MEDIUM SIZED PROJECT BRIEF

GLOBAL ENVIRONMENT FACILITY

INDICATOR MODEL FOR DRYLAND ECOSYSTEMS IN LATIN AMERICA

I. PROJECT SUMMARY

Project Identifiers	
1. Project name: An ***Indicator Model for Dryland Ecosystems*** in Latin America	**2. GEF Implementing Agency:** UNEP
3. Country or countries in which the project is being implemented: Chile, Brazil and Mexico	**4. Country eligibility:** Chile, Brazil and Mexico are all eligible. Chile ratified the CBD, 9/9/94; Brazil ratified the CBD, 2/28/94; and Mexico ratified the CBD, 3/11/93
5. GEF focal area(s): Biological diversity	**6. Operational program/Short-term measure:** Arid and semi-arid zone ecosystems: Operational Program Number 1

7. Project linkage to national priorities, action plans and programs:

This project will provide a critical tool for decision makers, nongovernmental groups and other organizations in Chile, Brazil and Mexico in meeting national goals and objectives in biodiversity and desertification in dryland areas. In addition, the tool will be tested in these countries with the goal of upgrading its potential for utilization by decision-makers in other affected countries, not just in Latin America, but in other regions such as Africa.

In terms of the tool's application in the three pilot countries of Mexico, Chile and Brazil, the preservation of biological diversity in arid and semi-arid regions is a priority for all three countries. However, there are barriers to developing effective environmental, social and economic responses. Authorities, nongovernmental groups, and affected communities currently lack the tools for integrating physical environmental and socio-economic data in both sectors of biological diversity and desertification, information which is crucial for designing long-term policies and programs. The project will address this by providing an operational model to do so.

The project is unique in its ability to contribute to policy reform at the national level of all countries as the partners and collaborating agencies include key official agencies currently managing the resources at stake. The national research bodies and nongovernmental groups will be working directly with policymakers in testing, operationalizing, training and utilizing the indicators model and in identifying how this tool can contribute to national policy and management reforms. The project's impact on national coordination and priorities is described below.

In Mexico, Semarnap, the key environmental agency of the government, will work with Conabio, the government's principle agency monitoring biological diversity and change, and the government's national data collection/management agency, Inegi, in association with the Natural Heritage Institute and RIOD Mexico, among other groups, to undertake project goals. By way of

background, the National Senate ratified the Convention to Combat Desertification in February of 1995 and the Convention on Biological Diversity in March of 1993, making their provisions a priority for implementation by the government. The National Development Plan, through the Forest and Soil Program 1995-2000, establishes monitoring of land conditions as a priority, especially in drylands. In particular, the conservation and protection of biological diversity and related environmental services are priorities in Mexican environmental policy. In accordance with the Biodiversity Convention, a key strategy of the government is on-site conservation through the creation of natural protected areas on government lands representative of different ecosystems and their biological diversity. Areas containing an original environment that has not been greatly altered are subject to special protection, conservation, and restoration policies.

Specifically, the conservation of biological diversity in the drylands is a priority in Mexico. These dryland areas contain 29 of the 99 protected areas of interest to the federal government, which together comprise 57% of the protected surface in the country. Of the official 25 priority protected areas, 9 are located in the drylands.

In 1992, the national commission on biological diversity, "CONABIO" was created to promote and coordinate actions and studies related to knowledge, preservation, and sustainable use of Mexico's biological resources. Among its main functions, it is to compile, maintain, and update species inventories, create corresponding databases, provide public service information and promote sustainable use programs for biological resources.

To meet increasing information needs, greater coordination between environmental information generators and users is being carried out, along with a strengthening of Mexico's institutional capacity to produce new environmental information and indicators. The generation of information and identification of indicators related to the state of the drylands, especially land degradation, is a government priority. This project would contribute significantly to the government's goals of improving data and systems management toward conservation of biodiversity in the drylands. SEMARNAP has begun development of a monitoring system to identify the magnitude, causes, and tendencies of land deterioration to determine how producers, the local population, and authorities may better direct programs to control degradation of biological diversity in drylands and sub-humid areas. The generation of environmental information and indicators accomplished through the project via analysis of physio-biological, natural resource, demographic, economic, and social data, in compliance with international standards, will be achieved so as to be adapted by the agencies developing environmental information.

