



Government of the Dominican Republic
Secretariat for Environment and Natural Resources

United Nations Development Programme

Fundación Sur Futuro

**Demonstrating Sustainable Land Management in the Upper Sabana
Yegua Watershed System
PIMS 3185**

Summary

Land degradation in the Upper Sabana Yegua Watershed System limits the potential to develop a sustainable livelihood for more than 600,000 persons in the driest, poorest and most populated municipalities in the southwestern Dominican Republic. A sustainable and environmentally sound local economy depends on the clean energy, irrigation, and domestic water captured within the upper Sabana Yegua watershed and stored in the Sabana Yegua Dam, which has now lost over 24.5 % of its productive capacity. Sedimentation, deforestation, and loss of fertility contribute to global warming, biodiversity loss, and restrict the availability of fresh water while altering the structure and integrity of local ecosystems. Those phenomena are exacerbated by inappropriate land use and damaging agriculture and grazing practices. The national and local efforts of the Dominican Government to reverse the trend through forestry and agroforestry programs implemented in partnership with the Fundacion Sur Futuro are limited due to political, capacity, and financial barriers that impede the effectiveness of the baseline efforts to improve the environment and livelihoods of the residents in the upper watershed.

UNDP together with the Dominican Secretariat for Environment and Natural Resources and the Sur Futuro Foundation propose a GEF Full Size project that will add to the national and local efforts by creating policies, developing local and national capacities, and developing the sustainable financing necessary to promote long-term sustainable land management and assure the environmental services needed to reduce poverty.

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Acronyms

Acronym	Definition
APR	Annual Project Report
AWP	Annual Work Plan
BAGRICOLA	Dominican Republic Agricultural Bank
CAD	Dominican Environmental Consortium
CAE	State Sugar Council
CBO	Community Based Organization
CDC	Community Development Committee
CEPROS	Center for Social Promotion and Studies
CODOCAFE	National Coffee Corporation
DIARENA	National Direction for Environmental and Natural Resources Information
ERP	External Review Process
EXA	Executing Agency
FAO	Food and Agriculture Organization
FEDECARES	Federation of Coffee Producers in the Southern Region
GEF	Global Environmental Facility
GHG	Green House Gases
GIS	Geographic Information System
GTI	Inter-institutional Working Group
IA	Implementing Agency
INDRHI	National Institute of Hydrological Resources
INVI	National Housing Institute
IR	Inception Report
IW	Inception Workshop
IWCAM	Integrating Watershed and Coastal Area Management in Small Island Developing States of the Caribbean
JICA	Japanese International Cooperation Agency
LAC	Latin America and the Caribbean
M&E	Monitoring and Evaluation
MCM	Millions of Cubic Meters
MDG	Millennium Development Goals
NAP	National Action Plan
NERIS	National Environmental Resources Information System
NGO	Non Governmental Organization
NPC	National Project Coordinator
ONAPLAN	National Planning Office
OP-15	Operational Programme 15
OSPP	Secretarial Office of Planning and Programming
PAN-FRO	National Action Plan for the Border Region
PDF-B	Project Development Phase-Block B
PIRs	Project Implementation Reviews
PMU	Project Management Unit
PROCARYN	Management of the Upper Rio Yaque del Norte Watershed Project
PSC	Project Steering Committee
PTA	Principal Technical Advisor

RC	Regional Coordinator
RCU	Regional Coordinating Unit
RDT	Reduction of Land Degradation
RPC	Regional Project Coordinator
RSC	Regional Steering Committee
SEA	Secretariat of Agriculture
SEE	Secretariat of Education
SEMARENA/ SEMARN	Secretary of State for the Environment and Natural Resources
SEOP	Secretary of State for Public Works and Communications
SESPAS	Secretariat of Health and Social Assistance
SIC	Secretariat of Industry and Commerce
SLM	Sustainable Land Management
SSA	Undersecretary for Soils and Water
STP	Technical Secretariat of the Presidency
SUREF	Under-secretariat for Forest Resources
TA	Technical Advisor
TFCA	Tropical Forest Conservation Act
TPR	Tripartite Review
TTR	Terminal Tripartite Review
UGAMs	Municipal Environmental Management Units

SECTION I: ELABORATION OF THE NARRATIVE

PART I. Situation Analysis

Context and global significance

1. The Dominican Republic is an island nation located within the Greater Antillean region of the Caribbean basin with a population of approximately 9.1 million and a surface area of 48,670.82 km². The country is rugged, with four, parallel mountain ranges and fertile valleys with a diversity of ecosystems; only 20% of land is considered appropriate for agriculture. Further, the Dominican Republic has one of the highest population densities in Latin America, half dependent directly on land resources primarily for agriculture. Agriculture, however, accounts for only 14 per cent of GDP, yet it provides over 40 per cent of total employment and accounts for 65 per cent of total exports. Land distribution is highly skewed: the prime farmland is concentrated in the hands of less than 10% of the farmers, while 82% of agricultural interventions are located on small farms or parcels in areas not appropriate for agriculture, which provide 60% of the foodstuffs consumed nationally (Fernandez, 2002). Rural areas supply all of the country's domestic water and 20% of electricity. It is estimated that 85% of the upper watersheds of the Dominican Republic are degraded (SEMARENA/SSA, 2000), threatening the long term food security and sustainability of the delicate environment that provides for the nations food and water. Based on hydrologic potential for agriculture, 16.7% (8,055 km²) of the national territory is classified as "arid" and "semi-arid" (SEMARENA/SSA, 2002). The majority of those lands are concentrated in the southwestern region of the country, whose provinces are among the driest and poorest.

2. The southwestern region, where the project area lies, is classified nationally as a priority region for social development (ONAPLAN, 2002).and includes both steep degraded lands and flat alluvial soils with high agricultural potential. The project area itself is the greater Upper Sabana Yegua Watershed System, which covers a total of 1,660 km² and consists of the catchments of three rivers (Yaque del Sur, Grande del Medio and Las Cuevas). The topography is mountainous, ranging from 400 to 1640 m.a.s.l., and there is also a wide diversity of climatic conditions, ranging from 725 mm of annual rainfall rain spread over 75 rain days to 2,000 mm spread over 102 rain days.

3. In terms of biodiversity, the Dominican Republic has a 30 per cent endemism rate, with an additional 30 per cent shared only with the island of Cuba, resulting in an Antillean flora and fauna that are both rare and unique¹. The extreme altitude gradient and rugged topography give rise to a complicated mosaic of 8 distinct micro-bioclimatic regions ranging from Subtropical Dry Forest to Montane Wet Forest (*sensu* Holdridge). The Hispaniolan pine forests of the area (*Pinus occidentalis*) is one of the Global 200 priority ecoregions identified by WWF and Dinerstein et al., and their conservation status is classified as critical/endangered. In the absence of broadleaf forest, which has suffered severe deforestation, the coffee stands of the area provide habitat for endemic bird species such as *Cardelius dominicensis* and *Nesocittes micromega* and threatened migratory bird species, such as Bicknell's thrush (*Catharus bicknelli*.) and the Cape May Warbler (*Dendroica tigrinum*) (Wunderle & Latta, 1996).

4. The population of the Upper Watershed System is 77,000, living in around 100 villages located within 159 rural compartments known as "parajes". The communities are economically depressed with 80-100% of households in the communities living in poverty (STP/ONAPLAN, 2002). There is no electric service in the majority of the communities, and households frequently do not have access to clean water solid waste collection or water sanitation services, placing them at risk from water-borne diseases (World Bank 2004). Farmers are heavily dependent on precarious subsistence

¹ See http://web.idrc.ca/en/ev-50153-201-1-DO_TOPIC.html

agriculture, with limited access to markets, opportunities for employment and sources of alternative income.

5. Almost all of the area outside of protected area system is deforested (see SECTION IV: PART III), being dedicated to agriculture and grazing activities. Those areas are heavily eroded with declining fertility. The topsoils of the area are loose and thin (10-30 cm. sandy loams) with loose, gravel subsoils. When the vegetation is removed for cultivation, the topsoil and the subsoil are very susceptible to processes of erosion² and physical degradation (JICA, 2002), which reduce its capacity for agricultural production. In addition, the removal of vegetation and the use of fire to burn woody debris release significant volumes of CO₂ into the atmosphere, contributing to global warming. Given their high levels of dependence on natural resources for their livelihoods, the population is highly vulnerable to environmental shocks; of particular importance in this region are periodic hurricanes, which in the past have led to flash floods, which have destroyed valley bottom arable land and increased cultivation pressure on hillsides. In addition, the fact that the population depends principally on rain-fed agriculture, which is designed to fit into the timing of annual cycles of dry and wet seasons, means that any increases in the variability of climatic patterns which may result from global climate change is likely to have severe impacts on local livelihoods. Although the Dominican Republic forms part of an island, the relatively pronounced topography in the lower watershed means that coastal areas are unlikely to be significantly affected by possible sea level changes arising from climate change.

6. This project area drains into the Sabana Yegua Dam, which was completed in 1978 to provide irrigation, electricity, and domestic water services to over 610,000 people, in an area of over 7,100 km². Families downstream of the dam place access to irrigation water at the top of their list of agricultural priorities (JICA, 1999). However the total volume of the hydrologic resources in the area is less than 4% greater than the current demand, and will not be sufficient to meet future needs for domestic use, irrigation and the maintenance of aquatic ecosystems. Sedimentation, due to degradation of the Upper Watershed System, is estimated to reduce reservoir capacity by 1% per year and to date has resulted in a loss of 24.5% of total capacity. Loss of reservoir capacity also jeopardizes opportunities to generate hydroelectric power, in order to mitigate the country's critical problems with energy supply without increasing dependence on the use of fossil fuels. The IDRC (Canada) reports that "overgrazing and unsustainable land use practices on steep slopes are threatening electricity, irrigation and domestic water services provided by the Sabana Yegua Dam as sedimentation from eroding hillsides accumulates, contributing to a decline in its water storage capacity." The UNDP has itself highlighted the critical status of the Sabana Yegua Watershed in the context of land degradation and livelihoods.³

7. The problem to be resolved by the project (see problem and threats analysis table in SECTION IV: PART IV) may be summarized as follows: *"Degradation of soil and vegetation resources in the Upper Sabana Yegua Watershed System leads to increased vulnerability to environmental shocks, decreased agricultural production, reduction in access to basic services (water and electricity), demographic instability, loss of carbon reserves and loss of ecosystem resilience"*

Threats, root causes and barriers

8. The problems described above can be attributed principally to two processes or **threats**: i) the conversion of forest and shade coffee to other land uses, which has left 70% of non-protected areas without tree cover; ii) the application of inappropriate land use and damaging agriculture and grazing practices on steep lands (e.g burning, hillside tillage, and reduced fallow). The loss of ecosystem resilience is best measured in the upper Sabana Yegua through a proxy indicator, forest

² Current soil loss is estimated at 300-500 t/ha./year, equivalent to one to three inches of soil per year

³ UNDP 2004 *Reclaiming the land; sustaining livelihoods*. "Lessons for the Future" brochure, UNDP-GEF - http://www.undp.org/gef/undp-gef_publications/publications/landdeg_brochure2004.pdf

cover. The only remaining tree cover in this zone is that found within shade coffee plantations, which cover only 2.2% of the area. Currently, 80% of land in the productive (non-protected) landscape (62,953 ha) is subjected to use which is incompatible with its biophysical characteristics.

9. The Master Plan (JICA, 2002) classified the Upper Sabana Yegua by current land uses (Part VIII, Map 3) and for the recommended land-use scenario (Part VIII, Map IV). Where the two areas differed, the zone was identified as an area of “discrepancy” (Part VIII, Map V). The discrepancy areas require trade-offs, or shifts from one land use to a more appropriate one based on the physical characteristics of the soils and slopes. The amounts of land involved in the trade-offs and descriptions for each category are shown in the tables in SECTION IV: PART III. The production systems applied on 62,953 ha, or, 80% of the total land outside of the protected areas, are not compatible with the recommended scenario, indicating that the status quo is not the most environmentally sound option, leading to land degradation. Most significant in scale is the application of shifting agriculture, irrigated agriculture, grazing, and plantation forestry outside areas deemed appropriate for those activities. Both appropriate and inappropriate land use scenarios contain practices that are also direct causal agents of land degradation within the spheres of agriculture, grazing, and forestry.

- *Shifting agriculture* occurs on 51,363 ha. (64%) of the land outside of protected areas on scrub land. Those areas are not left to fallow long enough to return to tree cover. Farmers return to those plots after only very short intervals breaking the process of secondary succession.
- *Irrigated agriculture* occurs in the high mountainous areas where cool temperatures favor vegetable production. Farmers pipe-in water from mountain springs and practice ditch irrigation often on steep slopes. Water resources are redirected from natural forest environments without criteria. Roads are cut without planning or impact assessments. This area accounts for 8,804 ha. (11%) of lands that are located outside of protected areas. Many of these areas should be under tree cover in forest or plantation scenarios.
- *Grazing* occurs on land that would be better dedicated to plantation forestry, conservation forestry or silvo-pastoral systems. Inappropriate application of grazing covers 2,088 ha (2.6% of the landscape).
- *Uncontrolled use of fire for agriculture and grazing*: Shifting cultivators remove woody debris and re-convert coarse grasslands and scrub forest through the use of fire. Much of that area is burned before it has been restored to trees or has fully recovered. Cattle are run by large landowners with capital to run large herds. Livestock are grazed openly and extensively. Burning is practiced each year to eliminate competition from woody species and to renew the vigor of the grasses. Wildfires break out of control degrading adjacent lands under recovery and destroying natural vegetation as they burn out of control. The region does not have a competent fire education and response system to quell fires once out of control.
- *Tillage practices on loose soils without conservation*: Cultivators till soils with a mouldboard plow using animal traction on the steepest of slopes. The soils of the area are thin with sandy/gravelly sub-soils that easily eroded by the short but intense summer rains. Soil conservation measures, such as contour plowing, are not practiced.

10. These processes can in turn be attributed to a number of **root causes** (see SECTION IV: PART IV). Farmers typically have limited access to financial capital or to “safety nets” and therefore tend to favour land management options which promise short term returns for a minimum of investment, and minimize risks. At the same time, in most cases they only have knowledge of a limited menu of production technologies, many of which were developed for other conditions and, when applied on

steep dry zone hillsides, typically lead to severe land degradation and expose the farmer to high levels of vulnerability of crop failure. The potential to generate and apply alternative technologies in turn constrained by the limited understanding on the part of farmers and the institutions (both governmental and NGOs) which support them, of the complex biophysical and sociocultural factors which interact in land degradation processes. Land use decisions are also influenced by economic factors: the conversion of coffee plantations to other, less SLM-friendly uses, is motivated to a large extent by the low prices which farmers typically obtain for their coffee, due to shortcomings in their production and processing practices. Shortage of labour, as a result of emigration due to livelihood failure, is also a disincentive to the application of labour-intensive practices compatible with SLM, and tends to favour damaging low-input practices such as burning and extensive cattle raising. Finally, there is limited capacity to coerce resource managers to desist from damaging practices; the existing laws are scarcely applied in practice

11. Analyses carried out during the project preparation phase led to the conclusion that a number of other threats and root causes were not of significant importance for the project.

- The lack of formal land tenure is commonly cited as a reason for the lack of investment by farmers in sustainable land management, analyses carried out during the project preparation phase led to the conclusion that it is not a significant root cause of land degradation and therefore does not require significant attention by the project. Local recognition of de facto ownership is normally sufficient to protect farmers' investments in land management, and farmers often have access to informal or alternative sources of credit which does not require formal proof of tenure.
- The poor design and construction of roads, meanwhile, does lead to significant levels of erosion and gulying, but is not clearly enough linked to inappropriate land management to warrant its inclusion in the project. The road issue is in essence a planning issue that will be responded to within the scope of the zone development system proposed herein.

12. There are a number of significant **barriers** to the implementation of solutions to the above problems and their causes.

Barrier 1. Insufficient and inadequately developed and applied policies

13. The Dominican Republic does not have clear regulations that provide zoning and territorial management guidelines for multiple state and local agencies and governments to follow. Multiple secretariats, institutes, and municipalities share responsibilities for the use of the land base, meanwhile, for lack of a platform to facilitate coordination of policies and incentives. As a result, each institution plans in relation to their mandate and without developed a comprehensive set of local priorities or policies referenced to the holistic framework of the economy or ecology of the territory. Despite legal provision for decentralization in the General Environment Law (Decree 64-00), in practice policies are still largely generated at central level and local and regional stakeholders are in general excluded from policy formulation, planning and regulation. Policies are also typically based on inadequate information relating to SLM and place inadequate emphasis on the provision of technical and financial support to the combat of land degradation.

Barrier 2. Limited institutional capacity

14. Institutional capacities are limited by managerial and technical factors, at both national and local levels. There is limited ability to communicate, access common information, share information and plan between agencies. The information available to different institutions is typically inconsistent and incompatible. Technicians at the ground level do not have priorities, planning tools, or monitoring instruments that enable them to tailor the programs of their respective institutions to the appropriate land use scenario and ecosystem. A tradition of central authority within the agencies further fragments the process. Local technicians are poorly equipped, without

transportation, or generally without communication. Their training often does not include the basics of agro-ecology, techniques adapted for the area, or social skills needed to work in integrated teams.

Barrier 3. Limited human and social capital at local level

15. At the local level, ineffective institutional support means that upstream, farmers ranging from landless smallholders to landed ranchers and horticultural producers have limited awareness of the range of alternative technologies that exist for resource management under mountainous conditions. At the same time, they have little tradition of developing locally-sustainable alternatives, despite recognizing reductions in production and profits under current conditions. The actual situation has developed within an atmosphere of informality. The use of land for free goods is the result of the lack of enforcement and clear rules and regulations and/or incentives. The local population now accepts the informal situation as a productive strategy and improvements in the land-use situation will encounter social obstacles; poor people with no official assets will resist improvements. In addition, socio-economic information from the communities indicates that many of the farmers believe that the status quo is the only way to farm. People will only change if they can see with their own eyes that it is both productive for them and implies no risk. Meanwhile their counterparts in the downstream region are more closely linked to technology advances through the various extension services, but still lack information exchange and technology transfer. Successful farmer innovations in both environments tend not to be appreciated or built upon.

16. Poorly developed social capital, characterized here principally by the lack of adequate mechanisms for analyzing problems and developing solutions which affect the community as a whole (for example through developing local regulations or lobbying for external technical assistance) is a key barrier to the implementation of SLM. A large number of community-based organizations (CBOs) exist, however many of these function solely as social gatherings, and leadership is also typically stagnant and ineffective. “Second order” federations which group together CBOs tend to be more dynamic, but lack the technical capacity to plan and deliver the services that their member associations need, with the result that they remain powerless to assert authority over local problems or to participate in the negotiation of local solutions. Currently, young people are marginalized from opportunities to participate in decision-making. Power is maintained in the hands of a few rural leaders, who developed within the same model. Current rural leadership does not have the tradition of proactively developing the next generation to manage their resources and their communities.

17. Social capital is further weakened by emigration of youth, particularly women, driven by limited access to economic opportunities and basic services. Typically, the first wave of migration is generally towards a high school or secondary education institution, due to limited education infrastructure in their community of origin. The next migration is generally out of the region to look for work or attend the university. Boys are often held behind to work in the fields or attend animals (access to higher education is slightly higher for women than for men in the Dominican Republic for those reasons). Weak social capital is particularly marked in communities with transient populations, such as the “worker towns” which are common near the properties of large landowners in the upper watershed; the male workforce typically migrates to these communities on a weekly basis, while women tend to stay in lower villages with the family. Migration and transient populations such as these present a challenge for sustainable land management a challenge, affecting the permanency of community governance and making extension logistically difficult.

Barrier 4. Lack of access to adequate and appropriate finance and incentives

18. Currently, farmers have to meet all the costs of land management, even when these result in externalities which benefit others, such as improved hydrological yield, reduced sedimentation and increased carbon storage. At the same time, the populations that receive environmental services,

such as water for irrigation and electricity, pay little or nothing for them. As a result, upstream farmers typically prefer to apply practices which yield maximum agricultural production or financial income, with little consideration for their positive or negative environmental effects. The limited opportunities for income generation available to rural populations at present, meanwhile, exacerbate poverty and motivate emigration, thereby further weakening social and human capital.

Institutional, sectoral and policy context

19. The present and former Governments of the Dominican Republic have both declared poverty reduction to be a top country priority. Only now, however, is the link between poverty and the environment coming to be prioritized (see paragraph 4), particularly the link between environmental degradation and limited access to safe drinking water and vulnerability to natural disasters (World Bank 2004).

20. The **Secretariat of Environment and Natural Resources (SEMARN)**, created in 2000 (framework law 64-00) is the umbrella agency for over twenty public institutions with overlapping responsibilities and gaps in managing environmental issues. It contains five under-secretariats charged with program guidance and direction. While it has made significant progress in issuing environmental regulations, standards and impact assessment procedures, important challenges lie ahead for SEMARN. There is a lack of laws and regulations necessary to balance stakeholders' groups' (community, governmental, private sector, etc) environmental interests and offer consensus building mechanisms between those groups to prepare, analyze and implement appropriate policies that mainstream environmental management. A possible forestry law under discussion would allow for long-term management plans, investor confidence and rights to plant and harvest tree products in commercial plantations, etc. A water law is pending approval that would provide for an integrated water resource management framework.

21. Similar restrictions exist within other governmental agencies such as the **Secretariat of Agriculture (SEA)** and the **Agricultural Bank**. With limited success, the SEA delivers technical assistance, researches crop and production systems, and provides planting materials (fruit trees and sometimes seeds). The SEA created the **Dominican Coffee Corporation (CODOCAFE)** in part to support coffee growers in an alliance with the private sector. The Agricultural Bank provides commercial loans to individual farmers and associations in the area, but limits those to ranchers and some coffee growers due to low profits in most production systems.

