarized in Table in Annex 1.

57. The *first project* in the GEF - CPP would be submitted with UNDP as Implementing Agency and would focus on Strengthening the Cuban Integrated Land and Soil Conservation Programme. This five year programme seeks to halt the advance of the most important *soil degradation processes* in Cuba, developing mechanisms and conditions to reverse these in key areas thus ensuring the conservation of ecosystem integrity, increasing food security and the sustainability of livelihoods for rural communities. While seeking a multidisciplinary approach, this project would prioritise the agricultural sector, and within it focus on the area of soils as a starting point. In Cuba, the area of agricultural production is one where land degradation problems are both most evident and persistent. The area of soils represents a cross cutting factor throughout all fields of agricultural production. It also provides a starting point for branching out into other associated sectors, such as forestry, watershed management and other environmental sub-sectors, thus providing important lessons for other projects in the GEF-CPP.

58. From an institutional standpoint the first project also provides a strategic entry point for the GEF-CPP. The MINAGRI with its central and regional workforce regulates and controls land use in Cuba, registering and certifying any changes in land use. Within this the Soils Institute has local staff in chapters throughout all Cuban States, constituting the axis of agricultural extension work, coordinating all extension activities and programmes in related fields, such as agronomy, specific production lines (staple crops, sugar cane, coffee, tobacco, fruit, livestock, poultry, etc.), and forestry.

59. In keeping with the overall approach in the programmatic partnership, the first project would take action at two different but complementary levels, including both capacity building at national, regional and local levels and on-the-ground demonstrations providing hands-on experience and delivering tangible global benefits in the short term. However, consistent with the step by step process of the proposed GEF-CPP, the first project would focus a significant proportion of resources to achieving the first Objective of the CPP - Mainstreaming SLM at national, regional and local levels and strengthening the capacities of key stakeholders to address land degradation related issues.

60. Within this Objective, particular emphasis would be given to Outcome 1.1.1 - National, State and Local (municipal) planning frameworks strengthened with SLM principles and implemented through improved inter-sectoral coordination mechanisms and decision-making tools. This would include developing systems for monitoring and evaluating land degradation processes and the impact of intervention on these and an early alert system for drought to enable rapid responses. Emphasis would be placed on those regions that suffer most drought and particularly Pinar del Rio State that is Cuba's most vulnerable area in terms of extreme climatic events. In this State the Institute of Meteorology would receive targeted capacity building to ensuring the necessary skills and equipment are in place to provide an early alert system. Land use plans, strategies and practices would be developed here to enable adaptation to climate change effects on desertification vulnerability and provide synergies with GEF Regional projects addressing this issue. This Outcome would also develop a desertification and drought map of Cuba to orient the on the ground interventions of the successive projects in the GEF-CPP.

61. In relation to human resources development the first project would focus at the national, and State levels on the MINAGRI Institute of Soils and on key non-governmental entities such as the National Association of Small Agricultural Producers (ANAP). At the municipal level, the MINAGRI Offices for

⁴ These were the Tri-national Workshop on Saline Soils that formed part of the Africa-Latin America and the Caribbean Cooperation Platform and Synergies between Environmental Conventions Workshop in 2001

Changes in Land Use would be strengthened furthering the coordination with the national forest ranger system in application of the current law (Decree 179) focusing on those municipalities that have demonstration projects under phase one and phase two. Finally under this outcome the first project would implement a *national level campaign* to increase awareness at the generic level on the importance of land degradation in Cuba and local awareness campaigns for those demonstration areas in project two. The intervention area of this first project was chosen in part due to the existing capacities and awareness. However project preparation actions will better define any specific needs for awareness building in the broader area to facilitate the replication of site-specific demonstrations throughout the area once the first project has been completed.

62. The first project would include on the ground action in one intervention area thus contributing to the GEF-CPP second objective of demonstrating practices and procedures to halt, prevent and redress land degradation in key areas. The site selected for this is the Maisí Guantanamo coastal strip in the East incorporating the Guantanamo-Guaso Basin. This area shows the most intense and extensive land degradation and desertification processes in Cuba and, as a result, has the highest vulnerability in terms of food production. Existing awareness and capacities in this region will increase the viability of successful implementation of on the ground interventions in the first project.