In Mexico, natural protected areas are strategic mechanisms for assuring biodiversity protection and the maintenance of vital environmental functions. The project will contribute to the monitoring of physical and social conditions in protected areas located in the drylands, and will allow officials and nongovernmental groups to identify the elements which threaten the integrity of the environmental resources in those areas. In this manner too, SEMARNAP, through the Coordinating Unit of the Natural Protected Areas in Mexico (UCANP) and other agencies, will orchestrate corresponding corrective measures. As such, the project will promote institutional strengthening in support of on-site biodiversity conservation carried out through the Natural Protected Areas System. Additionally, indicators and information produced by the project will allow CONABIO to expand its databases on species habitat conditions in the drylands. Indicators can be integrated into CONABIO's National Biodiversity Information System, and would aid in the updating of the National Environmental Accounting System, developed by SEMARNAP and the National Statistic, Geographic, and Information Institute (INEGI), which would facilitate public information use. Absent the development of tools as proposed by this project, agencies and groups would not have the capability to undertake such data development and integration. The National Commission on Population (CONAPO), and other social agencies will be able to

upgrade capacity, to understand linkages with migratory communities and biodiversity loss and landdegradation. During planning of the project, the participation of CONABIO, UCANP and other nongovernmental groups will be specified.

Similarly, this tool will provide substantial capability to affected groups, decision makers and nongovernmental organizations in Chile and Brazil in their evaluation and monitoring of, and in their development of appropriate policy-responses to, loss of biological diversity in the drylands, and its impact on local communities, especially through migration. As in Mexico, Chile regards biodiversity protection as a national environmental priority. Approximately 18% of Chile's territory is under the protection of the National System ("SNASPE") protecting biological habitat, managed by the National Forest Corporation (CONAF). Much of these areas are located in humid regions. There is a dramatic lack of biological protection in arid and semi-arid regions of the country, particularly for plant communities with a high degree of endemism. The absence of conservation policies for these resources is due in part to the absence of a workable tool to determine and better understand these linkages between drylands, desertification and biodiversity. The project will not only provide a critical tool for official agencies, such as CONAF, but for nongovernmental institutions in their evaluation, monitoring and management of dryland species. By collaborating directly with CONAF on the project and operationalization of the indicators model, it will provide strategic information, particularly on the biological and economic values of the resources found in drylands, that will be necessary for CONAF and other institutions in Chile to consider incorporating these into its protected area programs.

The incorporation of this program data into policies and programs of the Chilean government will be assured through the participation of CONAF and other nongovernmental groups in the project, in collaboration with the University of Chile. AGRIMED will also work in close collaboration with the National Commission on the Environment (CONAMA) which is charged developing a diagnostic survey of the state of biodiversity in Chile. A key component of the project that will ensure policymakers can utilize and integrate the model into their programs is the training of partners and participants in the project on the development and operations of the model, including collection of data. In addition, several publications will be prepared for the project which the participating agencies of government will distribute to other agencies with related program activities. AGRIMED also receives support from the Ministry of Agriculture, of which the National Forestry Corporation (CONAF) is a branch. This is an important linkage as CONAF is responsible for both the national system of protected areas and the development of national action plans to combat desertification.

In Brazil, the project may be even more critical as it will provide the information, data and tools necessary to ensure that national biodiversity programs consider important dryland biological resources in their implementation. Such an integrated framework, involving biological diversity and desertification elements, has not been developed at a national level in Brazil. Analyses and evaluations have identified serious gaps in data on biodiversity, desertification, and community participation, such as migration, in the inequality of conservation efforts, and in the public and private partnerships towards conservation. Prior to defining a National Policy and Strategy, the design of which is expected by mid 1999, the Government adopted a tactical preliminary, wide ranging program to address conditions and problems of the various existing biomes, including the Caatinga, the typical biome of the semi-arid region.

In the case of the Caatinga, this policy will include the National Desertification Action Program, a result of the U.N. Convention to Combat Desertification. The principle Brazilian partner in this program, Esquel Group Foundation, is the appointed group of the government to design this National Action Program. Therefore, the link between project findings and policy reform can be direct, e.g., these results will be fed directly into the National Action Program on desertification

adopted by the government. This project will provide important contributions towards the implementation of the two Conventions, the UN Convention on Biological Diversity and the UN Convention to Combat Desertification and Drought, particularly through the development of an operational model for evaluating and monitoring biodiversity in the drylands, and in the case of the Caatinga will subsidize the conservation strategies and policies of biodiversity. As indicated, the integration of the project into policy changes at the national level will be assured by the participation of Brazil's Ministry of Environment with the nongovernmental entity, Esquel Brazil.