22. The lack of sound, locally implemented policies promotes incoherent and ineffective work plans that limit or work against sound integrated and sustainable land management. For example, the national agricultural bank and the Secretariat of Agriculture often promote/facilitate the production of beans in steep, unstable soils not suitable for plowing or intensive agriculture (CAD, 2001). Clear regulations on zoning and territorial management guidelines for state and local agencies and governments are lacking. Due to the absence of a platform that facilitates policy coordination and incentives, multiple secretariats, institutes, and municipalities duplicate local level efforts, failing to use a holistic framework.

23. The **National Institute of Irrigation Resources (INDRHI)** also works in rural areas, maintaining the dam and with the irrigation boards, maintaining irrigation channels and related infrastructure. Its mechanisms for monitoring soil sedimentation and erosion are largely ineffective.

24. A comprehensive project management and information system has not been developed that would provide the Sabana Yegua Master Plan initiative with clear indicators of social and environmental sustainability and that assures the necessary baseline information for all indicators. Management information gaps, such as clear indicators for the success of sustainable land management activities within agriculture, grazing, and forestry scenarios have not been designed.

25. The initial national framework for combating desertification is the Plan National - Fronterizo (PAN-FRO), which was launched in 2001 to investigate and coordinate actions to reduce the

expanding effects of drought and to achieve sustainable and rational trans-national resource management with the Republic of Haiti. The National Action Plan (NAP) has not yet been finalized (it is currently under development by an **Inter-institutional Working Group** and is scheduled for completion in February 2005); in its absence, SEMARN has developed an objective ranking system for watersheds, based on criteria of degradation and population, under which the project area receives highest priority ranking for attention out of arid and semi-arid watersheds in the country, and second highest ranking overall. National support to the initiative (see paragraphs 88-89) was ratified via presidential decree #663-02 on August 22, 2002. The project is also endorsed by the convention and GEF focal points.

26. With the objective of reducing land degradation and poverty in the Upper Sabana Yegua Watershed System, the Dominican Government, with support from the Japanese International Cooperation Agency, formulated a 15-year Master Plan. This was intended to commence in 2002, but large-scale implementation has yet to begin. Through presidential decree⁴, the responsibility for managing the Watershed System has been assigned to the national non-profit organization the **Sur Futuro Foundation**, under a public-private partnership arrangement with SEMARN. The Foundation coordinates activities with government and non-government entities through an inter-sector committee that includes representatives of the Forest Resources, Soils and Water, and Biodiversity under-secretariats of SEMARN. The Foundation is also a member of the Inter-institutional Working Group (GTI), the national watershed management network and the international model forest network.

Stakeholder analysis

27. There is a wide diversity of stakeholders who are currently affected by land degradation issues in the project area. Further details of stakeholders and their potential roles in the implementation of the project are presented in SECTION IV: PART V.

28. At the local level, the most significant group consists of **small farmers** who carry out agricultural production, principally for subsistence, on steep degraded hillsides within the Upper Watershed System. Large areas are also occupied by **ranchers**, who carry out extensive cattle raising, with low inputs and the frequent use of fire. **Larger agricultural operators** are limited in number within the Upper Watershed System due to the reduced areas of cultivable flat land. **Coffee producers**, principally using traditional shade production systems, occupy relatively small areas in the higher, cooler parts of the Upper Watershed System (around 2.2% of the total area); despite their limited extent, many of these areas are of crucial importance for water production. There are no indigenous groups within the project area.

29. Primary level **community-based organizations (CBOs)** in rural areas play an important social role, but are at present largely ineffective as mechanisms for promoting sustainable development. These include mutual help unions and associations, and in some cases are focused on specific production systems, as in the case of organizations of coffee producers. **Secondary level federations** of CBOs are typically rather more active and effective. A number of CBOs and secondary level federations are legally registered.

30. Local government is represented by **municipal authorities** in urban centres and, at the community level, by *alcaldes* who are responsible for conflict resolution and regulation. Municipal authorities are obliged by law to establish **environmental management units (UGAMs)**, however their financial and technical capacity to do so is typically limited. Central government is represented at the community level in the form of **teachers** and **health workers**; they are, however, few in number and widely dispersed in relation to the need for their services. Government institutions such as the **Secretariat of Agriculture (SEA)** and **SEMARN** are highly centralized and have limited local presence and impact.

⁴ Presidential Decree 663-02

31. At the regional and national level, land degradation also affects the interests of **domestic water consumers**, **electricity consumers** and **larger agricultural operators**, who occupy relatively large areas of flatter, more fertile land downstream of the Sabana Yegua dam and are highly dependent on water from the dam for irrigation. These farmers have in some cases for **irrigation boards** to promote their access to water and the maintenance of infrastructure. The failure of large numbers of electricity consumers, particularly in poor urban areas, to pay for the electricity they consume results in frequent interruptions of supply by the **electricity generation companies**.

32. Among the principal entities of central Government of relevance to the project are **SEA** (responsible for developing and implementing agricultural policy, including agricultural extension), **SEMARN** (responsible for developing and implementing environmental policy and applying environmental regulations), the **Secretariat of Education SEE** (responsible for ensuring educational coverage), the **National Hydrological Institute INDRHI** (responsible for establishing, maintaining and regulating irrigation infrastructure) and the Secretariat for Public Works SEOP (responsible for establishing and maintaining road infrastructure). The **Agricultural Bank** and **private sector commercial institutions** provide finance; however their attention to small agricultural producers is currently limited. **CODOCAFE**, meanwhile, is a public-private partnership which provides technical assistance to promote coffee production and quality.

33. **Non-Governmental Organizations** play an important role at various levels. **Church-based foundations** such as the Living Water Foundation and FUNDASEP promote community development and basic service provision. A number of **private sector institutions**, both national and international, provide or channel funding and technical support, including the **Sur Futuro Foundation**, the **Kellogg Foundation** and the **CitiGroup Foundation**.

34. **Bilateral and multi-lateral cooperation agencies** active in the geographical and/or thematic area of the project include **UNDP, JICA, USAID** and **CIDA**.

Baseline analysis

35. There are significant levels of **baseline activities** in the project area (see Section II PART I and Exec Sum Annex A for detail). A 15 year Master Plan for the Watershed System has been produced and a range of activities will be undertaken within the context of a public-private partnership between the Secretariat for Environment and Natural Resources and the Sur Futuro Foundation, including the promotion of forestry, agro-forestry, and community development; vocational-technical activities and credit programs aimed at combating poverty; the funding of community development opportunities initiated by the local population; a work-benefits program that provides employment to poor heads-of-households who reforest government lands through the National Reforestation Plan; and the implementation of model agroforestry projects. In addition, a model community for forest management is being organized; the national coffee corporation (CODOCAFE) is providing support to coffee production and processing; a national environmental education program is being implemented; and a community and youth development program is being initiated with support from the W.K Kellogg Foundation.

36. Under the **baseline scenario** the Master Plan will be implemented as designed. Without removing the barriers that impede the creation of legal structures and environmentally and financially sound opportunities for migratory farmers, the baseline actions will continue for the mandated period demonstrating some limited results. However, no mechanism or special capacity will exist to implement the tradeoffs between actual and ideal land uses, presented by JICA at the landscape level.

37. Without the GEF alternative, good examples of agro-forestry and some advances on on-farm soil conservation will be realized. Those advances will be limited to the landowners with secure land tenure and with the confidence to invest in environmentally sound practices, generally

excluding the migratory farmers. For all other land use scenarios, actions will not provide coordinated incentives based on tested models. The overall coordination between implementing authorities will continue to improve and technicians will integrate better under the baseline scenario. However, implementing agencies will not have the tools to share information and therefore will not have a coordinated effort to provide specific inputs within targeted regions. Technicians will continue to suffer for lack of important inputs and will continue with the costly process of duplicating efforts. This will allow fragmentation of information and the inefficiencies of conflicting mandates to continue. Institutional barriers to planning and communication will leave technicians without the tools, incentives, and policies that they need to promote sustainable land management. The Master Plan initiative would maintain a centralized management structure, prolonging the effective implementation oriented to the reality of the different zones. Without the efficiencies of local governing bodies coordinating project activities, management costs will increase with inflation and the investments in human and social capital will suffer. Finally, the consolidated, long range financial regime will not be established with many of the financial mechanisms in place by the end of the first 5 year period, indicating that the second and third periods would be implemented primarily with government support and sporadic assistance from international governments and NGOs. More complicated mechanisms requiring specialized expertise would not be completed.

38. Under the baseline scenario, there is ample information to monitor and evaluate targeted actions in forestry, agriculture, and grazing; however there is not enough information to monitor and evaluate the broader process of land degradation and desertification within the region.

39. As a result, at the **local and national levels**, livelihoods will continue to depend largely on subsistence agricultural production with high levels of environmental vulnerability; the population will continue to have limited access to income and basic services; communities will suffer from low social cohesion and limited power to influence their conditions; and continued emigration to urban areas will place increasing on infrastructure, and further weaken social capital in the expulsion areas. At the **global level**, ecosystems will continue to suffer from progressive loss of productivity and resilience; processes of demographic instability will continue; carbon reserves will continue to be lost and globally important ecosystems and habitats will continue to be degraded.

PART II. Strategy

Project rationale

40. A Master Plan has been prepared for the Upper Sabana Yegua Watershed System. However, it focuses largely on technical solutions and experience from the first two years of its implementation suggests that this approach will not lead to the underlying causes of land degradation being effectively addressed. Under the baseline scenario, deficiencies in institutional capacities, local human and social capital, and the context of policies, regulations and incentives (see Baseline Analysis in paragraphs 134-140) will result in significant levels of land degradation continuing to occur.

41. GEF support is required to remove the barriers to the implementation of sustainable land management, specifically through integrating SLM considerations (including a landscape approach, an analysis of tradeoffs between social and environmental concerns, integrated and cross-sector planning, and land functionality analysis) into the revision and implementation of the Master Plan. Under the GEF alternative, solutions to land degradation will be implemented in the Upper Sabana Yegua Watershed System which will be sustainable in the long term and compatible with national goals of poverty reduction. These solutions will be inserted into a reformulated Master Plan (2005-

2020) for the Watershed System and, through the dissemination and replication of lessons learnt, will lead to more effective combat of land degradation throughout the Dominican Republic.

Relationship to GEF operational areas and focus.

42. The proposed project will reverse the effects of land degradation in order to maintain and enhance ecosystem integrity, stability, functions and services, thus qualifying under the GEF Operational Programme #15 within SLM-2 with elements of SLM-1 by providing: i) capacity building at the national and local levels in creation of political and financial mechanisms to support SLM, and in the implementation of sustainable land use and sustainable agriculture, grazing, and forestry practices, ii) on-the-ground investments in sustainable agriculture, grazing, and forestry models, and iii) investments in project management systems and inter-agency coordination mechanisms and capacities to implement SLM.

43. The project is expected to enhance sustainable land management directly on at least 9,000 ha of land during its life, with a total indirect effect on the management of the entire area for a total of 166,000 ha after the full implementation of the Master Plan after 15 years.

44. In accordance with OP15 guidance, the project will address the linkages between land degradation and poverty by promoting the protection of the natural capital on which local livelihoods depend, empowering communities and municipalities to respond to the multi-dimensional aspects of poverty, and promoting financial instruments which contribute directly to the generation of income and employment and the provision of basic services, thereby directly compensating investments in SLM and serving to reduce the impacts of poverty as a root cause of land degradation. Secondary benefits of relevance to OP15 will be the reduction of GHG emissions through carbon sequestration, and protection of biodiversity through habitat restoration.

45. The initiative will be the first full size OP15 project in the Caribbean basin, complementing other OP15 initiatives in the pipeline in Latin America and the Caribbean, particularly in Venezuela, Nicaragua and Mexico. It will have significant replication potential throughout the rest of the insular Caribbean, providing for example a model from which lessons learnt could be applied in the severely degraded conditions of the Republic of Haiti. Furthermore, lessons on payment of environmental services will also be shared with other non-OP15 projects.

Project goal, objectives, outcomes, and outputs

Objectives

46. The project will promote sustainable land management as one essential component of sustainable rural development in the Upper Sabana Yegua Watershed System. Although it includes some components of education, generation of employment and satisfaction of basic needs, it does not on its own aspire to addressing completely all aspects of sustainable rural development. The innovative nature of the model constituted by the project, integrating SLM into policy and financial frameworks to provide for long-term sustainability while generating local capacities, will meanwhile permit it to provide the country with experiences that will reach beyond the borders of the Watershed System. The **Project Goal** is therefore defined as follows:

“Promotion of sustainable development of the human and natural resources of the Upper Sabana Yegua Watershed System”.

47. The **Project Objective** focuses on the implementation of GEF generated activities that will lead to long term sustainable land management throughout the entire Upper Sabana Yegua Watershed System, expressed as follows:

“To promote the sustainable land management in the Upper Sabana Yegua Watershed System, in order to achieve global environmental benefits within the context of sustainable development and poverty reduction”.

Project strategy and approach to the development of project outcomes and outputs

48. The overall project strategy is to focus over a 5 year period on removing the barriers to achieving SLM in the Upper Sabana Yegua Watershed System, integrating SLM principles and “jump-starting” the Watershed System Master Plan, and therefore increasing its effectiveness and sustainability of the during the subsequent 10 years and beyond. The project is expected to enhance sustainable land management directly on at least 9,000 ha of land during its life and 62,800 ha in 15 years, with a total indirect effect on the management of the entire area for a total of 166,000 ha after the full implementation of the Master Plan after 15 years. Key strategies to be applied are the following:

- Use of a public-private partnership as a conduit between the Dominican government and the local level stakeholders.
- A gradual transfer of implementation responsibilities from the Sur Futuro Foundation to local governance and stakeholder participation structures, leading to the development of the social, human, and financial capital required to achieve long-term participatory management.
- Consolidation of fragmented policy, social, and financial approaches to land management into a more synergistic framework.
- The use of inductive processes to promote SLM, such as the provision of information, opportunity, and incentives, rather than controls on land use through zoning and penalties.
- Creation of a four-level participatory coordination structure, which will facilitate communication among stakeholders (from local to national level) and the democratic development of community level political solutions to problems.
- Investment in the capacity of younger generations to manage governance structures and manage livelihoods in a sustainable manner, in order to ensure the long-term sustainability of project results and counteract the weakening of social and human capital by emigration.
- Promotion of the generation and channeling of funding for SLM, from diverse sources, including innovative schemes and existing credit mechanisms, within a context of watershed level strategic financing plan.
- Linkage of SLM initiatives to poverty reduction initiatives, in order to address the poverty-related causes of SLM and at the same time maximize the potential of land management activities to contribute directly to poverty reduction.
- Promotion of a gradual shift from annual crops to those that produce permanent cover, soil conservation, or non-agricultural opportunities that create consciousness or reduce the pressure on the resource base.

Outcomes and outputs

49. The four outcomes of the project focus, respectively, on i) the creation of a favourable environment of policies, programs, planning frameworks and tools for SLM; ii) the creation of the necessary capacities among local and institutional stakeholders for planning, regulation and support of SLM initiatives; iii) the promotion of access to the finance and other forms of incentives necessary to make SLM-related activities economically attractive and iv) improvement of the livelihood and wellbeing of the population in the watershed system. These outcomes will ensure the removal of the principal barriers to the implementation of SLM (see Threats Analysis table in

SECTION IV: PART III). The fourth outcome, which focuses on the reduction of poverty as a barrier to SLM, will be entirely co-financed.

Outcome 1: Policies, programs and planning frameworks and tools favourable to SLM being applied (GEF contribution: \$635,880, Co-Financing: \$572,500.)

50. This outcome relates to Barrier 1 (insufficient and inadequately developed and applied policies).

51. Through a combination of expert consultations, training events, seminars and workshops, the project will promote the mainstreaming of considerations of SLM into the planning frameworks of the secretariats of environment, agriculture, and municipalities, and will promote incentive schemes for SLM at a policy level (**Output 1.1**). Policy dialogue will be facilitated through the creation of sustainable governance structures (see Output 2.1) which will maximize stakeholder participation at all levels, and the production of discussion documents based on policy analyses.

52. Building on studies and recommendations produced during the PDF-B phase, a consolidated system will be established for the management, exchange and harmonization of information related to SLM (**Output 1.2**), in support of the participatory watershed planning system (see Output 2.1) and policy formulation processes (see Output 1.1). This will entail upgrading the national natural resources inventory system, the development of institutional capacities to capture and process geographic information, and the promotion of information sharing amongst the participating agencies. GEF resources will be used to provide hardware, software, training, technical assistance and, for a limited period during the early stages of the project, key personnel. After an initial period of GEF support, salaries will be met through co-financing and by income from the financial mechanisms to be developed by the project.

53. The 5 year GEF-supported project will also result in the creation of a sustainability plan (revised Master Plan) for the second phase (2010-2020) of the 15-year Sabana Yegua initiative, including funding plans, that is ratified by all levels within the project's participation framework (**Output 1.3**). The plan will tie together all policy and financial areas and complement capacity building activities to be funded by GEF within this project (see Outputs 2.1-2.5). Within this output, specific activities to be covered with GEF resources are the support seminars and workshops on lessons learnt, at the community, regional and national levels, and the publication and dissemination of information. As a result of the use of GEF resources in this way, the Master Plan will address SLM considerations in a coherent and cost-efficient manner.

54. The GEF increment will result in policies, programs and planning frameworks being more favourable to SLM, as a result of improved coordination between institutions, and increased access to information on the magnitude, nature and functioning of land degradation process. In order to achieve this, GEF support will be focused on the provision of technical orientation and training to decision makers and policy formulators, the facilitation of discussions regarding land degradation and SLM, the provision of well-focused start-up resources to set in motion governance structures through which policy dialogue will be carried out, and the publication and dissemination of information on land degradation and SLM for circulation among decision makers.

Outcome 2: Capacities of stakeholders at diverse levels lead to improved application of SLM in the project area (GEF contribution: \$2,125,400, Co-Financing: \$4,618,717)

55. This outcome relates to Barriers 2 (limited institutional capacity) and 3 (erosion of human and social capital at local level).

56. The cornerstone of the project will be the strengthening of social capital, in the form of capacities for organization and communication, through the formulation of a four-level structure to

facilitate participatory governance and planning (**Output 2.1**). This will promote all aspects of the project and contribute to the delivery of all of the other outputs, through enabling local stakeholders to identify, regulate and obtain support for resource management options compatible with sustainable land management. The structure will also facilitate the coordination of preparation and response to the effects of climatic events such as hurricanes. The proposed structure (described in detail in SECTION IV: PART V) will link local, zonal, watershed and national levels, enhancing the present political and administrative characteristics of the institutions and communities involved, enabling them to plan, negotiate, and arrive at agreements on sustainable land use and the implementation of project tasks. The structure does not constitute a new institution as such, but rather a mechanism for linking existing institutions. The national level committee will serve to promote the articulation of the RDT-Sabana Yegua Project with other sustainable land management initiatives in the Dominican Republic. GEF support is required for motivational, organizational and training activities at community, zone and watershed levels to develop and implement the structure, statutes and functions of each committee; this support will be catalytic and nature, providing the start-up assistance necessary to enable the committees to be self-sustaining in the long term. At zone level, the structure will be supported by zone coordinators whose costs will be partly funded by GEF; eventually, responsibility for filling these posts will pass entirely to Government, which will either assign new resources to cover their costs or redistribute existing personnel. Further detail of the functioning of the proposed governance structure and the roles of the zone coordinators is provided in the Stakeholder and Participation Annex (SECTION IV: PART V).

57. Another key aspect of the project will be the promotion of capacities among farmers in the watershed to modify their productive practices, in order to increase their compatibility with concepts of sustainable land management. Specifically, this will lead to a change from dependence on the cyclical production of annual crops, often with the use of burning for land clearance, to spatially stabilized systems with an increased perennial component. GEF incremental support will place particular emphasis on the participatory development and promotion of low input, diversified and multi-functional systems integrated closely into local livelihood systems, such as organic coffee in “traditional polyculture” shade stands, the use of perennial fodder crops for cut-and-carry, integrated pest management, and the use of mulch to control weeds, maintain soil humidity and protect surface soil horizons against raindrop impact. The application of such practices will contribute to ensuring the stability of agricultural production, promoting the availability of diverse goods and services necessary for rural livelihoods, and reducing the environmental vulnerability of the population: increases in the numbers of deep-rooting perennials, for example, will help to protect against landslips during hurricanes, shade coffee systems will yield timber, fuelwood, fruit and other products in addition to the coffee itself, and the use of mulch to conserve soil moisture will help to buffer crops against variations in rainfall at critical points in the crop production cycle.

58. Reductions in the application of agricultural practices leading to land degradation will also be achieved by the promotion of alternative sources of income and employment (see Outcome 4). The application by the project of a package of diverse, yet complementary strategies, not only addressing technical aspects but also providing for mechanisms of organization, analysis and dialogue, will minimize the risk of unintentional negative outcomes of such changes in production systems, such as the marginalization of the poor from access to land or the substitution of cyclical annual agriculture by more damaging extensive cattle ranching.

59. One strategy to achieve the increased application of practices compatible with sustainable land management this will be the establishment of on-the-ground validations and demonstrations (**Output 2.2**) of improved and sustainable models for production. These models are listed in Section IV, SECTION IV: PART VI. Building on recommendations of pilot activities and organizational structures, drawn up during the PDF-B phase, these demonstrations will serve to determine best practices, management aspects, real costs of implementation, and accurate financial returns, to

enable the models subsequently to be financed and promoted. The scope, operational aspects, and sites to be used for the implementation of each model were defined in conjunction with the target communities during the PDF-B phase. In particular, technical aspects of the production models themselves will be defined with in a participatory manner with local producers and their families, in order to ensure their compatibility with their local conditions, livelihood systems and gender considerations, thereby resulting in sustainable increases in production and reductions in poverty.