63. The demonstrations at this intervention site would build on and up-scale existing tests in the “reference areas” programme of the Soils Institute, addressing LD issues in several scenarios, with diverse levels of degradation and resultant from different land degradation processes. These would include amongst others: (i) *Drought*: Irrigation water reservoirs for improved water distribution; agroforestry systems; cultural methods for improved water infiltration and conservation; rain water harvesting; mulching; (ii) *Bad drainage and salinization*: Irrigation water quality monitoring to prevent salinization; soil reclamation and salt leaching measures; waterways to control and infiltrate runoff; adequate drainage layout; adequate water budgeting; (iii) *Soil Erosion*: Diversion channels and adequate irrigation layout design for excess runoff management; drop structures to dissipate runoff velocity and energy; strip cropping for water infiltration; gully controls for rehabilitation; bench terracing to reduce slopes; adequate land preparation; (iv) *Soil Compaction*: Conservation tillage; deep ploughing; adequate crop selection; crop residue incorporation; rotation with deep rooted crops; appropriate change in land use; (v) *Soil Acidification*: Adequate fertilization planning and reduction of acidifying mineral fertilizers; mineral and organic soil amendments; (vi) *Low Organic Matter Soils*: Incorporation of crop residues, manures and organic fertilizers; green manures; cover crops; soil enriching crop association; crop rotation.

64. Other projects in the GEF CPP could be either successive or overlapping to be defined in preparation activities and on the confirmation of co-funding sources, However they would follow the step-by-step logic outlined in Table 1, Annex 1. Following the first project with intervention in Guantanamo-Guaso and local capacity building in Pinar del Rio, successive projects would have site specific interventions as follows. Phase 2 Pinar del Rio State and Cauto watershed; Phase 3, Habana/ Matanza, and northern Villa Clara State and residual actions in the Cauto watershed; Phase 4 Spiritus Sanctus State and residual action Habana/Matazna, and northern Villa Clara State.

Sustainability

65. The sustainability of the GEF-CPP impacts and those of its individual projects has been a concern even at this early stage of design. The proposed overall framework provided by the GEF-CPP would ensure that projects early in the programme build local regional and national capacities to levels commensurate with the scale of site-specific interventions to be implemented in subsequent projects. Once these levels have been attained, capacity development would focus on the review of control and incentives that will allow the continuity of best practices and discourage the continued use of those

practices currently causing land degradation. The varied combination of capacity development and site-specific interventions in successive projects would provide effective mechanisms for rapid dissemination on the ground action and validation of locally defined and tested alternative land-uses increasing social acceptance and enhance the sustainability of the Programme results.

66. Sustainability would also be facilitated by the fact that the combat of land degradation is a matter of utmost priority for the GoC, as shown by the NPCDD. This affects sustainability in two ways. First the by merging the global objectives with the attainment of national objectives for the sustainable development of the affected communities, governmental and non governmental support to the programme and its projects will be high. This is already indicated by the allocation of resources for the implementation of the NPCDD in ongoing national plans and programmes. Although these levels require further up scaling to successfully overcome the barriers that hinder the adoption of SLM and the combating of land degradation, once these have been removed by GEF CPP action, national funding sources would provide the basis for maintaining the level of action to sustain work in this arena once the GEF-CPP and its related projects close.

67. The institutional and technical framework dedicated to attending natural resource management as it relates to desertification and drought phenomena would have been strengthened through the GEF-CPP and would be better placed to address continuing land degradation issues as needed. Capacity building components would also define incentives and other funding mechanisms for any additional work required and for enhancing the replication of lessons learnt across the country through planning and control structures. Although this targeted cutting capacity building is required to address the cross cutting nature of SLM, Cuba has exceptionally high individual technical capacity in specific themes. This results in a high absorptive capacity in Cuba and a good performance in international cooperation resource management, indicating that interventions would be cost-effective and sustainable.

Replicability

68. The strategic approach in the design of the Country Programmatic Partnership provides an a framework for the replication of lessons and transferring experience beyond the initial programme and projects to successive ones. As already stated, the first project of this GEF-CPP would concentrate on the agricultural sector, and within it, on the area of soils as a starting point. The area of soils represents a cross cutting factor throughout all fields of agricultural production. It will also provide a starting point for branching out into other associated sectors, such as forestry, watershed management and other environmental sub-sectors, thus providing a logical basis for other projects in the programmatic partnership to up-scale interventions over larger geographical areas country-wide with similar characteristics. As an output of the project, strengthened national capacities will be in place, ready and able to apply the successful experiences from the first project in other projects in the programmatic partnership as well as in other plans and programmes related to natural resource management and ecosystem stability that may be developed after this CPP comes to an end.