The model can also be used to identify constraints of current policies and barriers to reform, including those related to land use and rights, as it will serve as an ongoing monitoring tool for local communities as well as policy makers at the national level. With this tool, they can better identify the necessary reforms to change predicted trends. In essence, this tool can serve as an important means for building the capacity of local communities to monitor and identify unsound management policies at both the local and national level, and to demonstrate needed reforms. In building this capacity, "bottom up" planning approaches can be better assured.

8. GEF national operational focal point and date of country endorsement:
Mexico: Endorsed on October 14, 1998 Brazil: Endorsed on 22 September 1999.
Chile: Endorsed on October 14, 1998

Project Objectives and Activities

9. Project rationale and objectives:	**Indicators:**
Ultimate Goal. Promote the maintenance and sustainable use of biodiversity in Latin American drylands by providing policymakers, non-governmental organizations and other local stakeholders in affected communities with a tool to identify and analyze the proximate, intermediate, and ultimate causes of land degradation, biodiversity loss, and community impacts in dryland areas.	1. Adoption of the ***Indicator Model*** by national focal points in the participating countries. 2. Use of information products from the ***Indicator Model*** (maps, rapid assessments, desertification indices) in national action plans.
Intermediate Objective 1. Integrate the complex interactions of demographic, social, physical, ecological, economic, and cultural factors which contribute to land degradation and biodiversity loss in dryland areas into an analytical tool (***Indicator Model***) for decision making in matters related to sustainable development and biodiversity protection.	1. Demonstrated consensus among partners regarding the formula for combining various indicators into analytical tool. 2. Demonstrated consensus among partners regarding the indicators categories and specific variables included in the analytical tool.
Intermediate Objective 2. Test the ***Indicator Model*** in a pilot location in each participating country to determine its utility for identifying activities which have significant adverse impacts on the sustainable use of biodiversity, the productive capacity of the natural resources in dryland areas, and community livelihoods.	1. Agency and private partners trained in the application of the ***Indicator Model***. 2. Databases required for application of the ***Indicator Model*** assembles. 3. Information products generated.
10. Project outcomes:	**Indicators:**
Currently, policy makers and non-governmental groups alike in Latin America are without a unifying framework for targeting	

and evaluating their actions in the face of arid land degradation and biodiversity loss. Implementation of the following changes will provide that framework	
Change 1. In a pilot area, data collection related to status of land degradation and bio-diversity in arid regions (including biological, physical, agricultural, demographic, socio-economic, and public health parameters) will proceed in a manner consistent with the requirements of the ***Indicator Model***.	1. Project surveys of databases developed in the pilot region, conducted at the end of implementation, reveal conformity with the requirements of the ***Indicator Model***.
Change 2. In pilot areas, official resource managers together with community organizations will use the data products (maps, rapid assessments, composite indices) generated by the ***Indicator Model*** to identify how the model can contribute to local and national sustainable use plans, development policies and to define how monitoring programs can evaluate the usefulness of the model in reversing land degradation and protecting arid region biodiversity.	1. 'Hot Spots' of biodiversity loss and land degradation identified. 2. Data products from ***Indicator Model*** used in internal meeting, public meetings, and published reports.
Change 3. Land management changes implemented according to the sustainable use plans will be monitored through regular updates of the data products generated by the ***Indicator Models*** with a particular focus on monitoring the response of important bio-diversity to these land management changes. **Change 4**. Project evaluation will result in findings and recommendations and the successful development of the *Indicator Model.* The project partners and the GEF can then widely distribute the model for potential replication in other arid regions and affected communities. The project findings will be disseminated and shared with the international community, through the partners extensive networks in official, NGO, academic, and intergovernmental organizations, with the goal of alleviating environmental and socio-economic impacts of land degradation and habitat loss in Latin American drylands.	1. By the close of the project, land management officials charged with the collection of data, assisted by community groups in the pilot area, will have developed a framework for monitoring plans for continued data collection.
11. Project activities to achieve outcomes:	**Indicators:**