60. The capacities of producers to apply resource management and production technologies compatible with SLM (**Output 2.3**) will also be promoted through the support of training, participatory action research, workshops and exchange visits at national and international levels. Building on lessons learnt from elsewhere in Central America and the Caribbean, a participatory “action learning” approach will be emphasized and the formation of networks of farmers will be promoted, which will lead to them continuing processes of technology development and interchange, and actively seeking external technical advice where necessary, in the long term. This exchange program will also contribute to the replication of lessons learnt in this project to other national and regional projects.

61. In order to promote and support practices compatible with SLM, and assure regulation of activities that cause land degradation, it is also essential for the institutions and agencies with these responsibilities to have adequate capacities (**Output 2.4**). GEF funds will be used in the short term to fund the equipment and a part of the salaries of the zone coordinators who will support the four-level structure to facilitate participatory governance and planning (Output 2.1), to provide equipment for monitoring and evaluation, to support the equipment and training of community fire brigades, to provide technical training not included in the pilot projects, and to promote multi-agency coordination. In the medium and long term, these salaries of the zone coordinators will be covered entirely by co-financing and the funding mechanisms to be established under Outcome 3. This will be achieved partly by aiming to promote learning at an institutional, rather than individual, level within Government in order that commitment to supporting follow-up to the project is maintained in the long term (see explanation of the project’s sustainability strategy in paragraph 93). Training will be provided to the zone coordinators, and to other technicians supporting processes of technology transfer, in participatory approaches to analysis, technology development, organization and planning, including gender aspects. Local agreements will be completed during the inception phase to make training and technical assistance more targeted and thus effective. This will be complemented by a participatory applied research component designed to extract lessons learned, determine the financial returns of the models and determine the marketability and profitability of promising local species of crops and fruits. This output will be supported by significant co-financing.

62. In addition to technical knowledge among producers, the sustainability of SLM depends on the existence of adequate awareness among the population in general of land degradation issues and their potential solutions (**Output 2.5**). This will create the conditions necessary for the introduction of schemes for the compensation of environmental services and also ensure that the governance structures to be established through the project will continue to operate in the long term. This output will be co-financed by the Education Secretariat, which will provide trainers’ salaries and classroom facilities.

Outcome 3: Access to sustainable long term financing and incentive schemes to promote SLM (GEF: \$554,800 Co-Financing: \$314,000)

63. This outcome relates to Barrier 4 (lack of access to adequate and appropriate finance and incentives). The project will promote a series of financial instruments to support SLM (described in detail in Section IV, SECTION IV: PART VII), both through the provision of resources directly to producers and the funding of the recurrent costs of institutions and governance structures. The result

will be a win-win situation resulting directly in both SLM and poverty reduction. In the long term, the resulting improvements in natural capital resulting from increased SLM will serve to attack the root causes of poverty and the investments in human and social capital will serve to attack some of the root causes of land degradation, resulting eventually in a reduced need for such financial instruments.

64. The project will be innovative in that the financial instruments to support SLM will be applied within the framework of a strategic funding plan (**Output 3.1**) which will serve to ensure the continuity of financing. The funding plan will include an analysis of project components, a valuation of the resources available, and proposals of fundraising opportunities. A full-time fundraiser would be incorporated into the management team during the first half of the project to implement the strategy and develop the capacity of project staff to target resources needed to overcome financial barriers to SLM.

65. Schemes will be established (**Output 3.2**) for the compensation of the costs of land management practices which contribute to the provision of environmental services. Negotiations were initiated during the PDF-B phase, in the course of which farmers downstream of the Watershed System expressed willingness in principle to pay for the water services on which they depend for irrigation. Building on this, GEF support will be used to finance more detailed valuations of the environmental services provided, and studies and workshops to finalize the design of the payment structures. The three main groups of consumers expected to participate in these schemes are i) farmers downstream carrying out irrigated agriculture, ii) electricity companies whose operations are jeopardized by the sedimentation of the Sabana Yegua reservoir, which is used for hydroelectric generation and iii) consumers of potable water downstream. The risk of downstream consumers of environmental services failing to contribute to such schemes will be reduced by the provision of support to environmental education, the realization of studies of willingness to pay and the careful, negotiated design of the legal framework.

66. In addition, the project will support the establishment of a debt-for-nature swap (DFNS) scheme (**Outcome 3.3**). GEF funds will be used to educate stakeholders, prepare position papers for debt-for-nature swaps, and to negotiate project eligibility.

67. Funds generated through the above schemes, as well as those from other sources, will be managed through a watershed-wide environmental fund (WEF) (**Output 3.4**). Subsidiary local branches of the environment fund ("Satellite accounts") will target funds to farmers in specific priority areas who adopt SLM practices for the greatest demonstration and replication value. GEF resources will be used to support the discussion, design and promotion of the fund. The public-private partnership will be particularly effective in this type of initiative. The board of directors of the Sur Futuro Foundation has the fiduciary planning and management capacity that most of the government planners lack. In addition, an NGO such as Sur Futuro working in tandem with government entities has more flexibility in managing funds, capturing fresh resources, and delivery capacity at the ground level. The Foundation will be in a position to operate as steward until such time that the governance structure is able to handle the financial management responsibilities. The Sur Futuro Foundation will promote and prepare the conditions for local ownership and participation by facilitating establishment and operation. The fund will be governed by a board of directors that meets international standards. The Sur Futuro Foundation will act as secretariat of the fund until it is financially possible to establish a separate fund's secretariat before the end of the first five-year intervention.

68. Access to finance is dependent not only on the existence of funds but on the willingness of financial institutions to support SLM activities. In order to promote access to, and guarantee, credit for local rural development activities compatible with SLM (such as investments in pasture management and rotation, integration of high value trees into coffee stands, or in soil and water conservation measures) and for alternative employment (through credit for small, non-agricultural

businesses such as mechanics, small stores, home baking businesses, etc.) will be achieved by encouraging formal financial institutions to invest in local productivity. To do so, an innovative solidarity guarantee fund will be used to back loans provided to producers by lending institutions (**Output 3.5**). Promoters attached to an existing rural credit program will manage the solidarity guarantee fund and provide technical advice to farmers. The guarantee fund will earn interest at a fixed rate, which will be used to cover recurrent costs and maintain the level of the fund. It is expected that as producers prove their credit worthiness, initially with full guarantee from the fund, financial institutions will come to accept them and other similar producers as normal customers without need for external guarantee. GEF will supply 50% of the seed funding (the remainder will be co-financed) and also fund initial establishment, administration and personnel costs (these will subsequently be covered by interest generated by the guarantee fund). GEF will finance a vehicle, maintenance, establishment of procedures, workshops and seminars to evaluate and disseminate the lessons learned.

69. The guarantee fund will be different to the WEF in that it will not directly finance investments in SLM, but rather guarantee private investment in SLM and alternative employment. As such, it will constitute one of the sustainability strategies for the project, as it will reduce long-term dependence on the WEF by creating the conditions necessary to catalyze private sector investment in local activities. Like the WEF, the guarantee fund is a watershed-wide initiative that will reach beyond the model project sites. The result will be a win-win situation where the private sector generates new and reputable customers while receiving full guarantee in exchange for their support in economic development and generation of on-farm and off-farm employment. The guarantee fund (established initially with GEF resources) will be a permanent fixture which will outlast the project. The guarantee fund will catalyze large amounts of leveraged funding over a long period. This leveraged funding, which it is not possible to quantify at this stage, is additional to that mentioned on the cover page (which will be generated for the WEF).

70. Environmental service exchange and incentive programs will be established (**Output 3.6**) whereby local people will trade off their investments in SLM (such as reforestation and the establishment of community vigilance committees) for the provision of employment and basic services such as health, education and alternative energy (see Outputs 4.1 and 4.2). Under this model, there is a direct payment in exchange for environmental services, such as maintaining forested areas in exchange for wood and corrugated roofing material for home improvement. This differs from the environmental service payment schemes to be established as Output 3.2, in that the payments will be in-kind, rather than financial. The infrastructural support to be provided to local communities, for example in the areas of health, water supply and access, will be subject to environmental guidelines; GEF funds will be used to prepare, disseminate and monitor the adoption of these guidelines.

71. Finally, other mechanisms will also be explored, such as tapping into carbon markets and the CDM of the Kyoto protocol.

Outcome 4: Livelihood and wellbeing of population in the watershed improved (GEF: \$0, Co-Financing: \$19,957,471)

72. Improvements in the livelihoods and wellbeing of the local population will help to address Barrier 3 (erosion of human and social capital at local level) through reducing pressures for emigration. The project will contribute directly to poverty reduction, through the co-financed provision of employment opportunities within reforestation projects, nursery work, and special youth programs, and the co-financed provision of basic services (**Outputs 4.1 and 4.2** respectively). The direct provision of employment (Output 4.1) will also complement Output 3.5 (the stimulation of alternative sources of employment through the promotion of access to credit) in reducing farmers' direct dependence on the cyclical production of annual crops for their income, with

benefits in terms of both their livelihood security and reductions in land degradation processes, and lead them to place greater emphasis on the production of perennials, which, with their limited needs for maintenance compared to annual crops, allow farmers' time to be freed up for off-farm employment.

73. These investments in employment and basic needs will be channeled through environmental service exchange and incentive programs, under which their provision will be related to the realization by the participating communities of activities favourable to SLM. They will therefore provide a direct motivation for SLM, thereby also contributing to the removal of Barrier 4 (lack of access to adequate and appropriate finance and incentives). The initial costs of these exchange and incentive programs (their discussion, negotiation and administration) will be met by GEF funds under Output 3.6. In the long term, it also is expected that such investments will also serve to reduce land degradation indirectly, through removing its poverty-related causes (see PART I).

Outcome 5: Learning, evaluation, and adaptive management (GEF: \$1,118,615, Co-Financing: \$0)

74. Strong emphasis will be placed on ensuring effective project implementation through adaptive management (**Output 5.1**); and carrying out regular and well-targeted monitoring and evaluation, including learning and disseminating lessons (**Output 5.2**), the results of which will be linked directly back into project management.

Key indicators, assumptions, and risks

75. A key measure of success of the project will be that, at the end of its five year duration, the Master Plan for the Sabana Yegua Watershed System will have been updated, adjusted and revised to include a 5-year plan for sound integrated and sustainable land management which incorporates considerations of SLM. During the project period, reductions will also be seen in land degradation processes, which will continue beyond the life of the project (a plan was developed during the PDF-B phase for the monitoring of erosion and sedimentation). Achievement of these goals could be affected by the occurrence of large climatic events, by changes in political priorities, by changes in the priorities of local stakeholders or by currency fluctuations. Actions will be taken to mitigate these risks by effective communication and mainstreaming of project themes among key decision makers and policy formulators, and by providing local stakeholders with packages of support which balance technical and financial aspects with awareness raising.

76. Achievement of Outcome 1 will be measured by the way in which policy, planning and regulatory instruments (including the zone development plan and the Master Plan for the watershed) incorporate considerations of SLM, the level of core budgetary commitment to the implementation of these changes, the frequency and nature of inter-institutional relationships and their effectiveness in addressing cross-sector issues. It is again dependent on continuity of the currently favourable political and institutional conditions. At the output level, the function of different aspects of the management and political system will indicate success in the short term.

77. The realization of Outcome 2 will be indicated by positive trends in mitigating erosion levels, the functioning in practice of institutions and mechanisms at local level, and the levels of adoption of SLM practices, measured by the degree of satisfaction of local stakeholders, the numbers of farmers participating and the areas affected. Key assumptions include the permanence of key stakeholders and technicians in the area, and the continuity of support, in the form of co-finance and participation, by counterpart institutions. The project will mitigate risks by investing in community-level social capital, including working with members of the younger generation in order to ensure continued local commitment to processes, and by implementing a program of communication with counterparts in order to promote their continued support. Output indicators relate to specific aspects

of the technical development of the land use models and the function of the local governance structure at each of the different levels. Risks which could affect the successful implementation of technical solutions include unforeseen pests, climatic fluctuations and variations in input costs and availability. The project will mitigate these risks by promoting diversified, low input production systems, and alternative income generation activities wherever possible.

78. Achievement of Outcome 3 will be measured by the amount of funds to which resource managers have access through the funding schemes, and the degree to which these are used effectively to combat land degradation. The effectiveness of these schemes could be affected by unforeseen currency fluctuations, or by changes in the priorities of participants. These risks will be mitigated by promoting diverse and complementary funding schemes, within a framework of watershed level financial planning, and by the implementation of effective monitoring to ensure that income is effectively invested in SLM. The risk of the beneficiaries of environmental services refusing to contribute to schemes designed to internalize their costs will be mitigated by the provision of support to environmental education, the realization of studies of willingness to pay which will ensure that schemes are appropriately tailored to local conditions, and the careful design of the legal framework.

79. Achievement of Outcome 4 will be measured by changes in levels of access to income and basic services, with their corresponding effects on school attendance, health and demographic and social stability, and is dependent on the continued provision of co-financing for investments in the provision of employment and basic services.

80. A severe hurricane during the project period is likely to lead to the temporary diversion of attention by national and international institutions from addressing long term issues, such as SLM, to immediate concerns of disaster relief, resulting in “down time” in which the project is unable to function effectively (a severe hurricane is expected to affect the country on average once every 20 years; over the 5 year period of the project, there is therefore a 1 in 4 chance of one occurring). This risk will be mitigated by effective communication and mainstreaming of project themes among key decision makers and policy formulators, and by stressing the importance of SLM as a means of reducing vulnerability to the effects of such events. In addition, critical project tasks will not be scheduled for the August-September hurricane season, while disaster mitigation measures such as communication and coordination will be emphasized during this period.

Expected global, national and local benefits

81. The global, national and local benefits of the project will be closely interrelated. At the global level. The project will result in improved ecosystem resilience and productivity. Indirect benefits will also be generated through the protection of habitat of several globally important species and reduced CO₂ outputs, due to decreased burning and increases in permanent crops and tree systems.

82. At the national level, the project will contribute to the stabilization of this watershed system (which, according to the objective ranking system applied by SEMARN, is considered of second highest priority in the country in terms of the need to address degradation problems) and will protect the availability of the water resource for the economic development of the dry southwest. The country will have developed a model of governance for sound integrated and sustainable land management with stakeholder participation that is tested and validated, and learned lessons regarding the mainstreaming of environmental benefits into poverty reduction initiatives, with a focus on schemes which are self-sustaining at the local level. In addition, the Public-private partnership model for sustainable resource management will also be validated as a potential course of action for other priority watersheds. The financial mechanisms will set the standard in the Dominican Republic for financing natural resources and create unique expertise, which will have an indirect effect on other areas in the Dominican Republic as those lessons learned are put into

practice. The extensive support received by the business community of the DR through direct involvement in their board of directors will create interest and direct participation of the countries top business leaders. In specific terms, the country will protect 7% of its forest resources by providing economic alternatives.

83. At the local level, the population of the area will enjoy increased access to the natural capital on which the sustainability of their livelihoods depends, and will also receive direct economic and social benefits through the provision of compensation for the costs of carrying out sound land management. The population downstream of the watershed system will also enjoy increased access to water for drinking and irrigation. Investment in local organization will contribute to social cohesion and empowerment, with benefits that will go beyond land management issues.

84. In addition to the above benefits which are of direct relevance to Sustainable Land Management, the project will have incidental benefits for other global values (however, given the specific focus of this project on SLM, these benefits will not be measured as indicators of project success). The promotion of a spatially and structurally diverse landscape containing a large number of native woody perennials (for example in shade coffee stands) will result in biodiversity benefits, through the improvement of habitat conditions for endemic bird species such as *Cardelius dominicensis* and *Nesocites micromega* and threatened migratory bird species such as Bicknell's thrush (*Catharus bicknelli*.) and the Cape May Warbler (*Dendroica tigrinum*) (Wunderle & Latta, 1996). Stabilization of land use patterns will also result in reduced pressures on the remaining natural vegetation of the watershed (most of which is confined to protected areas); this includes, for example, elements of the Hispaniolan pine forest Global 200 priority ecoregion. Increased quantities of woody perennials in the landscape, coupled with increased levels of soil organic matter, will also confer benefits in terms of carbon storage and therefore climate change; while decreased erosion rates will result in reduced discharge of sediment from the watershed into the Caribbean Sea, which is of great international importance.

Country Ownership, Eligibility and Drivenness

Ownership and Eligibility

85. The Dominican Republic ratified the UN Convention to Combat Desertification on June 16, 1997. The Under-secretary for Soil and Water, as national operational focal point for the UNCCD, has formally endorsed the project (see endorsement letter in SECTION IV: PART I).

86. The Dominican Republic is also a signatory to the following pertinent international conventions:

- Convention on Biological Diversity (signed June 13, 1992, ratified November 25, 1996).
- United Nations Framework Convention on Climate Change: (signed June 12 1992, ratified October 7 1998).
- Kyoto Protocol to the UNCCD (signed February 12, 2002).
- Millennium Development Goals
- Declaration of Barbados and Programme of Action for the Sustainable Development of Small Island Developing States (signed April 26, 1994).

87. The project has also been endorsed by the Secretary for Environment and Natural Resources, as GEF focal point (see endorsement letter in SECTION IV: PART I).

Relationship to National Plans and Priorities

88. The proposed GEF actions are consistent with current national environmental initiatives, as provided for in the key General Law on Environment and Natural Resources (Decree 64-00), such as the creation of decentralized regional environmental units; reform of legislation concerning water

resources; biodiversity and protected areas laws, environmental education, strengthening the national mechanisms for environmental impact assessment, and the creation of Municipal Environmental Action Units. The project is located in the most ecologically degraded region of the Dominican Republic (JICA, 2002) where resources are also critical to the development of the southwestern provinces, which are the most arid regions of the country (SEMARENA/DIARENA, 2000). The National Plan for Poverty Reduction listed the region within the “poorest” category (ONAPLAN, 2002). The implementation of the project will reduce poverty and contribute to sustainable development through participatory actions that result in SLM, demonstrating the nation’s efforts to achieve the Millennium Development Goals. National support for the initiative was ratified via presidential decree #663-02 on August 22, 2002.

89. The National Action Plan (NAP) for the combat of desertification is currently being finalized by an Inter-Institutional Working Group (GTI), and is expected to be completed in February 2005. Currently, the Secretariat for Environment and Natural Resources (SEMARN), which is a member of the NAP GTI, utilizes a ranking system to prioritize regions based on parameters such as degree of degradation and population. Under this system, the project area received the highest priority of all watersheds in arid and semi-arid areas (SEMARENA/SSA, 2002) and the second highest priority among all 15 watersheds in the country. The UNCCD focal point (in SEMARN) has been strongly involved in project development (see SECTION IV: PART V) and, during a meeting with the United Nations representative on 16 February 2004, declared that the project was of highest priority for the country.

90. UNDP programs in the Dominican Republic, within the context of the Development Assistance Framework (UNDAF) for the country, are based strategically on Millennium Development Goal 7 (ensure environmental sustainability). Specifically, the strategy integrates the three targets under this Goal, taking into consideration the global environmental problems, multi-lateral environmental treaties including the Convention to Combat Desertification and Drought, and national priorities. The UNDP Country Office also regards renewable energy as an important instrument for human sustainable development and includes prevention and mitigation of natural disasters, and is also working towards mainstreaming of gender issues and environmental awareness.

Sustainability

91. The long term vision of the situation which will result from the project is that the 15-year Master Plan for the Upper Sabana Yegua Watershed is accepted and implemented by all relevant stakeholders without need for external promotion, leading to its eventual renewal for indefinite further periods; and that the costs and responsibilities for its long term implementation and eventual renewal are fully covered by a combination of Government resources, efforts of local stakeholders and income generated from the financial instruments to be established through the project.

92. The GEF incremental actions are designed specifically to assure the social, institutional, financial, and environmental sustainability of project impacts following the completion of the GEF incremental activities. Removal of the barriers will create the policies, capacities, and financial structures that are lacking and which currently make the initiative overly dependent on the implementing agencies.

93. *Institutional sustainability* will be ensured by the formation, during the 5 year period of GEF support, of a long-term public-private sector partnership that will transform itself into a public-local partnership by the end of the 15-year duration of the Sabana Yegua initiative. The Sur Futuro Foundation, which is the NGO that will execute the project, has been given a formal 15-year concession by the Government for involvement in the watershed, which represents a formal long-term commitment; the aim of Sur Futuro is that, at the end of this period, responsibility will be handed over to the Government and local communities, with the aim that the model will subsequently be replicated elsewhere.

94. The public aspects of the partnership provide the technical delivery mechanisms and lower the project's overheads, while the private sector aspects will provide consistent, long-term management capability and create financial mechanisms, enabling local groups and municipalities to manage their watersheds for decades after 15 year period of the Sabana Yegua initiative. The partnership is managed by the Sur Futuro Foundation, a Dominican non-profit organization who has rallied private sector support, especially from the business and banking sectors for social interests in the southwestern Dominican Republic. The Foundation is a conduit for the development of the capacity to establish the public local interface necessary for institutional sustainability for the long term implementation of the Master Plan. Local institutional development will be the cornerstone of the long range sustainability of the mechanism beyond the official mandate.

95. The institutional sustainability of the proposed four-level governance structure will be promoted through demonstrating its value to all stakeholders, including Government which will in the medium and long term assume the costs of the zone coordinators who will support the structure. An additional strategy which will be applied in order to promote the assumption by the Government of responsibility for supporting the structure will be the application of a gradual process of transfer of responsibilities. The Zone Coordinators, who will have responsibility for promoting and facilitating planning activities and the functioning of the governance structure at local level, will be technicians initially employed by Sur Futuro (as the NGO designated by the Government to operate in the watershed system); initially Government (through SEA) will meet approximately 50% of the costs of zone coordinators' salaries. In the longer term, Government technicians will fill these posts, either through a combination of the appointment of new personnel and the reallocation of existing personnel, as a result of the institutional awareness raising to be carried out during the project. To promote sustainability, there will be a transition period in which the remainder of salary costs will be met through income from the WEF, leading eventually to the Government assuming all of these costs in the long term. In order to ensure that the Government will assume this commitment in the long term, it is essential to invest in convincing it of the value of the structure. Emphasis will be placed on achieving conviction at an institutional, rather than individual level, in order to safeguard against personnel changes; this will be achieved through visits to discuss experiences and dissemination of results, involving functionaries at a range of levels.