69. The intervention sites chosen are the most representative areas for land degradation phenomena in the country, also present in other areas of the national territory, and have been already studied and prioritised by the NPCDD. Thus the lessons learned during the first project may be easily extrapolated to other geographical areas showing similar degradation processes within Cuba and in other countries of the Caribbean Basin. Cuba's geographic location in the Caribbean Basin favours the extrapolation of results to other countries with similar desertification and drought problems.

Stakeholders involved in project

70. The Country Programmatic Partnership would be co-ordinated by the Ministry of Science, Technology and the Environment (CITMA), represented by the Environmental Education, Management and Information Centre (CIGEA). Coordinating entities such as the National Watershed Council - NWC, chaired by the CITMA, and the Grupo Nacional contra la Desertificación y la Sequía would provide mechanisms to enhance the coordination needed for such a comprehensive Programme. The first project of the CPP would be executed by the Ministry of Agriculture (MINAGRI), represented by the Soils Institute in collaboration with the MINAGRI State Delegations and the Departments of Soil at State and municipal levels. To varying degrees a variety of divisions of other MINAGRI dependencies would be involved in the execution of projects within the GEF-CPP, such as the State Forestry Service (SEF), the Livestock Directorate and other research and development institutions such as the Forage Institute, Irrigation and Drainage Institute, Horticultural Research Institute Liliana Dimitrova. At the regional levels the Ministry of Science, Technology and the Environment (CITMA) would also be involved in activities, represented by the Territorial Delegations in collaboration with territorial organisms and organizations. The Meteorological Institute, in collaboration with the provincial Departments of Meteorology, would represent the Environment Agency.

71. Other stakeholders include the Ministry for Foreign Investment and Cooperation (MINVEC) and its International Cooperation Directorate; the Sugar Ministry represented by the Direction for Science and Technology and the National Sugar Cane Research Institute; the National Hydraulic Resource Institute, the Advanced Education Ministry, represented by related State Universities and other dependencies; and the Forest Guard. Local governmental authorities represented by the Assemblies of Popular Power at State and municipal levels will also be vital in implementation. Non-governmental organisations would include National Association of Small Farmers, the Cuban Association of Soil Science; the Cuban Women Federation; the Cuban Association for Animal Production; the Cuban Association of Agricultural and Forestry Technicians.

Information on project proposer

72. The GEF-CPP is presented by the GoC through its Ministry of Science, Technology and Environment (CITMA), charged with the direction, execution and control of Government politics in scientific, technological and environmental policy, contributing to national sustainable development. This Ministry is the political focal point of all International Environment Conventions of which Cuba is a signatory country. CITMA action at national and local levels is undertaken through its Centres and Dependencies, throughout CITMA's 15 State delegations and its municipal representatives. CITMA's structure also includes the Environment Agency (AMA) responsible for research and development plans and programmes and technical-scientific services related to environmental management and the study of natural resources. CITMA works in coordination with other organisms of State Administration, such as MINAGRI, MINAZ and their institutions, among others, as well as territories and NGOs towards the protection of the environment and socio-economic development.

FINANCING PLAN AND PROPOSED PROJECT DEVELOPMENT STRATEGY

73. The estimated budget for the NPCDD priority projects is US\$ 155 million of which the GoC would provide US\$ 77m and US\$ 78m is being sought in foreign contribution. However, as the goal is not full implementation of all priority projects but rather strengthening the implementation of the NAP in general, the cost of the CPP can only be precisely determined during the preparatory work that confirms, and further details, the strategic approach being proposed. Despite this there is some relationship between the estimated cost of the priority NAP projects and an initial estimate of GEF CPP cost. As such the estimated total cost of the GEF3-CPP required to provide critical support to the implementation of this

NCPDD is between US\$ 80 and 90 million of which co-funding would be US\$ 70-80million and GEF US\$10million.

74. More specific advances have been made on the financing plan of the first project. The total cost of this first project is estimated at between US\$ 30 and 40 million. Of this the GoC would contribute a co-financing amount of between US\$ 25-30 million and others US\$ 5-10 million. GEF resources for this first project are expected to be in the 3-5 million range. Co-funding negotiations have been advanced with the following entities: the German NGO Agroaccion Alemana (US\$ 0.5 million); the UNDP Phase 2 of the Food Security Project in the Eastern Provinces (0.5million); and a cooperation of 0.7million Euros from Belgium still under negotiation. These would be fully detailed and confirmed during the preparatory phase.

75. Following approval of this Concept paper into the GEF pipeline, a PDF B request would be made to complete the design of the Country Programme Partnership, further secure funding partners and finalise the design of the first project, ensuing full compliance with emerging guidelines for OP 15, finalize the financing plan and define implementing arrangements. Particular attention will be given to the selection of indicators to measure the impact of the intervention. The NAP identifies a range of indicators that have been used to evaluate the state of agricultural soils and other natural resources related to land degradation (see Annex 4). Whilst these will provide some of the indicators that will form part of the M and E Plan, further work will be undertaken to determine indicators that enable the integral evaluation of ecosystem functions in response to the proposed projects for combating land degradation. As part of this the NGCDD has already organized a workshop in April 2004 to analyze international and national experiences in this arena and to determine the most appropriate for the GEF-CPP

76. Preparatory work would include consultations with different GEF agencies to better define respective roles at different stages in the partnership (see paragraph 78). The CPP, and the first project, are expected to be presented for Work Programme Entry in May 2005.

INSTITUTIONAL COORDINATION AND SUPPORT

Links to Implementing Agency Programme

77. The Proposed GEF CPP has close links with the 2003-2007 UNDP Country Programme for Cuba and will contribute to the achievement of a range of outcomes. These include the *Strengthening of Productive Sectors* component, particularly its section on improving food security by improving water management and irrigation systems, risk and vulnerability management including adoption to climate change, and improving food security. Similarly it will contribute to the goal of *Improving the Quality of Life* component, particularly as regards the emphasis that this places on improving and preserving the quality of the environment including addressing land degradation. Links with the Cuba UNDP Cooperation Plan would also incur with its line of action for *Strengthening the Management of Human Development* and within this the section on developing local capacities and strengthening and invigorating local economies making local development environmentally sustainable.

Collaboration with GEF Agencies

78. A high degree of collaboration between IAs and EAs would occur over the life of the CPP. This has been evident already with the participation of FAO in the Concept development workshop and their expected continued support during further preparation. It is expected that FAO would act as Technical Cooperation Agency during the first project providing cross-cutting technical expertise in specific activities in which their technical expertise would enhance project design and implementation. Their role as potential GEF EA or IA for other projects of the CPP will also be further explored and in this context

the Cauto watershed and phase two has preliminary been identified as their main entry point. UNEP has also indicated their interest in forming part of the partnership and during the preparatory phase their specific areas of action would be further determined. As such the preparation phase would include specific components that would determine roles of donors and GEF IAs in the overall framework as well as specific details and confirmation of collaboration in the first CPP project.

Collaboration of Institutions at the National Level

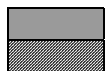
79. The main mechanism for institutional collaboration with relation to the CPP will be the multi-institutional National Group for Combating Desertification and Drought (NGCDD). This was set up in 1996 to lead the development of the NAP and subsequently to undertake a range of responsibilities and functions related to its implementation. It is a multi-institutional group made up of 36 representatives from 24 governmental, NGO and scientific institutions related to economic, social, environmental and knowledge aspects of desertification. This group will provide an effective mechanism for two-way flow of information between the CPP actions and the institutions allowing technical inputs and collaboration with on-going actions and dissemination of lessons learnt. To facilitate the coordination of this collaboration in the CPP a small executive committee would be formed in the NGCDD with specific terms of reference to act as the national coordination for the CPP.

LIST OF ANNEXES

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ANNEX 1: Objectives, Main actions and Intervention Areas of each Phase/ Project of the Proposed GEF Country Programme Partnership. *Priority National Watersheds are in italics in brackets.*