96. Institutional sustainability will further be ensured by the fact that the governance structure proposed does not represent a new institution as such, but rather a mechanism for coordination between existing institutions and with other stakeholders.

97. At the end of the 5 year GEF project, an expansion plan will be produced, which will provide a step by step strategy for multiplying the lessons learned and financing the expansion during the second 5-year phase of the 15 year Sabana Yegua initiative, after the conclusion of the GEF-funded activities. In order to ensure sustainability, a budget of \$112,000 will be dedicated to incorporating lessons learned and experiences into the new Master Plan, as part of the strategy for the implementation and expansion of future phases of Upper Sabana Yegua Watershed System Initiative (Output 1.3), through specific activities including seminars and the production and dissemination of informative materials.

98. **Social sustainability** will also be enhanced through investments in the zone planning structures that will especially empower municipal governments and provide them with a framework for interacting with community based organizations. The proposed procedure for developing a governance structure will also create a framework for all areas of social development. In addition, a new generation will drive the governance processes which are central to the initiative, as a result of project activities that will lead to better education, youth organization, and leadership. The creation of a governance structure with associated capacity building and youth involvement will contribute to preparing the next generation to manage the watersheds directly.

99. The **financial sustainability** of the initiative will stem from the development of a long-range financial plan will develop local, internal sources of revenue that will eventually cover the recurrent costs of administration. The plan will also contain a strategy to reduce the recurrent costs by capitalizing on the investments in social capital and eventually transfer responsibilities for project management to local governance structures, which should create new economies in management. Reductions or strategic shifts in overhead and distribution of revenues will form the backbone of the internal financing sustainability plan. The environmental compensation mechanisms, such as water-user fees and payment for electricity, will pay for the administration of the initiative by the middle of the second five-year phase (2-3 years after the end of GEF support). 57 years of environmental education activities, with initial support from GEF resources, will help create the awareness on the part of the downstream users needed to assure buy-in and long-range environmental compensation. Additional internal mechanisms will be generated, such as the generation of income from forest management activities will provide important local currency sources. The development of rotating funds at the local level will create a forum for the payback of services or goods received and will channel those resources into community development funds. A portion of the project activities will be demand-driven with the result that, once the models are in place, interest on the part of the larger farmers for forestry and appropriate grazing activities is expected. External mechanisms, such as tapping into carbon markets and clean development mechanisms within nations that are signatories of the Kyoto protocol and or other options for international environmental services will be developed as part of Outcome 3.

100. **Environmental sustainability** is assured through the project itself. The project will produce production models that will eventually replace the status quo with more environmentally sound production practices that are geared to the biological and physical characteristics of the area. A procedure for gauging the environmental impact of project activities will be mainstreamed into the various partner organizations during the inception or start-up phase of the project.

Replicability

101. The project has high replication potential, at a number of levels. Lessons may be drawn from the overall project design which will be applicable to the design of other OP15 projects elsewhere in the LAC region. The innovative organizational and financial mechanisms to be demonstrated will also be of potential applicability throughout the region, in situations where resource management is highly dependent on the activities of local people. Specifically, the four-level governance structure and the public-private partnership model have high potential to be applied elsewhere throughout the Dominican Republic. The technical solutions to be developed and demonstrated will be applicable in other areas of the country with comparable geophysical and socio-cultural conditions, especially the drier south and west.

102. A number of strategies will be applied to maximize replication potential. The demonstrations of models for production and land management will be designed and located in order to maximize the range of conditions throughout the watershed system in which they will be replicated.

103. Replication will be furthered through the process of multiplying the lessons learned and experiences acquired during the project into the new Master Plan, as part of the strategy for the implementation and expansion of future phases of Upper Sabana Yegua Watershed System Initiative (Output 1.3). A total of \$112,000 is dedicated to this output in the budget. In addition, lessons learnt will be promoted both nationally and internationally through the Inter-institutional Working Group (GTI), whose members include national and international representatives in a position to apply the lessons learned in the projects that they support. Additional channels for replication will be the International Model Forest Network, which includes Sabana Yegua, the International Watershed Management Network and the Dominican Watershed Management Network, as well as GEF related networks, such as IW:Learn and networks expected under the LD Focal Area. The monitoring and evaluation system has an integrated flow of information both

upstream and downstream within the management structure of the project to facilitate knowledge management and decision-making at all levels.

104. In order to promote replicability at a regional level, the project will develop linkages with the recently approved GEF project “Integrating Watershed and Coastal Area Management in Small Island Developing States of the Caribbean” (IWCAM)⁵, which is jointly implemented by UNDP and UNEP other agencies and in which the Dominican Republic is a participant; the South-south Cooperation Initiative of the Global Mechanism and FAO will be used as a channel for international and inter-agency replication. Targets for replication will also include other OP15 projects in the Latin America and Caribbean region, including the UNDP/GEF projects “Demonstrating Integrated Ecosystem and Watershed Management in Honduras” (commenced mid-2004), “Combating Land Degradation in the Arid and Semi-Arid Zones of Falcón and Lara States” in Venezuela (in preparation) and the national sustainable land management project in Mexico which is at the concept stage. Additionally, replication will be achieved through linkages with the LDC-SIDS Portfolio project on SLM and the Medium Sized Project (MSP) under development for the Dominican Republic; the two projects are complementary because they both focus on building capacities for the National Action Plan, one at the national level, and the other at a specific field site. Lessons learnt from the SY project will be fed into the MSP. Synergies will be developed whenever possible for added cost effectiveness. The project will create linkages with other “integrated land and water” projects (including participation at the IW:Conference) as well as part of the lessons learnt network of UNDP on payment for services.

PART III. Management Arrangements

Consultation, coordination and collaboration between IAs and IAs and EXAs

105. This initiative will build upon and learn from experiences to date such as the recently completed World Bank Irrigated Land and Watershed Management Project⁶, and will be actively coordinated with the second phase of the World Bank Environmental Policies framework for the Dominican Republic. The Dominican Republic is one of 13 countries participating in the recently approved GEF project “Integrating Watershed and Coastal Area Management in Small Island Developing States of the Caribbean” (IWCAM)⁷, which is jointly implemented by UNDP and UNEP other agencies. Both projects will include pilot activities in integrated and sustainable land management, and coordination and the exchange of experiences between the two will be essential in order to avoid overlaps and maximize synergies. The South-south Cooperation Initiative of the Global Mechanism and FAO will be an important channel for international and inter-agency coordination. The FAO is also promoting an initiative to determine the environmental compensation potential for several areas in the Dominican Republic, the results from which will be taken into account in project implementation (particularly with respect to Outcome 3). The project will also eventually form part of a proposed network which will link UNDP OP15 projects. GEF is also supporting, as an enabling activity, the preparation of the country’s Initial National Communication in Response to the Provisions of the UNFCCC, which will take into account this project. The project will also work very closely with the LDC-SIDS Portfolio project on SLM and the Medium Sized Project (MSP) under development for the Dominican Republic.

⁵ <http://www.gefonline.org/projectDetails.cfm?projID=1254>

⁶

<http://web.worldbank.org/external/projects/main?pagePK=104231&piPK=73230&theSitePK=40941&menuPK=228424&Projectid=P007020>

⁷ <http://www.gefonline.org/projectDetails.cfm?projID=1254>

Implementation/execution arrangements

106. The Project will be executed under the NGO execution modality, for a period of five years, commencing in 2005. Due to formal legal arrangements between the Dominican Government and the Sur Futuro Foundation to co-manage the Sabana Yegua watershed, the Sur Futuro Foundation will be the executing NGO (an external, independent assessment has been made of the institutional capacities of Sur Futuro). Financial management and accountability of resources as well as other project execution activities will be under UNDP country office direct supervision. Upon approval of project, and development of annual operative program, in cases agreed by project counterparts, the UNDP Dominican Republic office will be able to charge the project directly for Implementation Support Services (ISS) on a transaction basis using a universal price list.

107. The Project implementation will be overseen by a specially created *Project Steering Committee (PSC)* vested with the responsibility of approving the project's annual operational plans and reports and ensuring that project activities are in line with those outlined in the approved project documentation and with national policy frameworks. The PSC will also ensure coordination with relevant and associated projects. This committee will be chaired by a senior staff member from the Ministry of Environment and Natural Resources and would be composed of representatives from the UNDP, the Ministry of Environment and Natural Resources, Sur Futuro Foundation, the Inter-institutional Technical Group in support of the Convention to Combat Desertification in the Dominican Republic (GTI), the National Planning Office (ONAPLAN), the Ministry of Agriculture, the Ministry of Education, as well as any other that might be considered relevant.

108. The PSC will meet at least twice a year, and on other occasions as needed, to review partial progress reports, monitor results, receive other reports that they may request on an *ad hoc* basis and to approve annual project reports and work plans. The National Project Coordinator (NPC) will be the Secretary of the PSC and would be responsible for setting up their meetings, circulating documentation for review, taking minutes and preparing their reports.

109. The NPC will head a *Project Management Unit* (PMU) responsible for the general oversight and running of project implementation. This Unit would be largely decentralized with only the NPC and a financial assistant housed in Santo Domingo, and a Regional Project Coordinator and an administrative-financial assistant to be housed in the main Sur Futuro Foundation Sabana Yegua regional office located in Padre Las Casas.

110. The National Project Coordinator (NPC) will be responsible for the timely achievement of all project objectives. His/her duties will include overseeing and coordinating project implementation at the operational level and will be the key contact for UNDP in regards to operational aspects (contracts; equipment procurement etc). The NPC's responsibilities will also include developing work plans and corresponding budgets that enable the project objectives to be achieved within frameworks outlined in the project's logical matrix. It will also include providing guidance and support to the Regional Project Coordinator (RPC) to ensure that the implementation of activities in each region is coherent with the overall project structure and objectives, and that lessons learnt at each site are shared with others. The NPC will also be responsible for the periodic reporting to UNDP on lessons learnt and will be the key point through which lessons learnt in similar projects in other parts of the world will be channeled to enhance project operations. In addition to this overall co-ordination role, the NPC will be directly responsible for the implementation of activities at the national level.

111. NPC responsibilities will also include periodic evaluation of progress and the preparation of progress reports based on inputs from the Regional Project Directors and regular field visits. The

end of year project reports to be submitted to the PSC and UNDP will be prepared by the NPC, as well as other reports specifically required for GEF projects such as the PIR. Part of the NPC's Monitoring and Evaluation functions would also ensure the timely measurement of indicators to objectively verify and record progress towards the project objectives and the achievement of targeted impacts. An administrative assistant would provide support to the NPC.

112. The Regional Project Coordinator (RPC) will oversee project activities on a daily basis at the local level. He/she will also be responsible for developing regional work plans and budgets and providing these to the NPC in agreed formats that enable them to be aggregated into the overall project work plans and budgets. The RPC will have the support of a financial assistant that will be responsible for monitoring project expenditure, processing project resource requests and general financial management of each region's project activities.

113. Disbursements of project funds will be made through request to UNDP on a quarterly basis. Funds for the first quarter will be advanced, according to the operational plan, and funds for the following quarters will be transferred after proper reports are submitted to UNDP. Disbursements will be made in national currency.

114. Terms of reference for key project staff are provided in SECTION IV: PART II.

115. Finally, in order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated a bit from the GEF logo if possible as, with non-UN logos, there can be security issues for staff.

PART IV. Monitoring and Evaluation

116. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and by SEMARN, under the guidance of the UNDP Country Office, with support from UNDP-GEF. The **Logical Framework** (Executive Summary Annex B) will form the basis for the project Monitoring and Evaluation system. A detailed list and budget of core monitoring and evaluation activities is provided in SECTION II, PART III.

117. The Monitoring and Evaluation Plan, including indicators and needs for baseline information, will be refined and finalised at the project **Inception Workshop** (IW). The IW will unite the principal stakeholders of the project to familiarize them with the project staff, develop a detailed **Annual Workplan and Budget** (AWP) for the first year of operations, and agree on the information and timeframes for reporting project activities to the different levels within the governance structure, including project review meetings and national and local steering committee functions. Finally, the inception workshop will provide an opportunity to inform the project team on UNDP project-related budgetary planning, budget reviews, and reprogramming as necessary. In subsequent years, a brief annual workshop will be held to develop AWP's and make new adjustments to the monitoring and evaluation system as necessary.

118. An **Inception Report** will be prepared immediately following the Inception Workshop. This will include a review of the project context, including any changes since the design phase which may affect implementation, and will detail the different levels of monitoring and evaluation that will take place throughout the project with specific information on the roles, responsibilities, activities, and indicators to be monitored during the first year of operations. For the benefit of all stakeholders, the following specific UNDP mechanisms will be defined and programmed with actions included in the inception report: annual **Project Implementation Review** (PIR), the

Annual Project Report (APR), Tripartite Review (TPR) meetings, as well as the nature and timing of the **Mid-Term** and **Final Evaluations**.

119. The GEF project will rely on the information collected by JICA in its baseline study and on additional information collected by Sur Futuro during the PDF-B phase. During the inception phase of the project, baseline information will be sought in each village to update the JICA information and fill-in any gaps in the local information base. Much of the original baseline information is not disaggregated to a useful extent to track changes by gender or by age groups. Official census information is weak or deficient. Additional information on rural credit, employment, and existing agricultural practices will be necessary to gauge the results of the project. As the community development committees are formed (see participation plan in SECTION IV: PART V) and 9 development zones established, the project staff will take advantage of the social network to upgrade baseline information on a regular basis and maintain a reliable, dis-aggregated census.

120. Measurements will be undertaken through subcontracts or by project staff. These will include specific studies or periodic sampling, such as with sedimentation and soil erosion. All project management and geographic information will be deposited within SEMARN's National Environmental Resource Inventory System (NERIS). As the NERIS system develops, the project will coordinate the sharing of GIS information with DIARENA, in coordination and with the cooperation and technical support of SEMARN's Secretarial Office of Planning and Programming (OSPP) who will also receive all project related information and data for inclusion in the national database.

121. *Day to day monitoring* of implementation progress will be the responsibility of the National Project Coordinator who will work within the Fundacion Sur Futuro management structure with oversight by UNDP. Based on the project's Annual Work plan and its indicators, the Project Team will inform the UNDP-CO and SEMARN of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion. Targets and indicators will be based on those agreed upon at the inception workshop and will be redefined at a new workshop to be held at the beginning of each project year, following a similar revision as implemented at the inception workshop.

122. *Periodic monitoring* of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project staff and with SEMARN designates. This will allow parties to review and troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities. UNDP-CO, UNDP-GEF RCUs, UNCCD focal point and national steering committee members will conduct yearly visits to field sites to assess project progress first hand. A Field Visit Report will be prepared by the CO and circulated to all stakeholders.

123. A terminal TPR meeting will be held in the last month of project operations. The Sur Futuro Foundation will be responsible for preparing the **Terminal Report** and submitting it to SEMARN, UNDP-CO, GEF, and the UNCCD focal point for distribution. It will be prepared in draft at least two months in advance of the terminal TPR in order to allow review, and will serve as the basis for discussions in the TPR. The TPR has the authority to suspend disbursement if project performance benchmarks (developed at the Inception Workshop) are not met.

124. The Project Coordinator will be responsible for the preparation and submission to UNDP and UNDP-GEF the following mandatory reports: Inception Report (IR), Annual Project Report (APR), Project Implementation Review (PIR), the Project Terminal Report. Specifications for additional internal and external progress reports will be defined during the IW.

125. Care will be taken to involve the range of stakeholders within the proposed governance structure in the information loop. The Project Coordinator will submit monthly and quarterly reports to SEMARN/OSPP and UNDP, with copies to the local steering committee or Watershed

Development Committee, which is comprised of key representatives of the governance structure. A quarterly debriefing to the Watershed Development Committee will be considered to enhance the flow of information to the Zone Development Committees. The Project Coordinator will also debrief and submit the quarterly progress reports to UNDP, GEF and UNCCD focal points, SEMARN and the GTI, to enhance the flow of information and feedback to and from the NAP structure and to UNCCD through the focal point and national communications. UNDP will be responsible for forwarding information and feedback to and from the UNDP-GEF structure.

126. The project will be subjected to at least two independent external evaluations (see terms of reference in SECTION IV: PART II). The first will be an independent **Mid-Term Review** (MTR), at 2.5 years after start-up. This will determine progress being made towards the achievement of outcomes and will identify course correction if needed, focusing on effectiveness, efficiency and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned about project design, implementation and management. The timing of the mid-term evaluation will allow coordinators to make any modifications necessary to incorporate improvements or changes in the project's activities for the remaining project period.

127. An independent **Final Evaluation** will take place six months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation and will seek information specific to the re-engineering of the Master Plan. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals.

128. Financial audits are also considered. The Fundacion Sur Futuro will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Fundacion Sur Futuro. A total of \$73,000 is allocated for this purpose in the project budget.

129. To facilitate the sharing of information, the project staff will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects and deposit that information within the NERIS system for distribution through the described national and international networks at the end of every year (see replication strategy summarized in paragraph 102 and replication budget summarized in paragraph 104). UNDP/GEF and SEMARN/OSPP shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. If requested, the project staff will prepare project specific technical reports and technical publications. The technical reports will represent the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels. The technical reports may include: models of land management for SLM, financial and incentives mechanisms, information and planning systems, and governance structures of watershed.

130. Project publications may include scientific or informational texts on the activities and achievements of the project, in the form of journal articles, multimedia publications, etc. These publications will be based on technical reports. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, UNCCD focal point, the government and other relevant stakeholder groups) plan and produce these publications in a consistent and recognizable format. (refer to Section II, Part III for the M&E Budget). The Watershed Wide Environmental Fund will be used partly to finance monitoring and evaluation of the replication of the lessons learnt in the project.

131. A table depicting an indicative Monitoring and Evaluation workplan and budget is provided in Section II Part III.

Legal Context

132. The present Project Document will be the instrument referred to under Article 1, paragraph 1 of the Basic Agreement for Technical Assistance between the Government of the Dominican Republic and the United Nations Development Program (UNDP), signed by both parties on 11 June 1974 and ratified by the National Congress through Resolution No. 73 on 5 November 1974.

40. Any substantial revision of the Project Document that has significant implications for the contents of the Project, as well as the use of the allocated resources, will require the approval of the Project Steering Committee, UNDP and the Project Director.

41. The following budgetary revisions will require only the approval and signature of the Resident UNDP Representative:

- Compulsory annual revisions, reflecting the real expenses of the previous year, duly certified by the national counterpart, and the reprogramming of unused funds for subsequent years, based on the delivery of inputs as agreed upon in this Project Document.
- Revisions that do not entail significant changes in the immediate objectives, the project's activities or its outputs, but that result from a redistribution of the inputs agreed upon, or are due to increased expenses caused by inflation.

SECTION II: STRATEGIC RESULTS FRAMEWORK

PART I. Incremental Cost Analysis

Project background

133. This 5 year project seeks to promote long term integrated Sustainable Land Management in the Upper Sabana Yegua Watershed System, a 1,660 km² area in the southwest of the Dominican Republic which suffers from severe land degradation, which currently results in increased vulnerability on the part of the local population to environmental shocks, decreased agricultural production, reduction in access to basic services (water and electricity), demographic instability, loss of carbon reserves and loss of ecosystem resilience. This will be carried out within the context of a 15 year Master Plan for the Watershed System, and will provide a model which will be replicable elsewhere in the Dominican Republic, leading to more effective combat of land degradation and poverty at national level.

Incremental cost assessment

Baseline

134. There are important **baseline activities** in sustainable land management and in poverty reduction within the project area. The most significant is the formation of the public-private partnership between the Secretariat for Environment and Natural Resources and the Sur Futuro Foundation, for the implementation of the 15 year Master Plan for the Watershed System. Baseline activities currently being carried out and proposed, under this arrangement, include the promotion of forestry, agro-forestry, and community development; vocational-technical activities and credit programs aimed at combating poverty; and the establishment of a limited endowment from a group of seven international and national banks to fund community development opportunities initiated by the local population. The program is complemented by funding from the Citigroup Foundation. The Technical Execution Unit (UTE), established in 2002, introduced a work-benefits program that currently provides employment to poor heads-of-households who reforest government lands through the National Reforestation Plan. SEMARN, working through the Under-secretariat for Forest Resources (SUREF), has installed and finances a large tree nursery with an annual production of 2 million pine seedlings. Model agroforestry projects have been implemented in four communities, with support from Fundación Sur Futuro and financing from the Canadian Government.

135. The first model community for forest management is being organized. The Dominican Government has granted a 25-year concession to Fundación Sur Futuro to manage the Sabana San Juan National Forest via Presidential Decree #249-04. The concession requires a participatory model that will fuel community development while expanding the Forest environment. Sabana San Juan is a fragmented, genetically degraded, remnant pine forest. The management plan, which is being developed, will expand the forest area from the present extension of 750 ha to over 2,000 ha in the mid term and eventually 10,000 ha in the long term. The project was formally included in the International Model Forest Network for Latin America and the Caribbean in April 2004. Other important baseline actions include:

- Support by the national coffee corporation (CODOCAFE) throughout the region in improving the technical control while promoting coffee management, handling, and marketing. Coffee is a priority crop in the area that is appropriate in all of the ecosystems located 600 meters above sea level. Coffee farmers have been inventoried and technicians are providing technical support in the area.
- Although poorly equipped, a national environmental education program is implemented by local school teachers as part of the national curriculum. The overall focus on poverty reduction through education is complemented by a school building program.

- A community and youth development program is being initiated with support from the W.K Kellogg Foundation.

136. Under the **baseline scenario**, good examples of agro-forestry and of on-farm soil conservation will be demonstrated. However, these advances will be limited to landowners with greater financial and land capital and the confidence to invest in environmentally sound practices, generally excluding farmers practicing shifting cultivation (slash and burn agriculture). For all other land use scenarios, actions will not provide coordinated incentives based on tested models. Due to the information gaps, programs will not be targeted to specific stakeholder groups, taking into account their capacities, specific socio-economic situations, or ecosystems.