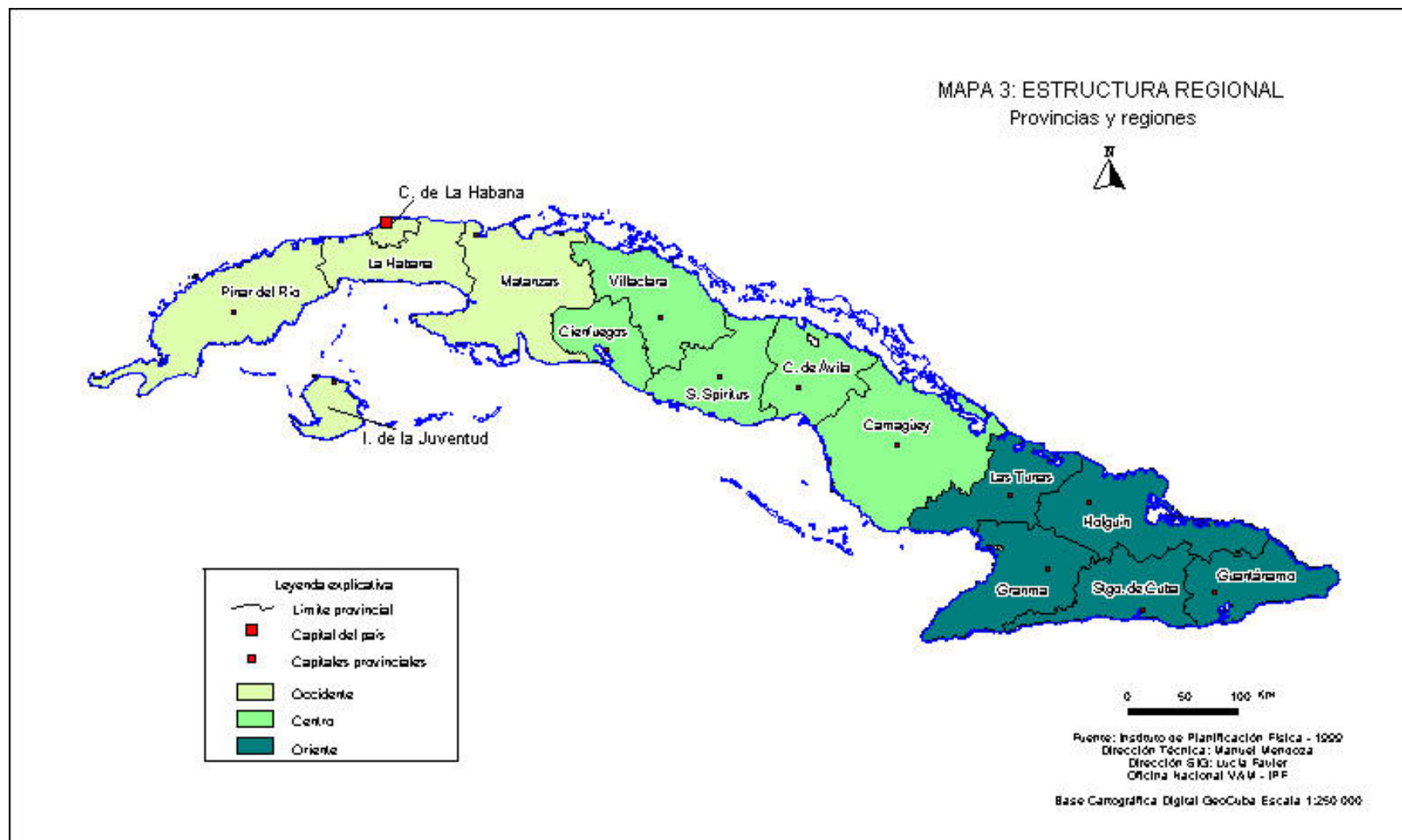
Level	Intervention Areas, River Basins, Issues and Actions	Phase or Project			
		I	II	III	IV ...
Objective 1. Mainstreaming SLM and strengthening capacities in key stakeholders to address land degradation					
National	1.1. (i) SLM Planning Frameworks Strengthened and Implemented				
	Review planning processes and improve inter-sectoral planning coordinating				
	Develop decision-making tools SLM (M& E systems; Drought Surveillance)				
	Strengthen land-use enforcement mechanisms				
	Develop SLM incentives and funding mechanisms to enhance replication				
	1.1. (ii) Human Resources Developed in Key Institutions for SLM				
	Institute of Soils (MINAGRI)				
	Other MINAGRI divisions (e.g. Forestry, Irrigation and Drainage Services)				
	Non MINAGRI Institutions (e.g. Sugar Cane, Water Resources, CITMA)				
	Non Governmental Organizations e.g. National Small Agriculture Producers				
	1.1 (iii) Awareness on LD and SML raised through national campaign & dissemination of project results				
Cross cutting generic at national level					
Local /Region	1.2 (i). Review regional planning processes and coordination mechanism				
	1.2 (ii) Human Resource Development of Specific Institutes	PR	G,H,	SS	
Objective 2: On-the-ground Demonstrations to Halt, Prevent and Redress Land Degradation					
East	<u>Guantanamo plains</u> (<i>Guantanamo-Guaso Basin</i>) Most intense & extensive LD; high food vulnerability. Dry forest & xeric scrub		1.2 i		
	<u>Cauto River Basin.</u> High deforestation and erosion rates. Mainly Dry Forest ecoregion				
West	<u>Pinar del Rio State</u> (<i>Cuyaguato</i>) : Pine and dry forest ecoregions. High vulnerable to extreme climatic events (drought, hurricane)	1.2 i, ii			
	<u>Habana/Matanza States</u> (<i>Almendares-Vento</i>). Main food production for Habana, monocultures & extensive irrigation		1.2 i, iii		
Centre	<u>Villa Clara State</u> (<i>Hanabanilla Basin</i>) Dry forest, large cultivated areas, high erosion, high levels of soil salinity and compactation		1.2 i, iii		
	<u>Sancti Spiritus State</u> (<i>Zaza Basin</i>) Low population, moist forest eco-region; highly deforested; large rice cultivations			1.2 i, .iii	