137. Under the baseline scenario, implementing agencies will not have the tools to share geographic information and therefore will not have a coordinated effort to provide specific inputs within targeted regions. Technicians will continue to suffer from the lack of important inputs (such as management plans, radio communications, access to computers, adequate transportation, etc.) and will continue with the costly process of duplicating efforts. This will cause fragmentation of information and the inefficiencies of conflicting mandates to continue. Institutional barriers to planning and communication will leave technicians without the tools, incentives, and policies that they need to promote sustainable land management. The 15 year Sabana Yegua initiative would maintain a centralized management structure that would operate without the efficiencies of local governing bodies able to coordinate project activities, management costs will increase with inflation and the investments in human and social capital will suffer.

138. Farmers will continue to be expected to bear the costs of implementing activities favouring SLM and will have limited access to formal credit, leading them to continue to favour practices which offer short term returns, regardless of their environmental impacts. Inadequate coverage and effectiveness of technical support will perpetuate their limited access to alternative technologies. Financing for SLM will be sporadic, unsustainable, and inefficiently invested. Information will be insufficient to permit effective monitoring and evaluation of the broader process of land degradation and desertification within the region, leading to corresponding corrective measures.

139. Currently limited levels of support from churches and NGOs to community organization will result in local communities continuing to be excluded from participation in policy formulation, decision-making and regulation, with the result that policies, plans and regulations will fail to respond effectively to their needs.

140. In the baseline, sector-based interests (forestry, agriculture, protected areas) will continue to dominate the policy debate, creating conflicts and inappropriate decision making wherever the lobby is strongest. No mechanism or special capacity will exist to analyze and plan for tradeoffs at the landscape level.

Global environmental objective

141. The project seeks to promote the sustainability of the provision of ecosystem services (including soil fertility, hydrological processes and carbon sequestration), habitat integrity and ecosystem resilience, thereby contributing to long term stability of land use and livelihood conditions.

Alternative

142. Under the GEF alternative, policy, capacity and financial barriers will be removed, enabling local resource managers to implement practices compatible with sustainable land management. Specifically, policies, plans and programmes will incorporate considerations of SLM more adequately, leading to increased and better directed institutional investments; improved institutional capacities will permit better delivery of technical support; increased local awareness and knowledge will motivate resource managers and users to apply practices more compatible with SLM; improved organizational capacities at community level will enable local stakeholders to influence policies, plans and programmes, increasing

their likely relevance and effectiveness; increased access to finance will make SLM more attractive to farmers; and reduced poverty will remove dependence on environmentally damaging activities.

143. The GEF alternative will result in a combination of local, national and global benefits. **Locally**, improved resource use, protection of natural capital, increased opportunities for income and better access to basic services will serve to reduce poverty; while improved organization will promote community cohesion and increase stakeholders' capacities to generate solutions to a wide range of problems. **Regionally and nationally**, reductions in land degradation will help to ensure the continuity of the supply of environmental services (including water and electricity), and will reduce the motivations for rural-urban emigration, which would otherwise place an ever-increasing strain on urban infrastructure and support services. **Globally**, increased habitat resilience and productivity will result in reductions in unsustainable demographic processes (such as migration to the USA) and in needs for external economic support, improvements in the conservation status of key species and ecosystems, and reductions in carbon emissions.

144. The GEF and co-financed incremental activities (see Incremental Cost Analysis table) will remove the barriers by providing technical advice, training and coordination; the promotion and facilitation of the establishment of schemes (for example for the payment of environmental services) and governance structures, in association with diverse stakeholders; the development of strategic plans; the establishment of a fund to guarantee credit for SLM activities; the establishment of pilot activities to test and demonstrate alternative production models on the ground; and the initial funding of recurrent costs which will be met in the long term through the finance mechanisms to be established by the project. GEF inputs will be complemented by co-financing (see co-financing table) from a range of sources, which will cover reforestation activities, recurrent costs of staff, credit provision and the establishment of basic services and employment opportunities to reduce poverty. A total of \$25,462,688 will co-finance the incremental activities with a ratio of 5.7:1. Co-financing is provided by the Dominican Government, the Fundacion Sur Futuro, the Kellogg Foundation, other smaller donations from international NGOs, and by the beneficiaries.

145. The GEF contribution will set in motion the Watershed Environmental Fund which will conservatively attract donations or leveraged funding of over \$18 millions in ten years (\$3 million from environmental services, \$6 million from debt-for-nature swaps and \$9 million from donor gifts).

146. Co-financed incremental activities will complement the GEF increment by providing salaries, local and public infrastructure, youth development activities, backing and implementation of the guarantee fund, backing of the Watershed Environmental Fund, and all outputs under the poverty alleviation component. In order to ensure sustainability, the GEF increment is focused principally on short term, catalytic aspects which co-financing sources cannot cover, while the co-financed increment is focused principally on aspects whose long term continuity is essential to ensure that impacts are sustained.

Systems boundary

147. The principal geographical area of intervention of the project will be the productive landscape (not including protected areas) of the Upper Sabana Yegua Watershed System, where the land degradation processes that will be addressed are taking place. Within this area, the project will involve all relevant stakeholders, including not only resource managers but the population in general which is affected by the livelihood implications of land degradation, and the corresponding local authorities and NGOs.

148. The system boundary for the proposed schemes for the compensation of environmental service provision will be expanded beyond the Watershed System itself, to include the downstream areas dependent on the services (principally hydrological) provided by the watershed system.

149. The system boundary for interventions at policy and institutional levels (Outcome 1) and replication (the Goal) will be the national territory of the Dominican Republic.

Table 1. Incremental Cost Matrix (See Annex A of Executive Summary)

PART II. Logical Framework (See Annex B of Executive Summary)

PART III. Indicative Monitoring and Evaluation workplan and budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
Inception Workshop	<ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNDP CO ▪ UNDP GEF ▪ UNCCD/GTI 	20,000	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> ▪ Project Team ▪ UNDP CO 	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	<ul style="list-style-type: none"> ▪ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members 	To be finalized in Inception Phase and Workshop. Indicative cost 70,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	<ul style="list-style-type: none"> ▪ Oversight by Project GEF Technical Advisor, Project Coordinator and Zone Coordinators. ▪ Measurements by regional field officers and local IAs 	To be determined as part of the Annual Work Plan's preparation. Indicative cost \$50,000	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	<ul style="list-style-type: none"> ▪ Project Team ▪ UNDP-CO ▪ UNDP-GEF ▪ UNCCD 	None	Annually
TPR and TPR report	<ul style="list-style-type: none"> ▪ Government Counterparts ▪ UNDP CO ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit ▪ UNCCD 	None	Every year, upon receipt of APR
Steering Committee Meetings	<ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNDP CO ▪ UNCCD 	None	Following Project IW and subsequently at least once a year
Periodic status reports	<ul style="list-style-type: none"> ▪ Project team 	5,000	To be determined by Project team and UNDP CO
Technical reports	<ul style="list-style-type: none"> ▪ Project team ▪ Hired consultants as needed 	15,000	To be determined by Project Team and UNDP-CO
Mid-term External Evaluation	<ul style="list-style-type: none"> ▪ Project team ▪ UNDP- CO ▪ UNDP-GEF Regional 	20,000	At the mid-point of project implementation.

	<ul style="list-style-type: none"> ▪ Coordinating Unit ▪ External Consultants (i.e. evaluation team) 		
Final External Evaluation	<ul style="list-style-type: none"> ▪ Project team, ▪ UNDP-CO ▪ UNDP-GEF Regional Coordinating Unit ▪ External Consultants (i.e. evaluation team) 	30,000	At the end of project implementation
Terminal Report	<ul style="list-style-type: none"> ▪ Project team ▪ UNDP-CO ▪ External Consultant 	None	At least one month before the end of the project
Publication of lessons learned <i>Note: replication is budgeted separately</i>	<ul style="list-style-type: none"> ▪ Project team ▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc) 	15,000 (average 3,000 per year)	Yearly
Audit	<ul style="list-style-type: none"> ▪ UNDP-CO ▪ Project team 	73,000	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	<ul style="list-style-type: none"> ▪ UNDP Country Office ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives 	15,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST <i>Excluding project team staff time and UNDP staff and travel expenses</i>		313,000	

SECTION III: TOTAL BUDGET AND WORKPLAN

Award :

Award Title : PIMS3185 LD: FSP SLM in Sabana Yegua

Project ID :

Project Title : Demonstrating Sustainable Land Management in the Upper Sabana Yegua Watershed System

GEF Outcome/Atlas Activity	Responsible party	Source of funds	Budget description	Year 1 US\$	Year 2 US\$	Year 3 US\$	Year 4 US\$	Year 5 US\$	Total US\$
1. Policies, programs planning framework and tools favourable to SLM being applied	Sur Futuro	GEF	70000 operating ex 71200 int consult 71300 loc consult 63400 learn costs PERLOC personnel 71400 contrac serv ind 72200 equipment 70000 operating ex 74500 misc expenses	321,900	78,520	56,420	43,720	135,320	635,880
	SEMARN	Government of Dominican Republic		107,000	107,000	107,000	107,000	107,000	535,000
	SEA	Government of Dominican Republic		3,500	3,500	3,500	3,500	3,500	17,500
	Sur Futuro	Sur Futuro Foundation		4,000	4,000	4,000	4,000	4,000	20,000
	Total			436,400	193,020	170,920	158,220	249,820	1,208,380
2. Capacities of stakeholders at diverse levels lead to improved applications of SLM in the project area	Sur Futuro	GEF	70000 operating ex PERLOC personnel 71200 int consult 71300 loc consult 71400 contrac serv ind 63400 learn costs 72200 equipment 74500 misc expenses	431,007	438,911	438,911	409,273	407,298	2,125,400
	SEMARN	Government of Dominican Republic		153,360	153,360	153,360	153,360	153,360	766,800
	SEA	Government of Dominican Republic		338,840	338,840	338,840	338,840	338,840	1,694,200

	INDHRI	Government of Dominican Republic		40,000	40,000	40,000	40,000	40,000	200,000
	Municipalities	Government of Dominican Republic		11,200	11,200	11,200	11,200	11,200	56,000
	Kellogg Foundation	Kellogg Foundation		86,120	86,120	86,120	86,120	86,120	430,599
	Sur Futuro	Sur Futuro Foundation		268,924	268,924	268,924	268,924	268,924	1,344,618
	SEE	Government of Dominican Republic		25,300	25,300	25,300	25,300	25,300	126,500
	Total			1,354,751	1,362,655	1,362,655	1,333,017	1,331,042	6,744,117
3. Sustainable long-term financing schemes generate funding for SLM activities and SLM institutional infrastructure in the upper SY watershed	Sur Futuro	GEF	PERLOC personnel 71200 int consult 71300 loc consult 71400 contrac serv ind 63400 learn costs 70000 operating ex 72200 equipment 74500 misc expenses	110,960	110,960	110,960	110,960	110,960	554,800
	Sur Futuro	Sur Futuro Foundation		62,800	62,800	62,800	62,800	62,800	314,000
	Total			173,760	173,760	173,760	173,760	173,760	868,800
4. Livelihood and wellbeing of population directly dependent of the ecosystem improved	SEMARN	Government of Dominican Republic		402,000	402,000	402,000	402,000	402,000	2,010,000
	Kellogg Foundation	Kellogg Foundation		95,347	95,347	95,347	95,347	95,347	476,736
	Sur Futuro	Sur Futuro Foundation		342,354	342,354	342,354	342,354	342,354	1,711,771
	Banco Agrícola	Government of Dominican Republic		172,100	172,100	172,100	172,100	172,100	860,500
	National Potable Water Institute	Government of Dominican Republic		160,000	160,000	160,000	160,000	160,000	800,000
	INVI	Government of Dominican Republic		491,733	491,733	491,733	491,733	491,733	2,458,667
	Secretariat of Health	Government of Dominican Republic		760,928	760,928	760,928	760,928	760,928	3,804,639
	SEE	Government of Dominican Republic		1,380,365	1,380,365	1,380,365	1,380,365	1,380,365	6,901,825
	Secretariat of Industry and Commerce	Government of Dominican Republic		186,667	186,667	186,667	186,667	186,667	933,333
Total			3,991,494	3,991,494	3,991,494	3,991,494	3,991,494	19,957,471	

5. Learning, evaluation, and adaptive management increased	Sur Futuro	GEF	PERLOC personnel 70000 operating ex 74500 misc expenses	223,723	223,723	223,723	223,723	223,723	1,118,615
	Total			223,723	223,723	223,723	223,723	223,723	1,118,615
	<i>Totals by financing source</i>	<i>GEF</i>		1,087,590	852,114	830,014	787,676	877,301	4,434,695
		<i>Government of Dominican Republic</i>		4,232,993	4,232,993	4,232,993	4,232,993	4,232,993	21,164,964
		<i>Kellogg Foundation</i>		181,467	181,467	181,467	181,467	181,467	907,335
		<i>Sur Futuro</i>		678,078	678,078	678,078	678,078	678,078	3,390,389
Totals				6,180,128	5,944,652	5,922,552	5,880,214	5,969,839	29,897,383

SECTION IV: ADDITIONAL INFORMATION

PART I. Other Agreements

1. Letters of Endorsement (separate files)
GEF Focal Point Endorsement
CCD Focal Point Endorsement
2. Letters of financial commitment will be added once the GEF Council has approved the project.

PART II. Terms of Reference

This Part will be added after the GEF has approved the project, and before requesting CEO endorsement.

PART III. Data on the Condition of Natural Resources in the Project Area

Table 1. Socio-Economic Data for Upper Sabana Yegua Watershed (CAD,2002)

SOCIAL AND ECONOMIC CATEGORIES	WATERSHED		
	Las Cuevas	Grande del Medio	Yaque del Sur
Distribution of the population according to sex	M 57.0% F 42.1%	M 68.4% F 31.6%	M 70.9% F 29.1%
% of population with access to water			
Rainwater catchment	2	5.3	2
River water	14.5	16.8	85
Spring	7.9	5.3	12
Well	2	7.1	-
Piped System	73	65.8	-
Electricity (access to)	44	16	72
Education infrastructure			
Number of Primary schools	11	14	3
Number of High schools	3	5	
Health Infrastructure			
Number of clinics	3	2	1
Number of doctors	3	-	-
Number of nurses	7	-	-
Dispensaries	-	1	-
Worship-number of churches	19	23	9

Social and Economic Categories	Watershed		
Social Infrastructure	Las Cuevas	Grande del Medio	Yaque del Sur
Cooking fuel			
Firewood	86.3.5	86.5	94.7
Propane gas	35.0	35.0	53.9
Charcoal	8.3	8.3	2.6
Participation (affiliation) in CBOs			
% of population that belongs to at least 1 organization	74.1	65.8	43
Not affiliated	59	91	33
Types of CBOs			
Religion	2	2	1
Education	2	4	
Health	1	-	
Farmers association	25	23	5
Women's groups	7	8	4
Community	5	1	-
Sports and culture	4	-	2
Emergency-solidarity, mutual help	1	-	-
NGO (incorporated non-profit)	1	-	-
Natural resources	-	2	-
<i>Total</i>	48	40	12

Social and Economic Categories	Watershed		
	Las Cuevas	Grande del Medio	Yaque del Sur
Social Infrastructure			
Land tenancy			
Perceived ownership (feel they own the land where working)	90.6	92.7	93.9
% of land with title	16.2	15	-
% of land not registered	51.8	52.6	-
% of land borrowed	7.1	5.2	4.5
% of land rented	2.3	2.1	1.6
Perception: do not perceive any problem for lack of title	77.2	72.6	65.8
Perception: difficult to secure a loan	36	46	50
Perception: lack of title impedes access to loans	29.4	24.4	30.3
Income based on minimum salary 2002 DR\$18,000.00			
Income > DR\$40,000.00/year	14	24	7.9
DR \$18,000.00 < income < DR\$ 40,000.00	36	26	44.8
Income < \$18,000.00	50	20.7	18.4
% of income derived from agriculture	67.4	77.9	54.8
Debts Held	54.4	63.5	56.6
Difficulty in Obtaining Loans	36	46.6	50.0
Commercialization of agricultural products			
Farm gate	3.1	4.5	6.3
Direct Market	4.4	8.1	6.3
Sold through intermediaries	78.9	63.6	63.2
Household Sizes			
5-6 People	36		
3-4 People			33.7%
Illiteracy Rate	19.67		25.4
Knowledge over Agroforestry Systems			
	39	39	55.8
Knowledge but No Practice	31	29.6	
Use Agroforestry System		23	13.7
Agricultural/ Livestock Activities			
Farmers using Slash and Burn	25.9		

Farmers that No Longer Slash and Burn	25		
Farmers that never practiced Slash and Burn	39.5		
Impacts on Natural Resources			
Perception of Soil Erosion as a Problem	51.8		
Perception of Land Slides as a Problem	59.5		
Perception of Floods as a Problem	45		
Concern over Crop Productivity			
Concerned	71		
Percentage that Plant Trees		62.3	36.8
Common Rules for Tree Cutting			
Perception that you can get authorization prior to cutting trees		46.2	65.3
Perception that cutting trees is prohibited		44.5	25.3
Perception that forest land has been reduced compared to 10-20 yrs ago		71.3	
Perception that forest land has increased		11.3	
Agricultural/ Livestock Activities			
Farmers using Slash and Burn		16.2	30.32
Farmers that No Longer Slash and Burn		35.7	28.9
Farmers that never practiced Slash and Burn		38.3	34.2
Impacts on Natural Resources			
Perception of Soil Erosion as a Problem		57.4	No exact figures provided
Perception of Land Slides as a Problem		70+	No exact figures provided
Perception of Floods as a Problem		33.4	64.9
Concern over Crop Productivity			
Concerned		65.8	86.8

Note: Disaggregated data by zones will be collected at the inception of the project to make a more sound baseline.

Table 2. Distribution of cover

Note: See Map 3

CLASSIFICATION			Symbol	Total	%
Forest	Pine	Dense	Pc	27,528	0.2
		Open	Pa	13,838	8.3%
		Sparse	Pd	10,697	6.4%
		Recovering	Zr	1,088	0.7%
		Total		53,151	31.9%
	Broadleaf	Cloud	Ln	5,475	3.3%
		Wet	Lh	10,509	6.3%
		Moist	Ls	14,335	8.6%
		Total		30,319	18.2%
	Dry Forest		S	4,061	2.4%
Total			87,531	52.5%	
Non Forest	Scrub		Za	6,301	3.8%
	Herbaceous (no trees)		Zn	51,724	31.0%
	Agriculture		Ta	10,355	6.2%
	Intense Grazing		H	2,580	1.5%
	Coffee		Ca	3,656	2.2%
	Barren		Td	287	0.2%
	Community		C	1,268	0.8%
	Hydric Zone		E	2,912	1.7%
	Total			79,083	47.5%
Total			166,614	100.0%	

Table 3. Landslides, Erosion, and River Degradation in the project area

Sub-Watershed	Micro-watershed	Landslides		Gullies		River Deterioration		
		<1 ha	> 1 ha	<2 m	> 2 m	River Deterioration	Slope Erosion	Unstable sediments in Dam
Río Yaque del Sur	Lower Y.S.	60(0.41)	10 (0.07)	–	4	1	2	8
	Blanco	214(1.74)	76(0.57)	–	–	1	–	3
	Upper Y.S.	65(0.52)	10(0.08)	7	6	–	–	–
	Subtotal	339(0.86)	96(0.24)	7	10	2	2	11
Río Grande del Medio	Lower G.M.	24(0.07)	1 (0.002)	7	25	–	–	2
	Yaquesillo	7 (0.06)	1 (0.009)	3	4	–	–	–
	Upper G.M.	4 (0.02)	5 (0.02)	8	1	–	–	–
	Subtotal	35(0.05)	7 (0.01)	18	30	–	–	2
Río Las Cuevas	Lower L.C.	30(0.18)	–	–	19	2	5	4
	Guayabal	4 (0.06)	2 (0.03)	–	1	–	1	–
	Upper L.C.	153(0.42)	56 (0.01)	5	14	6	3	5
	Subtotal	187(0.32)	58 (0.10)	5	34	8	9	9
Total		561(0.34)	161 (0.10)	30	74	10	11	22

Note: the value in parenthesis is the area per 100 ha that indicates the density of the landslides.

Table 4. Land Use Discrepancies in the Project Area

Land Capability Class	Actual Use	Extension (ha)	Description of Conflict
III	Agriculture	473	Extensive soil conservation measures required for agriculture. No methods are employed at present.
IV	Herbaceous	2,076	Grasses and scrubs that regenerate following abandonment. Rather than recover, these lands are re-burned and are dedicated to hillside agriculture without soil conservation. Use of fire causes wildfires.
	Agriculture	2,461	This class has severe limits on agriculture. Regardless, areas are actually under pipe-fed irrigation for intensive agriculture without the benefit of erosion control or soil conservation.
VI	Grazing	1,956	Limitations based on slope and soils, intensively grazed without pasture management or soil conservation. Degraded due to compaction, fire, and limited natural regeneration
	Herbaceous	35,743	Used for subsistence agriculture. Uncontrolled use of fire is practices.
	Agriculture	5,252	Used as irrigated farmland on inappropriate slopes and soils that are thin and infertile.
VII	Grazing	104	Instead of forest, extensive livestock management practices are prevalent.
	Herbaceous	9,295	Instead of forest, slash and burn agriculture is practiced.
	Agriculture	362	Instead of forest, pipe-fed irrigated agriculture is practiced on thin soils and on steep slopes.
VIII	Brushlandl	698	Deteriorated brush land instead of Protected natural forest. Used for conversion to slash and burn agriculture and pasture.
	Grazing	28	Grazing instead of natural forest expansion
	Herbaceous	4,249	Should be left for forest expansion, is dedicated to slash and burn farming..
	Agriculture	256	Instead of protected forest, pipe-fed irrigation and short cycle production of vegetables is practiced.