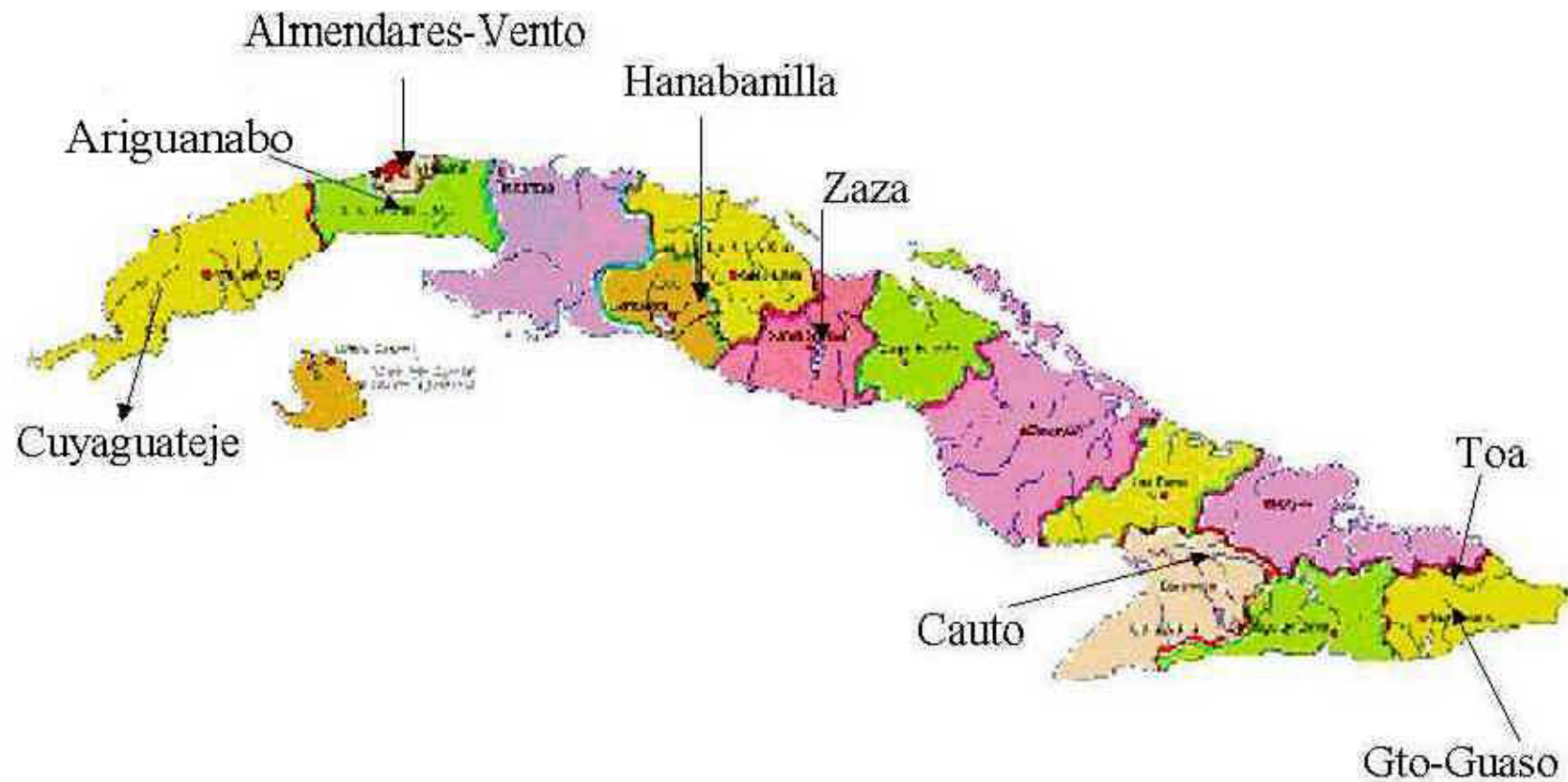
Mainstreaming SLD and strengthening SLM capacities in key stakeholders