Table 5. Changes of land use by land use category before and after formulation of land use plan**Unit: (ha)**

Land Use	Present land use	Recommended Scenario							
		Forest -1	Forest -2	Forest-3	Grazing -1	Grazing -2	Agriculture 1	Agriculture-2	Total
Forest	87,531	2,252	80,206	5,073					87,531
Shrub	6,301	323	5,280	698					6,301
Intensive Grazing	2,580	28		104	95	2,353			2,580
Grassland (treeless)	51,724		21,554	4,249			119	25,802	51,724
Farmland	10,355		1,591	256			1,551	6,957	10,355
Total	158,491	2,575	108,735	10,304	95	2,353	1,670	32,759	158,491

Table 6. Description of management categories

Management Categories	Description
Forest -1	Given the gentle topography and high land productivity, artificial forest management primarily aimed at producing wood is conducted with due attention being paid to the headwater conservation and soil conservation functions.
Forest-2	Given the sep topography and low land productivity, natural forest management aimed at performing the headwater conservation and soil conservation functions is conducted.
Forest-3	Given the extremely harsh natural conditions, including the National Park and extremely sep topography, forest management as protected forest where no active cutting or other activities take place is conducted.
Grazing- 1	As grazing produces few problems from the viewpoint of soil conservation, the land is continually used for grazing purposes.
Grazing – 2	Silvo-pasture using tress is introduced to prevent soil erosion due to grazing.
Agriculture – 1	Active agricultural production is conducted with improved farming practices as hardly any land use restrictions exist
Agriculture-2	Agroforestry incorporating soil conservation measures, including simple vegetation terracing work, depending on the topography and other land use conditions is conducted.

PART IV. Problem and Threats Analysis Table

Problem	Threats	Root causes	Barriers	Solutions
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Problem	Threats	Root causes	Barriers	Solutions
<p>Degradation of soil and vegetation resources leads to increased vulnerability to environmental shocks, decreased agricultural production, reduction in access to basic services (water and electricity), demographic instability, loss of carbon reserves and loss of ecosystem resilience</p>	<ul style="list-style-type: none"> • Conversion of forest and shade coffee to other land uses • Application of inappropriate farming and grazing methods on steep lands (burning, clean weeding, plowing) 	<ul style="list-style-type: none"> • Farmers have short time horizons and are averse to risks, and therefore prefer familiar technologies with short term returns to longer term, unfamiliar investments in SLM • Limited numbers of technologies are currently available to farmers; most of these exacerbate land degradation rather than contribute to SLM. • Most farmers, local and central governments and NGOs have insufficient awareness of the nature, functioning and implications of land degradation processes (in biophysical and socioeconomic terms), making it difficult for them to develop and apply SLM practices. • Most environmentally damaging activities (such as vegetation burning and land use change) are inadequately regulated • Coffee produced under SLM-friendly traditional methods has low market value due to shortcomings in their production and processing practices • Labour availability is limited due to emigration and limited access to basic services (which affects productivity and 	<p><i>1. Insufficient and inadequately developed and applied policies</i></p> <ul style="list-style-type: none"> • Policies of relevance to SLM tend to be insufficient and inadequately developed and applied, with the result that land use planning is largely absent, there is limited access to incentives for SLM, decentralized capacities for promoting SLM are poorly developed, and little technical or financial support is provided for SLM. • Institutions related to SLM have limited financial resources to promote the implementation of the Master Plan or support local communities • The centralized nature of government results in local and regional stakeholders being largely excluded from policy formulation, planning and regulation, with the result that policies, plans and regulations tend to have limited relevance and effectiveness under specific local conditions • The approaches of different institutions tend to be divergent, poorly coordinated and at times contradictory, resulting in 	<ul style="list-style-type: none"> • Harmonization of SLM principles into the policies, programs and planning frameworks of key government institutions (Output 1.1) • Development of a system for the management of information related to SLM, in support of the participatory watershed planning system and policy formulation. (Output 1.2) • Design and agreement among stakeholders of an implementation strategy for future phases of the Master Plan in order to ensure institutional coordination and incorporation of long term SLM considerations (Output 1.3)

Problem	Threats	Root causes	Barriers	Solutions
			<p>2. <i>Limited institutional capacity</i></p> <ul style="list-style-type: none"> • Institutions related to SLM tend to have limited technical capacities to develop and promote appropriate technical solutions to land degradation issues 	<ul style="list-style-type: none"> • Development and promotion of land management and production models to support SLM (Output 2.2). • Promotion of access among the local population to technical solutions to land degradation (Output 2.3). • Development of project and agency technical capacity to promote SLM and regulate land degradation (Output 2.4)

Problem	Threats	Root causes	Barriers	Solutions
			<p data-bbox="1234 237 1539 293"><i>3. Erosion of human and social capital at local level</i></p> <ul data-bbox="1234 318 1539 1422" style="list-style-type: none"> <li data-bbox="1234 318 1539 886">• Human capital, in the form of understanding of land degradation processes and knowledge of SLM solutions, is poorly developed due to ineffective institutional support and emigration, resulting from land degradation, limited economic opportunities and poor quality of life. lead to emigration, which in turn limits the social and human capital available for the implementation of sustainable solutions to land degradation. . <li data-bbox="1234 911 1539 1422">• Local social capital (such as community-based organizations) is poorly developed and largely ineffective, due partly to ineffective institutional support and emigration, resulting from land degradation, limited economic opportunities, and poor quality of life with the result that local communities have limited capacity to plan and implement SLM initiatives or access the necessary resources 	<ul data-bbox="1581 237 1894 773" style="list-style-type: none"> <li data-bbox="1581 237 1894 415">• Promotion of social capital, including participatory governance structures and procedures for watershed planning for SLM (Output 2.1) <li data-bbox="1581 440 1894 773">• Generation of increased employment and improved delivery of basic human services in order to stem emigration, increase labour productivity and increase the availability of financial resources to enable farmers to invest in SLM (Outputs 4.1-4.2)

Problem	Threats	Root causes	Barriers	Solutions
			<p>4. <i>Lack of access to adequate and appropriate finance</i></p> <ul style="list-style-type: none"> • Most of the externalities associated with SLM are not recognized or compensated, with the result that they are not taken into account by farmers in the upper watershed in their land management decisions • Finance institutions lack confidence in the profitability of sustainable land management activities 	<ul style="list-style-type: none"> • Promotion of environmental education including considerations of SLM (Output 2.5) • Development of innovative financial mechanisms which ensure that externalities are compensated and that SLM practices become financially competitive with alternatives (Outputs 3.1-3.6) •

PART V. Stakeholder Analysis and Participation Plan

Summary of consultations and stakeholder participation during project development

150. During the PDF-B phase priority was given to obtaining inputs and approval for the project from a wide range of stakeholders, who participated at different stages. The following mechanisms were used for information dissemination, consultation and participation.

- **Focus group meeting** with key informants, to characterize social and economic conditions and interactions with natural resources, define interest groups and stratify the population according to well-being criteria as the basis for subsequent interventions. The latter aimed to discuss with the stakeholders their perceptions regarding natural resources and the policy and institutional framework which relates to them.
- **Meeting with municipal leaders** to discuss the objectives and implementation of the project.
- **Pilot area presentations and discussion meetings.** Initial project presentation meetings were held in each of the 6 Model project communities to discuss the models and provide input into the design. A second meeting was held to validate the design with each of the stakeholder groups in the model communities.
- Formation of a **National Steering Committee (NSC)**, composed of representatives from the UNDP, the Ministry of Environment and Natural Resources, the UNCCD focal point, Sur Futuro Foundation, the Inter-institutional Technical Group in support of the Convention to Combat Desertification in the Dominican Republic (GTI), the National Planning Office (ONAPLAN), the Ministry of Agriculture, the Ministry of Education.
- Meetings with the **NSC** and its individual members, UNDP and SEMARN to review project design.
- A **stakeholder assembly** in July, 2004, where more than 100 diverse local stakeholders from throughout the project area (the upper watershed system) met to discuss their needs, the project, and provide feedback on the stakeholder analysis. An additional meeting was held in September 2005 to identify stakeholders and share information on conflicts between them.
- **Meetings with 5 community groups** to design model projects.
- A **workshop to discuss relevant lessons learned** in integrated and sustainable land management, pertaining to governance, incentives and agreement on proper land use, held on July 13, 04, with representatives of Plan Sierra, PROCARYN, and Junta de Desarrollo de San José de Ocoa.
- **One-on-one meetings with agency executives**, (see Table 7) including the UNCCD focal point, to discuss governance structures and agency roles and commitments.
- **Face-to-face meeting with representatives from the upper and lower watersheds** to discuss upstream-downstream relationships.
- **Discussion groups** involving PDF-B consultants and the SEMARN Planning Director and staff to reconcile progress reports, to improve results and discuss the proposed governance model and planning method for the project.
- **Weekly working meetings** between the PDF-B National Coordinator and representatives of the SEMARN planning office.
- **Interagency Meetings** between: the Secretariat of Agriculture and Agricultural Bank representatives in PLC; representatives of the Secretary of Public Works (SEOP) to discuss road inventory, an Environmental Management Program and participatory maintenance methods; INDRHI and IDIAF Directors, CEDAF Director and staff, the current USAID manager policy project, the UNDP environmental officer, and UNDP operational personnel.
- **Meetings of representatives of five participatory forestry models** in the country and key stakeholders, to discuss governance structures, review the stakeholder analysis, exchange experiences, and discuss the establishment of a future network to communicate lessons learned and experiences into and from the project.

Table 7. Summary of stakeholder groups and potential involvement in project implementation

Local Level

Category/ Unit	Function	Represented by	Involvement
Small farmers	Cropping for subsistence purposes	Community Development Committee (CDC)	fire prevention and control
Ranchers/ large farmers	Raise livestock	Community Associations	improve production systems, incorporate forest production
Coffee growers	1814 grow coffee	coffee growers association representatives sit on CDC, zone committee, watershed management committee	increase capital and production, quality of coffee
Fundacion Sur Futuro	Oversee project	N/A	Executing Agency
Teachers	Designing, implement environmental teaching guide	N/A	Teach environmental education
Clergy	Spiritual counseling, religious activities	N/A	Consult and support social campaigns
Alcaldes	Provide rural conflict resolution and law enforcement at community level	They are representatives of the government.	Play catalytic role in project actions
Secretariat of Health	Health services to rural communities.	Physicians and health practitioners	Receive support from Sur Futuro in equipment, medicine
Mutual help unions or associations	Assist community members in time of personal emergency	Independent	Structure to be used as model to test possibility of building small savings and loan organizations.
Volunteers	Work in areas of GIS and youth development	JICA, America Solidaria, Chilean government, Peace Corps	Further contacts with volunteer organizations will be done during project implementation to fill other needs
Community Based Organizations (CBO's)	Launch, support: women clubs, youth sports, parents-teachers associations, environmental groups, etc.	N/A	Cornerstones to organize CDC.
Minorities	Transient worker populations present during harvests, includes Haitians	N/A	project will develop socio-economic baseline study to gather information on gender, including role of women in the watershed

Regional/ Zonal Level

Municipalities	Manage, protect natural resources through Municipal Environmental Management Units (UGAMs). Maintain rural road infrastructure.	Major or President and the Head of UGAMs	Participate in Watershed Management Committee to promote appropriate land use scenarios
Fundacion para el desarrollo de Azua, San Juan y Padre Las Casas(Fundasep)	Community promotion	Catholic Church	Community promotion
Fundacion Aguas Viviente(Living Water)	Water and sanitation projects	Evangelical church	Water and sanitation projects
CEPROS	Community development	Catholic church	Activities have declined during last three years within project area
Secretariat of Agriculture	Responsible for planning, backstopping and supervision	Regional director and staff, in San Juan de la Maguana, Azua and Padre Las Casas	Field-level technicians provide assistance to farmers. Will participate in design and implementation of the zone management plan.
Banco Agricola (Agricultural Bank)	Responsible for receiving loan requests	Agricultural Bank Manager in Azua and an official in charge of credit at PLC	Responsible for receiving loan requests
Juntas de regantes (Irrigation Boards)	Responsible for directing, managing irrigation programs and other issues of affiliates.	4 boards organized into associations governed by general assembly, irrigation board, and general manager.	Will pay environmental compensation for water used. Board's representatives will jointly manage these revenues through Environmental Fund set up by Sur Futuro.
CODOCAFE	Charged with improving coffee production and quality	Public-private corporation	Provide technicians at field level to offer assistance to coffee growers, lab facilities and expert coffee quality analysts
FEDECARES	Responsible for marketing affiliates' beans.	Coffee growers federation	Will form part of partnership with Sur Futuro, Codocafe and grower associations to market coffee produced.
SEOP Regional Office	Responsible for roads and feeder roads maintenance.	head of "ayudantías" (helpers).	Responsible for roads and feeder roads maintenance.
Núcleo de caficultores de Padre Las Casas	Charged with promotion of the interests of their associates	Second level organization of coffee growers association.	Charged with promotion of the interests of their associates
Secretariat for	Responsible for roads and roads	head of the "ayudantías" (support	Responsible for roads and roads maintenance.

Public Works, Regional Office	maintenance.	unit)	
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National Level

National Steering Committee	Provide guidance to the representatives of those public agencies at regional and local levels.	Main secretariats, rural development and sustainable development agencies.	Engaged in policies, regulation formulation related to land degradation and livelihood of the population living in critical areas.
Secretariat of Environment and Natural Resources (SEMARN)	With Sur Futuro, principal implementing agency	Secretary and Under-secretaries of State	Will implement many project technical activities, manage Sabana San Juan National Forest, facilitate information management, etc.
Secretariat of Agriculture (SEA)		Secretary of Agriculture	Will participate in NSC, Provide guidance to regional and local representatives.
Secretariat of Education (SEE)		Secretary and undersecretaries	Will participate in NSC.
National Housing Institute	Provide housing	GODR agency	main counterpart to relocate persons living inside the park.
Instituto Agrario Dominicano (IAD)	Land distribution and promotion of agricultural production		Recipient of production models
INDRHI	Builds and regulates irrigation system		Collaboration in monitoring of sedimentation
Watershed Management Network	Share experiences among watershed managers.		Project will strengthen network and make intensive use of this mechanism.

International Level

United Nations Development Programme	Project implementing agency	United Nations	Country Coordinator and UNDP staff support project design and development of linkages to other international projects
W. G. Kellogg Foundation	Funding partner	NA	Fund youth and community development activities
MacGregor Model Forest(Canada)	Partnership with national forest model	NA	Provide specialized courses, technical assistance to Sabana de Juan model forest
Citi-Group Foundation	Project partner	NA	Sponsoring micro-credit program
Canadian Embassy	Project partner. Sponsoring reforestation project in watershed.	Canadian government	Connected Sabana San Juan Model Forest with MacGregor's. Renewed financial support expected.
JICA	Principal Master Plan design partner.	Japanese government	Considering sponsorship of more volunteers to project.
USAID	Implementing environmental policy project.	United States government	The GEF project will seek access to their competitive small grants.

Mechanisms and Strategies for Promoting Stakeholder Participation

151. The participatory planning mechanism backing the development of the zone management plan will be the cornerstone of participation. That process will let all stakeholders take their problems and development needs and suggestions (in environment and natural resources, education, housing, health, recreation, road system, production, and others) through different levels of governance, discuss them, and prioritize them in democratic ways to reach final agreements, thus engaging themselves in the process.

152. Participation will be achieved through multiple layers culminating in steering committees and a general assembly. On the national level, integration will be achieved through the broad-based Project Steering Committee, made up of State Secretaries and Under-secretaries from the implementing partners group, key donors, and private sector representatives with stakeholder interest (SEMARN, UNDP, Sur Futuro Foundation, GTI, ONAPLAN, Ministry of Agriculture and Ministry of Education).

153. These arrangements will be validated during the inception phase of the project. At the local level, the project management structure and the implementation strategy have been designed to facilitate participation at the community and zone levels culminating in a steering committee at the watershed level. First, the proposed community development committees will create a platform for dialogue at the zone level. Second, zonal assemblies with local stakeholder participation from all 9 zones will take the proposals to the local steering committee, which in turn will channel resources to zone development plans. The structure will be evolutionary, and adjusted according to participatory evaluations carried out throughout the life of the project.

154. The overall governance structure will unite community groups with representation to a development committee. The development committees will represent interests of many stakeholders and single interest groups. Elected representatives from the development committees will unite in a zone development committee to discuss their interests and work on policy and coordination of resources with agency and municipal representatives. The zone level is where resources and incentives meet the community level. The zone level development committees are administrative in that they will make the project delivery system more effective and cost efficient. It is also a political structure as agreements made at this level become de facto policy for land use. In that sense, the approach to land use will be inductive. Changes in land use will be stimulated through coordinated incentives directed to the bio-physical reality of the communities rather than through controls. Representatives from the Zone Development Committees will form a governing body that will cover all 8 zones in the watershed. That body will coordinate the overall management of the initiative with Foundation and government representatives. The upper level of management connected to the governance structure is the national steering committee comprised of the executing and implementing agencies.

155. The field presence of zone coordinators is a crucial element of the management model proposed for the watershed within the GEF project and will greatly improve performance and serve to promote the participation of the different stakeholders. To account for ecological differences in the watershed territory and for decentralization and logistical purposes, the watershed will be divided in 9 zones headed by one staff coordinator. Each zone coordinator will be directly responsible for promoting and facilitating the development, implementation, monitoring and evaluation of the plan of each zone. These zone sustainable development plans (“zone development plans”) will contain priority activities agreed with the different stakeholders to meet needs including production, conservation, organization, disaster preparedness and building and maintenance of infrastructure, under the range of the GEF project and other related projects within the zone. Important roles of the coordinators will be:

- Construction of baseline data disaggregated by zones and collection of recurrent data for monitoring and evaluation.
- Organization and facilitation of the participation of the different stakeholders of each zone.

- Channeling and facilitation of the discussion of guidelines for SLM provided by the watershed committee and other upper policymakers.
- Facilitation and care of the implementation of zone development plans.
- Promotion of the improved integration of the different services of public and private institutions within its zone (this will be one of its most important roles, due to the unilateral service approach of most institutions working in the watershed and elsewhere).
- Design and implementation of courses, demonstration plots, field days, farm management plans, plant nurseries, credit, policy dialogue, yearly and quarterly work plans, reports and others.

156. To work under the premise of integrated services, the project will invest in reeducating those persons already working in the area, above all the technicians working with governmental institutions. The zone coordinators will be qualified technicians, capable and motivated to lead the establishment of the proposed approach; their selection will take into account their openness and commitment to “non-traditional” approaches.

157. Social capital will be developed at the local level to facilitate the long-term economic development of the region and to provide a forum for formulating and/or negotiating solutions to local land use problems. The development of leadership abilities and technical and financial capabilities of community based organizations will enable local groups to govern and provide internal financing for their initiatives will be critical to the success of the project beyond the scope the GEF intervention. During the 15-year run of the Upper Sabana Yegua Watershed System Initiative, youth will begin to replace the present leadership. To support the governance structure for the later phases of the project, a co-financed youth development initiative will contribute to preparing the next generation to assume a role in the watershed governance structure and to develop attitudes and skills that will enable them to challenge the very culture of poverty. Output 2.3 will provide a forum for the younger generation to acquire management and decision-making experience to confront land degradation. Beyond the management aspects, a decentralized, community based management structure is cost effective and easier to sustain in the long run.

158. The participation of stakeholders downstream of the project area in decisions related to the management of the upper watershed will be promoted through periodic planning meetings, as well as meetings to discuss and negotiate specific issues such as schemes for compensation of environmental services.

159. In addition to the management aspects of the committees, the governance structure is also a vehicle for mitigating disasters and planning to reduce their effects if they occur. The zone development committees will be particularly effective in the coordination with the civilian defense agency and in maintaining project activities in the aftermath of a hurricane or deluge.

PART VI. Summaries of Production Models

160. The main characteristics of the production system in the watershed are annual cropping which require plowing at least twice a year. These practices accelerate soil erosion and sedimentation and consequently soil fertility loss due to the sloped topography of the land. Slash and burn practices worsen that effect. Use of these cropping practices has limited possibilities for farmers to increase their earnings.

161. Model projects will provide the examples for solutions that will be promoted by all agencies in a complementary fashion and in concert with the physical and biologic reality of the Upper Sabana Yegua. The 4 models follow the land use scenarios deemed appropriate by the JICA study and further agroecological studies made during the PDF-B. The models were developed by participating agencies and sector experts during the PDF-B phase using the lessons learnt from similar experiences in the Dominican Republic and in the region. The model projects will contribute to the technical capacity development by providing technicians with experience and empirical information on adaptability, cost, and management early in the project life cycle, enabling replication of the models throughout the region during the second and third phases of the project. Beyond the ability to provide replicable models of sustainable development, the implementation at the model project sites will have a direct impact on 9,000 Ha. of land by the end of the project and on 62,000 Ha. by 2018 as demonstrated in the next table. The models along with maintenance of the parks as protected areas will put the entire watershed under the status of SLM.

Estimated coverage of the production models (ha)*

	Coffee	Silvopastoral	Agroforestry	Forestry	TOTAL
By 2009	700	1600	4000	3700	9000
By 2018(Hectares)	5500	5000	20370	32000	62870

*Adoption rate is slower in the first five years because a minimum of three years are needed for demonstration activities.

162. An economic analysis made by JICA for the Master Plan of Sabana Yegua Watershed, assuming a first phase investment of USD9.2 million in forestry and related activities, yielded an Economic Internal Rate of Return (EIRR) of 7.3% (JICA, Master Plan Study, Final Report, 2002, pag. 8-5), based mostly on production factors. When ecological, educational, health and disaster prevention benefits are considered the rate would be larger. When contribution of the GEF project components not included in the Master Plan are considered, the EIRR should be even higher.

163. Economic return of the project are of two types: a) production benefits as a result of production activities and, b) public benefits as a result of improving the ecosystem's functions.

164. The JICA study predicted a decrease of 5 million tons of soil from erosion outflow with the implementation of the Master Plan. The production effects are based on the land use plan and calculated from the incremental benefits before and after the plan. The results in the table below show that the benefit of production after the plan might be 1.6 times bigger than before the plan

Calculations of productive benefits

Land	? Before			? After			? Difference= ? - ?	
	Area (ha)	Soil Loss (mil t/año/y)	Prod. Benefit (mil RD\$/y)	Area (ha)	Soli Loss (mil t./año)	Prod.Benefit (mil RD\$/y)	Soli Loss (mil t./año)	Prod.Benefit (mil RD\$/y)
1. Forest	87,531	4,377	0	121,614	3,331	6,438	-1,046	6,438
2. Bush Land	6,301	435	0	0	0	0	-435	0
3. Intensive Grassing	2,580	172	6,192	2,448	97	6,934	-75	742
4. Pasture	51,724	4,034	37,759	0	0	0	-4,034	-37,759
5. Agriculture	10,355	487	23,133	34,429	1,034	96,005	547	72,872
Total	158,491	9,505	67,084	158,491	4,462	109,377	-5,043	42,293

165. The economic benefit per year, only considering the productive side, will be USD1.4 million per year. Another simple economic return analysis of the project could be drawn estimating a risk percentage and value on several infrastructures and functions of the ecosystems. Estimating an investment of USD30 million in 15 years, the benefit ratio will be of 242:1

Economic value of key functions at SY Watershed

Parameter	Without the project , million USD	With the project, million USD	Difference, million USD	Benefits in 15 years, million USD
Value of agricultural harvest downstream	10(1)	\$204/year(2)	104/year	150 (5)
Soil fertility loss within the watershed				21
Value of electricity	1.6(1)	3.2 million/year(3)	1.6/year	24
Cost of Aqueducts downstream	75	150		75
Recovery programs after floods	3000	10000		7000(4)

Total benefits of selected items in 15 years:

\$7270

(1) Estimated average loss per year

(2) Actual value of harvest

(3) Average price of \$0.05 Kilowats

(4) Every 15 years. Estimation made by Marcelo Jorge, Former Director of INDRHI.

(5) $(204 \times 15) - (204 - 10) \times 15$

1. FORESTRY

A- Justification

166. Maps demonstrating soil potential reveal that close to 53% of the 166,414 ha upper Sabana Yegua watershed is best used for forestry. Native pine forests covered the greater part of the upper watershed before indiscriminate cutting began. Sur Futuro, in collaboration with SEMARN, began to develop a reforestation program to take advantage of an existing market for forestry products. A forestry tree nursery has been established with a production capacity of four million plants per year. Men and women were trained in nursery management, and in how to plant and take care of seedlings. Although intended to have a conservation focus, forestry promotion activities carried out to date have concentrated principally on reforestation through planting. Incremental support is needed in order to broaden the scope of these activities so that they promote the restoration of ecosystem function and stability. Adoption of this model could increase current farmers income by 30-40%.

B – Strategies and activities to mitigate problems and take advantage of opportunities:

167. The following actions will be taken:

- Zoning forestry activity, in order that more conventional reforestation and conservation friendly activities are appropriately located in relation to soils, topography, biodiversity and climactic conditions.
- Applied experiments that test and demonstrate the adaptability of promising forest species such as *gravilea*, *ciprés*, cedar, and *sabina*, among others, in different silvicultural arrangements ranging from pure plantations to rows, live fences, scattered trees in fields and pastures and enrichment planting in degraded forest areas. Native species will be preferentially promoted, and the emphasis will be on the development of small scale plantations, scattered throughout the landscape and respecting local variations in conditions, with diverse age and canopy structure in order to maximize soil protection effects and biodiversity.
- Establishment of sources of tree seed, through identifying well-performing “plus” trees in existing plantations, the establishment of planted seed stands and the promotion of mechanisms for the sale and exchange of seed between farmers, together with training in seed collection, processing and storage.
- Strengthen capacities to prevent and control fires by training and equipping committee, brigade and communications team members.

C- Selection of location and beneficiaries.

168. Selected locations for these activities are (subject to the zonification to be performed in the first year of implementation): Guayabal, Monte Bonito, Los Montes Fríos, Las Cañitas.

D. Lessons learnt.

169. The design of the model was based on lessons from 3 participatory projects: The Plan Sierra experience in fomenting the development of forest cover through pine plantations and through promotion of shade coffee over a 30 year period, the Association of Agroforestry Producers, who were able to achieve full community management of forest resources through the establishment of a cooperative forestry micro-enterprise, and on the GTZ Dry Forest Management project which is an additional model of community based participation. A conservatory seminar was called that enabled representatives of each institution to discuss the best practices within their different projects.

2. AGROFORESTRY

A- Justification to Amplify this Model

170. Profitability has been shown to be greater using agroforestry systems than in situations where traditional farming methods are used. Degradation has reached a state where it is now necessary to increase plant cover on degraded soils due to the zone’s importance in water production for domestic use and irrigation. Establishing fruit and forestry plantations will effectively contribute to better protected soils. This offers permanent protection to soils on steeply inclined slopes. Adoption of this model could increase current farmers’ income by 50-60 %.

B – Project Implementation Strategy

171. Seventy model plots will be established in total, incorporating between them all the elements necessary to define true agroforestry systems. These plots will have the dual aims of participatory farmer-based investigation and demonstration. Incremental support will focus on moving the production systems promoted towards multi-functionality. Each plot will have a management plan and will initially include a three year work plan, both developed in conjunction with the participating farmers. In keeping with normal practice in the region, incentive support in the form of food aid will initially be provided to participating farmers, in order to meet initial costs and overcome lack of confidence in the practices promoted; however this will be phased out as farmers become more familiar with and convinced of the practices.

172. The selection of the agroforestry practices will be carried out with the participation of local farmers, in order to ensure that they best reflect local needs, conditions and livelihood systems.

C - Site selection to establish agroforestry production models

173. Several factors will be taken into account when establishing demonstration plots: land slope in the project area, and soil depth which allows for appropriate development of the various crops (such as pigeon peas, beans, manioc, tropical sweet potatoes, tropical yams, and fruit trees) to be established. The following communities have been selected due to their favorable conditions for establishing agroforestry systems: Las Lagunas, Guayabal el Recodo and La Cucarita and Los Guayuyos, both located in Los Fríos.

174. The direct beneficiaries that will carry out the demonstrations will be selected based on the conditions that they hold farmland near the communities; permanently reside in the communities; are or have the disposition to join a community based organization; can effectively communicate their knowledge and promote the project by demonstrating their production and conservation technologies to others.

D- Plot Establishment and Management

175. The project will utilize the traditional method of community work, using *convites* (generally these groups dedicate two days of the week to these activities), for the establishment of agroforestry model plots, utilizing these spaces as forums to share new techniques.

E. Lessons learnt:

176. There are ample lessons learned in the field of agroforestry that were taken into account through the experience of the project staff in previous successful projects. The Fundacion Sur Futuro has two employees that were experienced in the development of an agroforestry/soil conservation program in the village of Vallecito, San Juan de la Maguan, where small farmers raised their yields over 700% through soil conservation and agroforestry. Lessons learned from the social promotion system to the day to day implementation of the project with villagers, including methodologies, have been incorporated into the model. Staff members with experience in the PRODAS project, an integrated rural development project in the mountainous regions outside of San Juan de la Maguana have also integrated the lessons learned into the present model. Finally, an evaluation by the Canadian embassy is making recommendations to finalize initial Canadian support to agroforestry models.

3. LIVESTOCK

A- Justification

177. Current land use maps demonstrate an existing 2,448 hectares of the upper watershed dedicated to cattle ranching. While bovine production is a permanent form of land use and generates important income, this widespread method generally uses unimproved pastures where overgrazing is the norm and ranchers do not receive technical assistance. According to studies performed within the PDF-B, an agro-ecological classification establishes that close to 50% of the soils are for livestock use. Taking advantage of notable

increases in sheep meat market, its production will be promoted in extensive areas of the watershed. Adoption of this model could increase current farmers income by 25-30%.

B- Strategies and activities to mitigate problems and take advantage of opportunities

178. Model farms will be promoted in strategic points in the watershed to improve established bovine production systems while promoting and establishing livestock family systems. This strategy will develop and improve both systems respectively. Model farms will introduce improved pastures and shade trees, breeding for high production roots, pasture rotation, the establishment of fodder trees and use of temporary stabling, and use manure in organic fertilizer production. The emphasis of the incremental support will be on promoting the integration of livestock production with other components of farming systems and increasing its contribution to livelihood sustainability, and promoting practices with low impacts on soil and vegetation resources.

C- Training

179. Each farm involved will be used as a training center where model plot owners can demonstrate experiences and farmers can observe results of production system installations in conditions similar to theirs. Farmers will also be trained on other systems to be identified in areas that do not depend on installations. Only when necessary will classrooms be used for training activities.

D- Selection of locations and collaborators

180. The selected communities, located at higher altitudes, are Los Guayuyos (sheep), Bohechío and Las Lagunas (livestock). The criteria for selecting these communities were: existence of farmers with traditional cattle ranching systems, that they have adequate rain fall levels and soil conditions, they possess enough land, and be organized.

181. Collaborators who commit themselves to a return part of the investment and are willing to receive necessary training and be organized will be selected.

E- Establishment and management of demonstrations

182. Livestock will be made up of productive family units. Bovine/sheep producers will receive aid in: purchasing females and studs, acquiring materials including semen and their storage tanks, border construction to divide pastures, the construction of stables and the introduction of fodder species. Borders will be constructed and medications purchased in the first phase of the project (first six months). Storage areas, be it in the field or in silos, will be constructed in strategic zones of the project influence since silos can be built at a lower cost by ranchers.

F- Lessons learnt

183. The design of the model was developed by the Center for Animal Improvement and Investigation (CIMPA) based on the published results of a 3 year project financed by Plan Nagua. CIMPA personnel designed the model using the evaluation document or “systematization” text as the background experience for the incorporation of lessons learned.

4. COFFEE

A- Justification

184. The upper watershed of the Sabana Yegua dam is the principal water source that provides water for irrigation and domestic use to the Neyba and Azua vallies, covering 40,000 hectares. A percentage of the current cover corresponds to poor production coffee plantations as a result of poor crop management.

185. Producers are increasingly abandoning low quality plantations due to problems in the domestic and international markets and as a result of crop disease. Leaving behind coffee production is creating a threat for the production and protection of the regional water supply, and the country. Coffee production in the watershed, due to its high altitude and climate, provides an ideal environment for quality coffee production, the principal means for accessing international markets for high quality coffee. The coffee in

the upper watershed was rated by tasters as “specialty” quality, which provides access to specialty markets. Farmers will be able to commercialize their present production at a higher price, leaving more money for reinvestment in improved coffee production practices. The model will stimulate farmers to improve their crops to take full advantage of the specialty market rather than having them upgrade production and then look for a higher value market. Incremental support will focus on promoting organic coffee in diversified stands.

186. In the improvement to the production practices, farmers will be encouraged to diversify their coffee with high value wood species and with fruits as part of the overall formula. Adoption of this model could increase current farmers’ income by 40-50%.

B- Site Selection

187. Having met the criteria necessary to establish high quality coffee production model plots, the following sites were selected: Los Fríos, Guayabal and Monte Bonito. The criteria were that: communities be located at over 600 meters above sea level; have a climate ideal for high quality coffee production; and that the attributes or cup test meet a minimum level three on the scale.

188. Farmers were selected based upon the criteria that they: Pertain to a CBO; Possess a minimum of half a hectare of coffee; Be willing to perform the practices necessary to improved coffee quality; Reside in the community; Be conscious of the need to improve their coffee quality and the financial benefits it will have; and that they be willing to promote project activities.

C –Project Implementation Strategies:

189. The following strategy will be used in project implementation: establish 100 demonstration plots, each containing 20 *tareas*; strengthen coffee CBOs and coffee farmers’ federation; train community leaders; support coffee quality improvement; supply necessary equipment to coffee farmers; provide technical assistance to guarantee the correct application of the technology promoted; supply technical personnel to support creation of demonstrative plots; train farmers in plots rehabilitation; supply equipment and technical personnel to perform coffee tests; and utilize FEDECARES’s experience and contacts in the international market to commercialize coffee.

D- Plot Establishment

190. To establish community plots, all the necessary practices for their rehabilitation will need to be applied (pruning, *graniteo*, repellents, *pepena*, grain harvesting using the premature flower, shade farming, positioning of traps, and introduction of ectoparasites).

E- Lessons Learnt

191. The coffee production model and especially the commercial mechanisms were developed by CODOCAFE based on an initial pilot project in the Sierra de Neiba within the Dominican Republic. The returns on the initial experience were taken into consideration, and several coffee federation members from the pilot area were sent on a field trip to the Sierra de Neiba to witness the results and the post harvest techniques used to maintain the higher quality flavor of the coffee.

PART VII. DETAILS OF FINANCING MECHANISMS

SUSTAINABLE LONG-TERM MECHANISMS FOR SLM FINANCING

192. The project development phase has identified and completed a preliminary design of a set of ambitious and innovative financing mechanisms to overcome a key barrier for SLM in Sabana Yegua: the absence of funding to cover expenses for on-the-ground SLM investments, and the related institutional set-up to organize local action. The proposed financing scheme is an important part of the strategy to ensure sustainability of the project intervention, both with regard to following phases of the 15-year Master Plan intervention and beyond. The full project will complete a detailed design of the financial mechanisms in collaboration with relevant stakeholders, operationalize the mechanisms, and monitor their performance.

Output 3.1. Strategic Funding Plan

193. The financial mechanisms will be established as elements within the framework of a Strategic Funding Plan. This plan will clarify the need for future funding to continue promotion of SLM practices in the upper Sabana Yegua watershed, and is thus a key element of this project's efforts to catalyze the 15-year Master Plan intervention. The plan will identify funding sources to cover the needs for investment in the following phases. The use of innovative financial mechanisms will complement fundraising through traditional funding sources.

Output 3.4 Watershed Environmental Fund

194. The revenues generated by the financial mechanisms, described below, along with contributions resulting from fundraising, will be channeled into a Watershed Environmental Fund (WEF), which will manage the assets according to internationally accepted norms for environmental trust funds and guarantee transparency for both contributors and beneficiaries in the watershed. The fund will live up to the GEF's recommendations for environmental trust funds, which are based on world-wide experience and best-practice. The fund will disburse funding throughout Sabana Yegua for activities and programs which promote SLM and Sustainable Development.

195. The fund will be governed by a board of directors which will be formed by representatives of the principal stakeholders of the watershed, Sur Futuro and other donors, as well as relevant government institutions operating in the watershed. Sur Futuro will manage the WEF during the initial years, but an independent WEF Secretariat will be established before the end of the project, when the fund has reached an acceptable capitalization. Initially Sur Futuro and later the WEF Secretariat will report to the Board and operationalize the Board's decisions. During the initial phase of the project, WEF Bylaws and funding guidelines will be created, and the exact composition of the board of directors will be determined through a participatory process. The board will constitute itself, and will itself select new board members in a transparent process which will guarantee participation of the main stakeholders in Sabana Yegua. The Board will annually publicize its achievements and disclose financial data according to standard practice for similar environmental funds. A forum will be designed in a way which will allow the Board to report to and receive feed-back from its constituency in the watershed.

196. The WEF will be able to accommodate a series of satellite funds for varying purposes and according to the donor's specifications. These terms will be negotiated between the donor and the WEF Board of Directors. The satellite funds will be able to operate as endowment funds, sinking funds, or revolving funds, as appropriate for their purpose.

197. Sur Futuro has a particular advantage in setting up the WEF and associated financial mechanisms, because a number of the country's most respected bankers serve on its board. It is expected that Sur Futuro's board members will be willing to provide in-kind advisory assistance to the project to ensure the fund and financial mechanism live up to the highest international standards.

Output 3.2. Payment for Environmental Services

198. Water generated in the upper Sabana Yegua watershed has a clear value for different users downstream, both in terms of water quality, as well of quantity (understood as a steady year-round flow of water). The value of the water resource can be measured both in economic terms (its productive value), and in terms of quality of life (access to clean potable water). The downstream water users therefore have an interest in SLM activities in the upper watershed which will ensure a continued supply of the resource, and the project will capitalize on this to establish Payment for Environmental Services mechanisms from downstream water users to help finance the SLM activities upstream. During the project's design phase at least three services have been identified which could make compensation schemes viable. These are a) irrigation, b) potable water, and c) electricity generation. The detailed design, negotiation, and operationalization of these schemes will be done during the project implementation.

a) Irrigation.

199. In the arid Southwestern region of the Dominican Republic, agricultural output is overwhelmingly dependent on irrigation. Currently, twenty six thousand farmers located downstream of the Sabana Yegua watershed use its water to irrigate their crops. The value of the 2003 harvest in the area was valued at \$204 million USD.

200. The farmers are organized into an irrigation association for each of the four irrigation districts in the region which receive water from the upper Sabana Yegua watershed. Each irrigation association is governed by a board of directors comprised of representatives elected by the members. A general manager is responsible for programming the yearly production plan with the farmers, the budget for constructing new and maintaining existing irrigation infrastructures, and other activities related to production activities.

201. By mandate from the Dominican government, the irrigation associations maintain full rights for management of the irrigation system. Farmers pay their boards an average of \$21.30 USD per hectare per year for water used, with variations from one district to another. The board uses a portion of revenues to maintain secondary canals. INDRHI receives the rest, and matches that amount to invest in new irrigation work and maintain the principal canal. When tariffs paid by farmers require modification, the general manager introduces the request and it is democratically accepted, modified or rejected by the assembly of farmers belonging to the association.

202. To date, none of the irrigation associations contribute to a source water conservation payment scheme. During the project design phase, two meetings were held with 60 irrigation association farmers, Sur Futuro and INDRHI. The meeting showed considerable understanding among farmers of the water supply problems, as well as a concern of water shortage during the driest months of the year, something which is likely to worsen once potable water aqueducts currently under construction begin to operate. The farmers expressed a willingness to contribute financially to guarantee a steady supply of the resource they depend on.

203. The full project will design of the compensation scheme in detail, based on a water valuation study and a willingness-to-pay survey among farmers. The mechanism should establish incentives to save irrigation water through the application of drip-irrigation or other efficient irrigation techniques.

204. It is estimated that an irrigation compensation scheme would be able to raise approximately one million USD during the life of the project, but in the longer term the potential income per year is likely to be much larger than this, as water tariffs for environmental service payments need to be set low initially to secure acceptance among farmers. Once farmers have grown accustomed to the idea that they are paying for a service which they receive, tariffs can gradually be increased.

b) Potable Water

205. Currently, nine medium sized aqueducts located downstream of the watershed use water from the Sabana Yegua dam and from rivers it feeds. A major aqueduct to serve Vicente Noble, Tamayo and Barahona, important Southwestern cities, is in the design phase. The number of potable water users is projected to increase to 640,000 over the next five years. The state National Institute of Potable Water

(INAPA) is responsible for constructing medium sized and major aqueducts while municipal or provincial state water and sanitation corporations manage them.

206. Potable water users in the Southwest are currently charged an average tariff of \$1.10 USD per household per month, though a majority only pay three or four months of service a year or not at all. Water gauges at every household are being installed in some of the largest cities in the country and it is expected that within three to five years, gauges will also be installed in the Southwest.

207. The project will work with the INAPA to design and set up this payment scheme. It is recognized that it is a slow process to accustom individual water users to pay for a resource which many believe should be delivered free of charge, and as a right for all. The project is also likely to meet a general skepticism towards paying user fees in a country where there is little confidence that a tangible benefit will be received in return. The project will finance sensitivity programs for local populations, which will increase the understanding of the value of water, and that a payment for potable water will buy a real, tangible improvement in potable water supply. A water valuation study will be performed, along with a willingness to pay survey, as important inputs to the design and implementation of the mechanism.

208. It is important to highlight that any substantial increase in water consumption by any user group is likely to lead to a situation where demand exceeds water supply in the dry season, something which can trigger considerable social tension. As water shortage lead to increased competition between alternative uses – and different users – it is estimated that awareness of the resource’s value will also increase, and, along with it, willingness to pay to secure a steady water supply. If payment mechanisms give incentives to reduce water consumption (e.g. if payment is determined according to amount of water used, rather than a fixed amount per water user regardless of amounts of water used), then the project could be instrumental in creating a situation where the resource will suffice for an increased number of water users downstream, while optimizing payments to secure SLM to conserve the water source upstream.

c) Hydroelectric Energy

209. Hydroelectric energy produced at Sabana Yegua dam is estimated at 113,880 megawatts per hour per year, ranking eighth out of a total of twenty hydroelectric generators in the country. The state-owned Empresa Electrica del Sur (EDESUR) distributes this energy through the national grid system. The current tariff is set according to differentiated consumption levels but the average price for a low to medium class household is 10 cents/ kw/ hour USD, one of the highest rates in the world and rising. EDESUR, along with EDENORTE (a sister company serving the northern part of the country) belong to the Dominican Corporation of Electricity Companies (Corporacion Dominicana de Empresas Electricas CDEE). CDEE manages a large operational fiscal deficit due to high energy subsidies they provide to the lowest income classes in the country, the high percentage of users that do not pay for their service, along with other problems produced by the sale and later reacquisition of Edesur and Edenorte from a Spanish company. To counterbalance deficits, which are worsened by high fuel prices, the company continually increases tariffs, charging low- and middle class households - who pay for the service – up to 25% of their monthly income for energy consumption. This obviously creates resentment among electricity service payers and virtually eliminates their willingness to pay for environmental services.

210. The extremely complicated energy situation in the country will make it extraordinary challenging for the project to establish a successful payment for environmental services scheme with the energy sector. It is unrealistic to expect that an added tariff can be passed on to the end consumer, but regardless of the current situation the energy company has a clear economic interest in maintaining the productive value of the major infrastructure investment of the Sabana Yegua dam, through reducing sedimentation from the upper watershed. Prolonging the life of the dam will both give the electrical company a better return on the initial investment, as possibly reduce the need for construction of additional, costly hydro-electrical infrastructure. The project will elaborate estimates of the value of productive capacity lost to sedimentation, and the monetary value represented by the reduction in sedimentation resulting from the project’s actions. These estimates will be used in negotiations with the power company to ensure their participation in a compensation scheme.