On-the-ground Demonstrations to Halt, Prevent and Redress Land Degradation

Annex 2. Maps of Cuba illustrating location of proposed intervention sites in relation to the region and national priority watersheds



CUENCAS HIDROGRAFICAS DE INTERES NACIONAL



ANNEX 3

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Acronyms

ACTAF	Cuban Association of Agricultural and Forestry Technicians.
AMA	Environment Agency
ANAP	National Association of Small Farmers
CAAP	Cuban Association for Animal Production
CASS	Cuban Association of Soil Science
CIGEA	Environmental Education, Management and Information Centre
CISCI	Cuban Integrated Soil Conservation and Improvement Programme
CISCIP	Cuban Integrated Soil Conservation and Improvement Programme
CITMA	Ministry of Science, Technology and the Environment
FMC	Cuban Women Federation
GoC	Government of Cuba
LD	Land Degradation
MINAGRI	Ministry of Agriculture
MINAZ	Sugar Ministry
MINVEC	Ministry for Foreign Investment and Cooperation
NPCDD	National Action Programme to Combat Desertification and Drought
NGCDD	National Group to Combat Desertification and Drought
SCRI	Sugar Cane Research Institute
SEF	State Forestry Service
SI	Soils Institute
SIDS	Small Island Developing State
SLM	Sustainable Land Management.
SNVC	National Climate and Drought Surveillance

Annex 4

Indicators included in the Cuban National Programme to Combat Desertification and Drought (NPCDD) that will be considered for the GEF-CPP M and E Plan in addition to other indicators to be defined for ecosystem integrity and capacity building

Variable	Indicators			
	Physical	Chemical	Biological	Socio-economic
Soils	Density of troughs and gullies per area (%)	Content and composition of organic material (%)	Loss of original biota (%)	Inhabitants per agricultural area (people/ha)
	% loss of horizontal surface	Change in the indexes of fertility, pH, changeable acidity, base change capacity, phosphorus and potassium	Animal load/area	Inhabitants per crop area
	Changes in the real and apparent density, structural stability, compactation and infiltration capacity	Dynamics of salinization per horizontal level (Expressed by the electrical conductivity)		Rate of population mobility (% migration)
WATER	Reduction in the stored water levels (MM m ³)	Degree of salinisation	Changes in the microbiota composition and loss of biological activity	Satisfaction level of the population needs and other users (%)
CLIMATE	Drought Index Arid Index			
	Spatial and temporal distribution of precipitation, evaporation and temperature			
VEGETATION	Deforestation dynamics (%)		Floristic composition by type (%)	Agricultural and forestry production by unit area (tons-m ³ /ha/yr)
	Area of vegetation cover (%)			Consumption of forest species for firewood (m ³ /ha/yr)
	Area covered by drought indicator plants			Regeneration rates of shrub species (%)
Atmospheric	Content of particles in the air	Chemical composition of rain		

Annex 5

Response to GEF Review Sheet on Cuba Country Programme Partnership (CPP)

1. Further clarification over the financing plan.

The Concept provides estimates for the cost of implementation of the priority projects in the NAP. The Country Programme Partnership (CPP) will provide support for this and as such there is some relationship between the estimated NAP costs and the eventual Programme costs. However, as the goal is not full implementation of all priority projects but rather strengthening the implementation, the precise relationship can only be determined during the preparatory work that confirms, and further details, the strategic approach being proposed. This strategic approach is to deliver a series of GEF projects within the CPP that will provide targeted support to catalyze the NAP implementation. As described in the Concept this will entail a mix of capacity building actions and on site actions in areas identified as priorities in the NAP. The relative emphasis of each component will change in successive projects in the CPP with capacity building being stronger in the first projects and site specific actions in subsequent ones. Only once the full assessment of these needs has been undertaken through more detailed preparatory work can a more specific estimate be made on the total cost and financing plan of the full programme. *Paragraph 73 has been amended to reflect this response.*