Output 3.3. Debt-for-Nature Swap

About debt-for-nature swaps

211. Debt- for- nature swaps are transactions where debts owed by a developing country or commercial/private company debtor are negotiated at discount with a creditor. The debtor will pay the new tender of the debt in local currency through an environmental fund to fund sustainable development or conservation activities. Local government institutions' approval and participation is required in both cases to set up an umbrella program for several transactions or to deal with individual cases. Donor participation is necessary in most cases to provide all or part of the funding to buy the debt. Through this mechanism, win-win solutions are created for all parties: the creditor has the opportunity to collect hard to pay old debts; a donor commits to provide funding for sustainable development and /or conservation work; and the local government gains the opportunity to pay its debt off in local currency (sometimes at beneficial maturity terms), developing prospects for funding activities that otherwise would not occur. The amount at which the debtor will accept the original debt's face value is a matter of negotiation. For example, a third party-Environmental Fund or NGO, buys a 1 million USD debt from a creditor at a 25% discount. He/she would pay the creditor 750,000 USD while the original face value of the debt remains the same (1 million USD). Negotiations may take place if the debtor country shows recalcitrance in paying the debt's face value (100%). The payment schedule will also be negotiated in the event that the debtor demonstrate resistance in paying the new creditor at a faster rate that it would have paid the old creditor. Traditionally, these transactions are used to establish trust or endowment funds (only interest on the capital is used) or sinking funds (part of the capital and interest is used).

212. Most transactions in recent years have been in bilateral debt. This debt could be qualified as concessional if given below market rate (government to government loans granted by the USAID, Canadian International Development Agency, KFW-Germany, Swedish International Development, *Instituto de Credito Oficial* of Spain). Non-concessional debts are given by export credit agencies, like the Export- Import Bank, CESCE, from Spain, and others. The bilateral debt is also subdivided into Paris Club debt (owed to one of the 19 government belonging to the Paris Club). The rules imposed in debt negotiation depend on the type of debt involved.

Potential for a debt-for-nature swap to finance the Sabana Yegua Watershed Environmental Fund.

213. The project has analyzed the scope for debt-for-nature swaps as an attractive way to capitalize the WEF. The Dominican Republic has a very good potential to convert outstanding debts it maintains with Spain, the United States, Germany and France through debt-for-nature swaps under Dominican congressional approval given in 1993 to restructure debts from these countries. The Tropical Forest Conservation Act (TFCA), a current USA congressional initiative, allows the Dominican Republic to settle its bilateral debt with the US through debt-for-nature swap opportunities. Recent transactions through TFCA granted 6 million USD and 10 million USD in Belize and Colombia, respectively. Different schemes are possible but the most used so far is the subsidized debt swap where United States government appropriated funds to purchase debt, are added to a private contribution (international NGO, agency or individual donor), providing that the government and the investor reach an agreement. The new money flow is then directed to projects agree upon by parties, including the local debtor government. The United States government allocated 20 million USD to its budget each year in 2004 and 2005 to support these ventures. Another scheme is the traditional debt swap where a donor provides the funding to buy the debt at a discount rate set by the United States government based upon the payment risk posed by the debtor government.

214. To qualify for the TFCA, a country must meet several requirements. It must have a democratically elected government, respect human rights, agree to or work towards creating an agreement with the IMF, amongst other requisites that are currently being met by the Dominican Republic.

215. The project and Sur Futuro will discuss with the Dominican government (Ministry of Finance) the prospects of negotiating a debt-for-nature swap using eligible outstanding debt with countries who signed

a restructuring agreement with the D.R. Upon reaching an agreement with the GODR, the project and Sur Futuro will support the following steps to realize the debt-for-nature swap:

- Identify a creditor country willing to enter an agreement, as well as defining its general requirements
- Prepare a proposal to the Dominican government, containing the scope and nature of the program to be developed if funds are secured
- Discuss the tentative redemption value of the debt (value at which GODR accepts face value of the original debt)
- Obtain letter from the Dominican Minister of Finance and/or Central Bank Governor and submit to the creditor requesting that they open negotiations for a transaction
- If possible, identify donors interested in purchasing the debt (a country interested in donating part of its debt and capital and consequently reduce or eliminate the need for funds to acquire the debt).
- Finally, the donor provides the money and purchases the debt. The necessary parties will sign a contract transferring ownership of the debt to the WEF and spelling out all duties and responsibilities

Output 3.5. Risk Guarantee Fund (RGF) for SLM Compatible Investments

216. A key barrier to developing SLM practices in the project area is the limited availability of credit at accessible rates for productive investments in the agricultural sector. To catalyze investments in improved production systems compatible with SLM principles, the project will establish a risk guarantee fund modeled on existing, positive experiences in the Dominican Republic and Central America, the so-called ADELs (*Agencias de Desarrollo Económico Local*). The fund will guarantee the loans of commercial banks to local farmers, creating a win-win situation whereby a commercial bank will get access to service a whole new client base, and farmers get access to credits to improve their production systems. Experience has shown that farmers formerly without access to commercial credit in time will prove their credit-worthiness to commercial banks and eventually become regular clients of the bank without the need for risk guarantees.

217. The RGF will be established within the WEF to reduce operating cost. The project will finance a program manager and two technicians who will be trained in credit operations. Fund staff will develop a business plan to determine what activities and potential beneficiaries are credit-worthy. Sur Futuro will enter into an agreement with one or more commercial banks which will provide the credit to farmers. The RGF will guarantee the credit granted by the banks to individuals or associations. The fund capital will be held in a deposit account in the selected commercial bank where its interest will cover the RGF's operational costs and potential losses. The spread between the passive rate of deposit and the active loan rate will be fixed at an agreed 10 point differential (example, 18% for the deposit and 28% for loans). The risk guarantee will allow the bank to reduce its spread and hence the cost of credit to farmers, who are currently offered informal loans at more than 40% p.a. The reduced price of credit will make an increasing amount of potential loans feasible. Once the technicians and guarantee fund manager have analyzed, selected and approved a farmer's request, the farmer's application will be taken to the commercial bank and processed.

218. It is estimated that average loan amounts will be in the range of USD 1,000. Fund technicians will train and supervise the farmers so that he/she performs well. The guarantee fund Manager and its technicians will be evaluated on the basis of the number of loans repaid and active assistance to the farmers. Current experiences indicate a very high rate of repayment, which essentially means that the RGF will retain its capital in perpetuity, while continually guaranteeing successive generations of credit. Therefore, with a relative modest investment, the GEF will be able to secure a drastic change for the farmers in the project area, enabling them to invest in SLM compatible activities.

Output 3.6. Environmental Services Exchange and Incentive Program

219. Through co-financed activities, the GEF alternative will provide a series of basic social services to improve the livelihood and well-being of the population in the upper Sabana Yegua watershed. This is done in recognition of the intimate linkage between improved livelihoods and SLM. The project will work

to mainstream environmental concerns in general and SLM concerns in particular into livelihood-related areas, with local populations and partner agencies alike.

220. To emphasize the linkage between improved livelihood and environment/SLM, and to provide increased incentive to perform environmental services and SLM, the basic services provided through the project, such as health, education, and alternative energy, will be linked to environmental services performance of local populations. The Environmental Services Exchange and Incentive Program is somewhat similar to the environmental service payment schemes to be established in Output (3.3), though it differs in the sense that the compensation will be in-kind, rather than financial.

PART VIII. MAPS

Map 1. Location of project

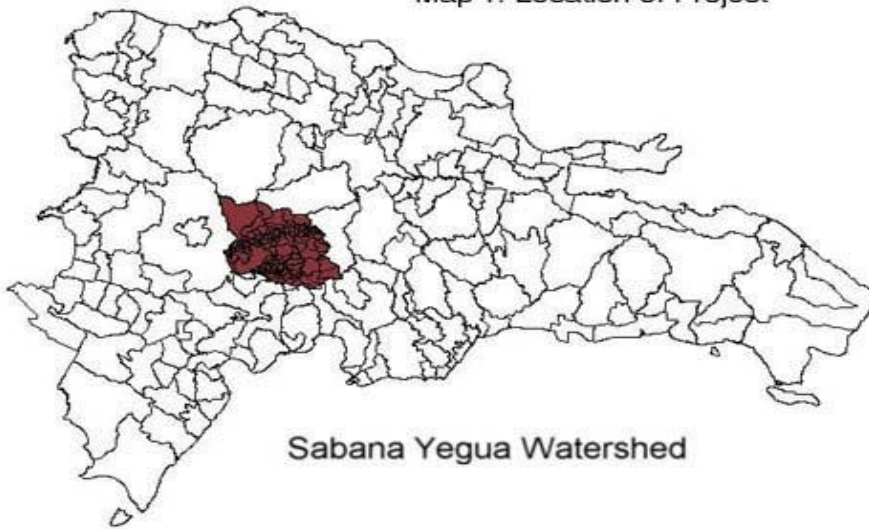
Map 2. Sabana Yegua sub-watersheds and *parajes*

Map 3. Actual land use

Map 4. Future land use scenario

Map 5. Discrepancies between actual and recommended scenario

Map 1: Location of Project



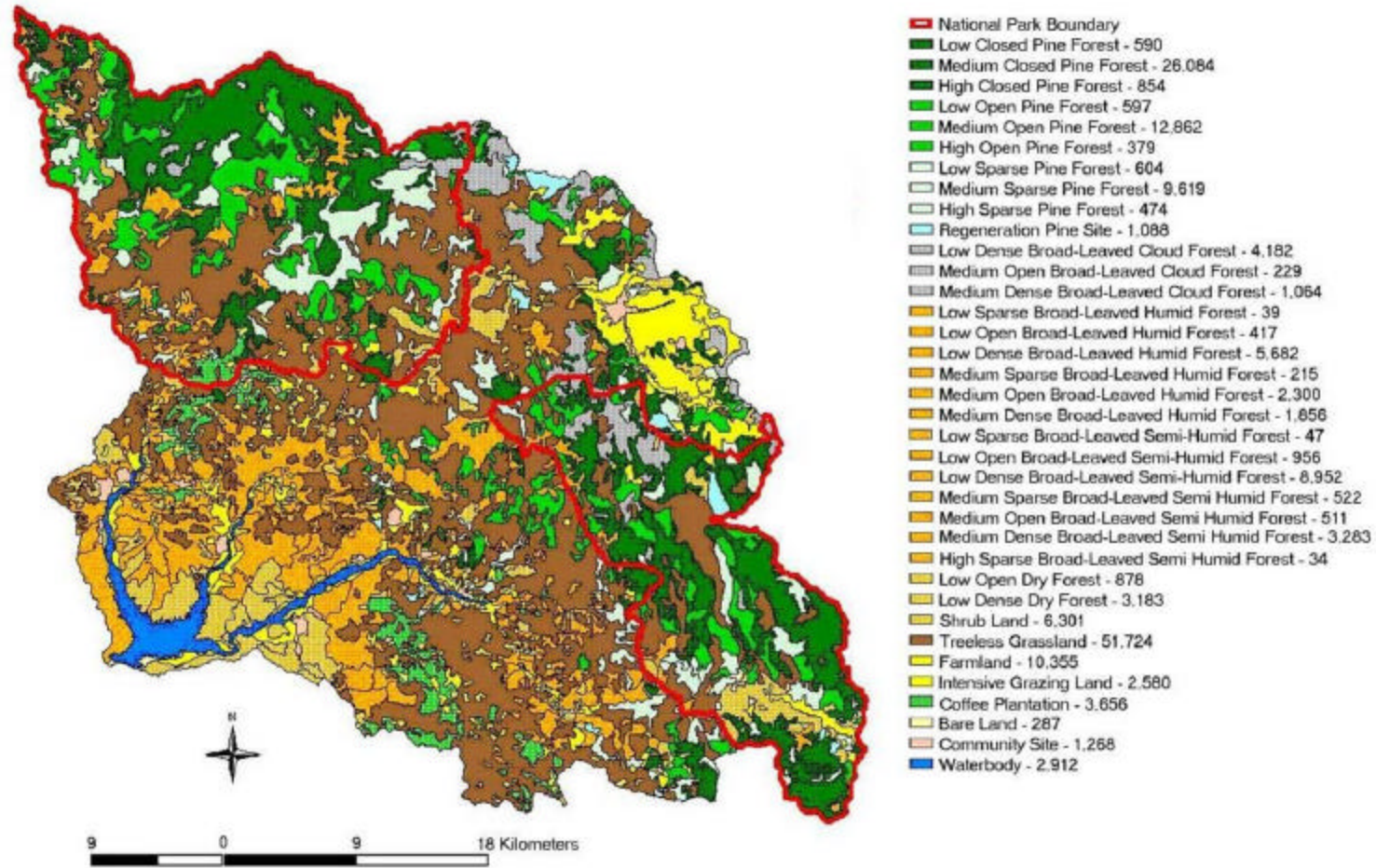
Upper Sabana Yegua Watershed, Dominican Republic. Source: JICA, 2002

Map 2: Sabana Yegua Sub-Watershed and "Parajes"



Upper Sabana Yegua Watershed, Dominican Republic. Source: JICA, 2002

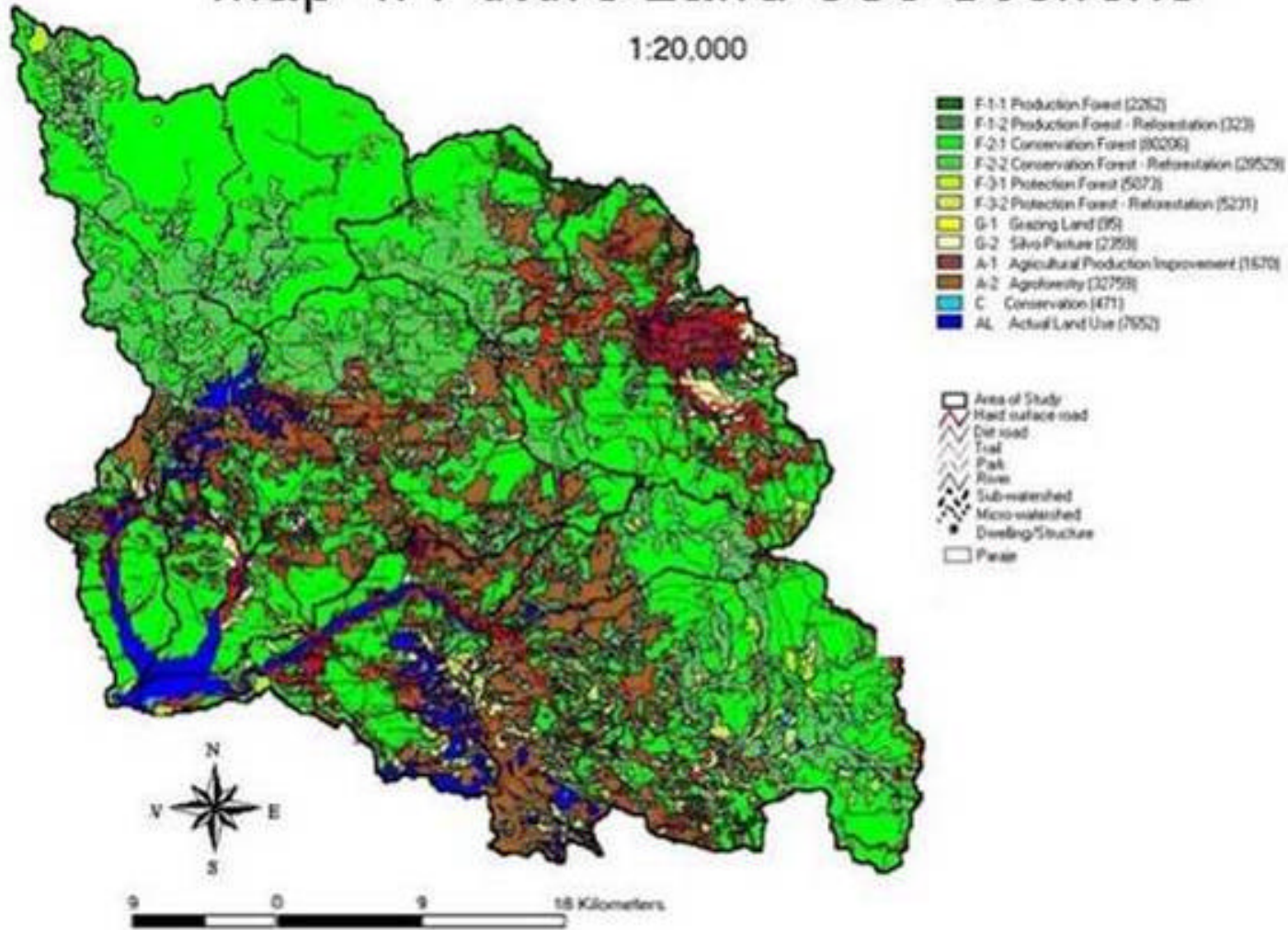
Map 3: Actual Land Use



Upper Sabana Yegua Watershed, Dominican Republic. Source: JICA, 2002

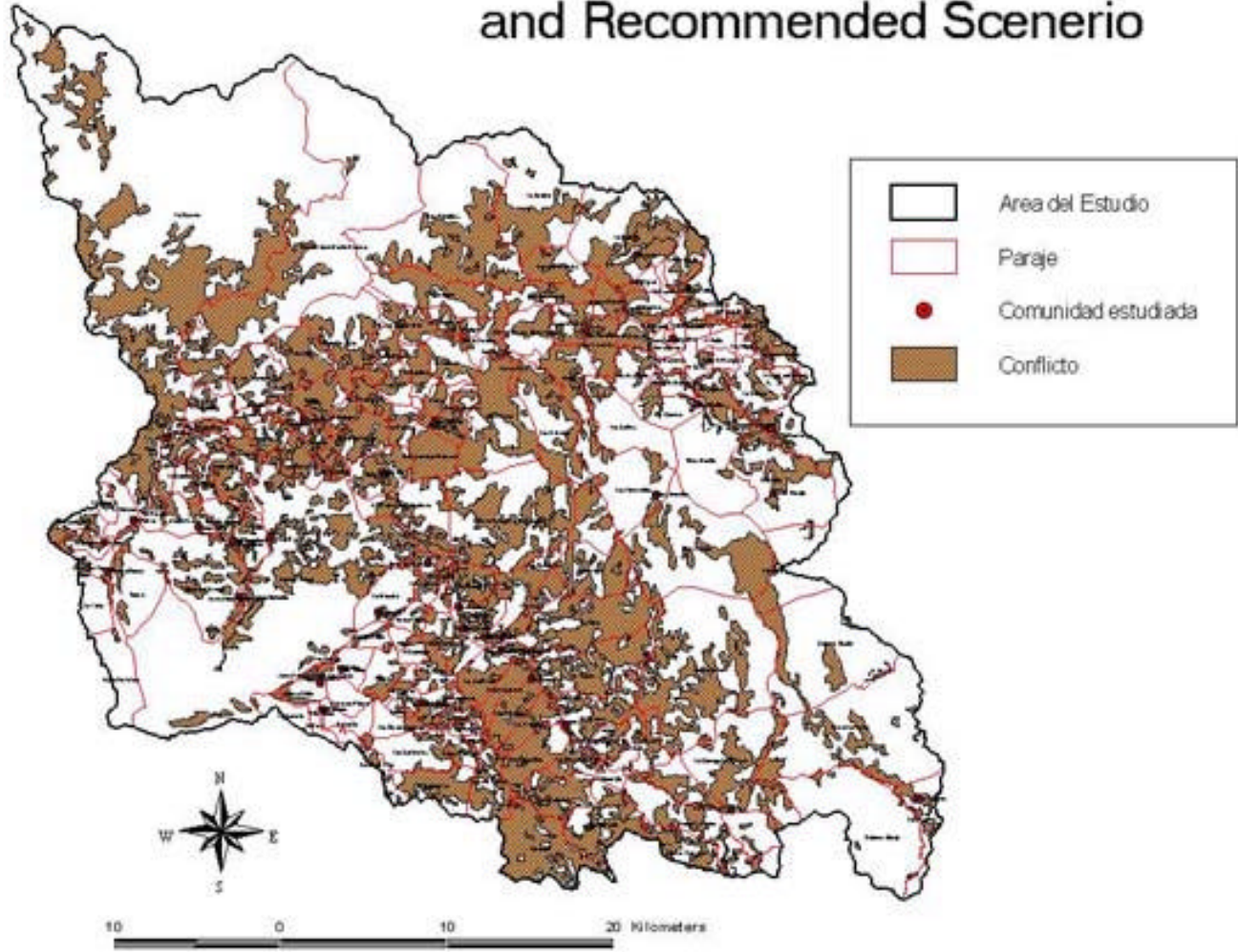
Map 4: Future Land Use Scenerio

1:20,000



Upper Sabana Yegua Watershed, Dominican Republic. Source: JICA, 2002

Map 5: Conflicts between Actual and Recommended Scenerio



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Country: _____

UNDAF Outcome(s)/Indicator(s):

(Link to UNDAF outcome., If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s):

(CP outcomes linked t the SRF/MYFF goal and service line)

Expected Output(s)/Indicator(s):

(CP outcomes linked t the SRF/MYFF goal and service line)

Implementing partner:

(designated institution/Executing agency) _____

Other Partners:

Programme Period: _____
Programme Component: _____
Project Title: _____
Project ID: _____
Project Duration: _____
Management Arrangement: _____

Total budget: _____
Allocated resources: _____
• Government _____
• Regular _____
• Other: _____
○ Donor _____
○ Donor _____
○ Donor _____
• In kind contributions _____

Agreed by (Government): _____

Agreed by (Implementing partner/Executing agency): _____

Agreed by (UNDP): _____