However, more specific advances have been made on the financing plan of the first project and more information for this project can be provided at this time. Co-funding negotiations have been advanced with the following entities: the German NGO Agroaccion Alemana (US\$ 0.5 million); the UNDP Phase 2 of the Food Security Project in the Eastern Provinces (0.5million); and a cooperation of 0.7million Euros from Belgium is still in negotiation. In addition to this the GoC will channel 25-30 US\$ million from resources allocated to the national soils conservation programme. GEF resources for this first project are expected to be in the 3-5 million range. *Paragraph 74 has been amended to reflect this response.*

Subsequent projects in the CPP would be have their approximate costs estimated during the preparatory phase and in close coordination with other potential GEF IA (see item2.2)

2. Further Documentation on Institutional Collaboration and Participation of Donors

2.1. Institutional Collaboration at the National Level

The main mechanism for institutional collaboration with relation to the CPP will be the National Group for Combating Desertification and Drought (NGCDD). This was set up in 1996 to lead the development of the NAP and subsequently to undertake a range of responsibilities and functions related to its implementation. It is a multi-institutional group made up of 36 representatives from 24 governmental, NGO and scientific institutions related to economic, social, environmental and knowledge aspects of desertification⁵. It is under the

1. ⁵ 8 Government representatives – Ministries of Economy and Planning; Agriculture; Science, Technology and the Environment; Fisheries; Water Resources; Sugar, Public Health, and Education. 12 research, teaching or

general coordination of the Environmental Education, Management and Information Centre (CIGEA) of the Environmental Agency (AMA) –technical focal point for UNCDD and part of the Ministry of Science, Technology and the Environment CITMA.

Key functions of this group are to evaluate progress and make recommendations for implementation of the NAP through state institutions and social organizations; to undertake public consultations and to assure citizen participation in the implementation of the NAP. It has three sub commissions each related to specific committees of the UNCDD: Science Technology related to scientific issues (traditional technologies and knowledge, indicators and reference points and early warning amongst others); Implementation and Oversight of the NAP related to national issues and to the indications arising from the UNCDD Review and Implementation Committee (CRIC); a Group for those projects indicated as priority in the NAP. To facilitate the collaboration of institutions for the CPP a small executive committee would be formed in the NGCDD with specific ToR to act as the national coordination for the CPP, facilitating collaboration and technical inputs from the wide range of institutions that constitute this group.

2.2. Participation of Donors

As noted in the Concept preparatory work would include consultations with different GEF agencies to better define respective roles at different stages in the partnership. At this stage the closest collaboration has been with FAO that took an active part in the definition of the Concept and that has preliminarily identified the Cauto Watershed and project 2 as their main entry point. However their participation would also be sought in project 1 where their technical expertise would enhance project design. UNEP has also indicated their interest in forming part of the partnership and during the preparatory phase the specific areas of action would be further determined. As such the preparation phase would include specific components that would determine roles of donors and GEF IAs in the overall framework as well as specific details and confirmation of collaboration in the first CPP project. *Paragraph 78 has been amended to reflect this response.*

3. Indicators for M and E that would be developed in an M and E plan during project preparation

The NAP identifies a range of indicators that have been used historically to evaluate the state of agricultural soils and other natural resources related to land degradation. Whilst these will provide some of the indicators that will form part of the M and E Plan, further work will be required to determine more precise and measurable indicators that enable the integral evaluation of ecosystem functions in response to the proposed projects for combating land degradation.

service institutions, such as, the National Institute of Agricultural Science; the Institute of Soils; Animals Science Institute; Forestry Research Institute; the Tropical Agriculture Research Institute; Centre for Population Studies; Institute of ecology and Taxonomy, Institute of Meteorology amongst others. 4 Non-Governmental Organizations National Association of Small Farmers; Federation of Cuban Women; Cuban Society for Soil Science; Cuban Meteorology Association. In addition further organizations take part on less permanent basis.

2.

As such the identification of these indicators is a priority action that has been identified for the preparatory phase (PDF B) as well as their integration into a comprehensive M and E plan of the CPP. As part of this exercise the NGCDD has organized a workshop in April (20 - 22) to analyze international experiences in this arena (Mediterranean-MEDRAP-, LAC and the Caribbean) as well as national advances in different institutions so as to determine the most appropriate for the CPP. The workshop will also determine the criteria, indicators and parameters for evaluating the effectiveness of the actions implemented in the NAP and in the Soils Conservation Programme that is the focus of the first project. Indicators will include the biophysical indicators of soil degradation, selected environmental indicators related to ecosystem functions as well as socioeconomic indicators and capacity indicators at the individual, systemic and institutional level. *Paragraph 79 and Annex 4 have been added to reflect this response.*