Activity 1. National Consultations: Consultations in each of the participating countries specify indicators, decide on the uniform value scales and identify pilot study areas. These consultations will ensure that the ***Indicator Model*** corresponds to conditions in each of the participating countries and is linked to national efforts in biodiversity conservation, and sustainable development. **Estimated Cost for Activity 1: $100,000**	1. Documented report of consultations, potentially including national workshops, target consultation with interested parties, and outreach to stakeholders are developed. 2. Country specific suites of indicators developed along with strategies for comparing values measured on different absolute scales. 3. Maps of pilot zones provided.
Activity 2. An international coordination meeting of the implementing partners and IGO participants in each of the involved countries to achieve comity among programs proposed for each country and to merge country specific elements into a truly regional ***Indicator Model***. **Estimated Cost for Activity 2: $40,000**	1. Documented report of the international coordination meeting, including a unified suite of potential indicators and a final method for comparing values measured on different absolute scales.
Activity 3. Training for responsible staff in the partnering organizations in the use of the ***Indicator Model*** so that these individuals can transfer institutional capacity to official resource managers and community groups in the pilot areas. This includes exchange of software and operating systems for the ***Indicator Model***. **Estimated Cost for Activity 3: $80,000**	1. At least **two** staff persons from each of the partnering organizations, **as appropriate and feasible**, can manipulate and maintain the database and mapping components of the ***Indicator Model***.
Activity 4. Implementation of the public involvement plan in the pilot region of each of the three participating countries, including training on the use of the ***Indicator Model***, the collection of indicator data and rapid assessment techniques. This will allow community organizations to become full partners in the development of sustainable use plans for biodiversity in arid regions. **Estimated Cost for Activity 4: $200,000**	1. In each pilot zone, at least **two** persons from the responsible natural resource management agencies and from community organizations **(two from each group where appropriate and feasible)** can manipulate and maintain the database and mapping components of the ***Indicator Model***. 2. A plan for initial data collection is developed, including the conduct of rapid assessments conducted with community organizations.
Activity 5. Work with official resource managers, in collaboration with community organizations, to develop an ***Indicator Model*** in the pilot region of each of the participating country which can be used to generate data products which describe the link between	1. Using a locally appropriate set of the unified suite of indicators, the databases of the ***Indicator Model*** are provided with the

demographic and socio-economic conditions, arid land management and biodiversity protection. **Estimated Cost for Activity 5: $500,000** **Activity 6**. An international coordination meeting will be held to assess results of implementation to date, and to identify any needed model refinements or mid-course changes in the project. This will include consideration of monitoring and evaluation of project performance to date. **Estimated Cost for Activity 6: $40,800** **Activity 7**. In the pilot region in each country, use data products generated with the ***Indicator Model*** to identify how the model can contribute to local and national sustainable use plans, development policies and to define how monitoring programs can evaluate the usefulness of the model in reversing land degradation and protecting arid region bio-diversity. **Estimated Cost for Activity 7: $150,000**	required data. 2. Analysis of databases yields maps of areas of concern regarding land degradation and biodiversity loss, migration and other information, and suggest correlation with socio-economic, demographic, and public health data. 1. Documented report of the international coordination meeting, including assessment of implementation activities and regional implications. 1. Report on the potential for utilizing the ***Indicator Model*** and its products to develop local and national sustainable use plans and enhance socio-economic policymaking. 2. Framework for a long-term monitoring plan developed for the pilot zone which defines the variables to be monitored in the future and recommends continued activity for the collection and analysis of the data.

12. Estimated budget (in US$ or local currency):

PDF A: $33,000 (including US$25,000 from the GEF)

Project

GEF: $750,000 (including PDF A allocation)
Co-financing: $323,800

Sources of Co-financing: University of Chile, CONAF, Mexico's environment agency SEMARNAP, the Brazilian government's environment agency and Esquel Brazil Foundation.
NHI is investigating other potential sources of support as well.

TOTAL: $1,073,800

13. Information on Project Proposer(s):

The project proposers, in association with the Natural Heritage Institute, are:

- University of Chile – Center for Agriculture and Environment (AGRIMED)
- National Committee for the Defense of Fauna and Flora (CODEFF), Chile
- Esquel Group Foundation – Brazil
- SEMARNAP – Soils, Conservation and Restoration Department, Mexico
- RIOD – Mexico

University of Chile – Center for Agriculture and Environment (AGRIMED): The Center was established in 1995 and is under the direction of Dr. Fernando Santibanez. AGRIMED is a research structure of the Faculty of Agrarian and Forest Sciences with about 120 faculty members and 1200 students. It's mandate is to support and encourage an academic team with the ability to initiate and carry out innovative programs directed at the environmental implications of agriculture at different levels of perception; to develop and promote the use of advanced technologies toward continued study of the environment and evaluation of the impact of agricultural developments on the natural resources. Financial support is received from the IBM International Foundation who provides ongoing support and modern hardware and software facilities for high technology information management for this department. Additional financial support comes from the University (a public university), and from national agencies such as the National Commission on the Environment (CONAMA) and the Ministry of Agriculture. AGRIMED will take the lead in implementing training of the national teams. The University of Chile operates on a total budget approximately US$120 million dollars per year, and Project Partner AGRIMED is responsible for approximately US$7 million dollars of this total budget.

National Committee for the Defense of the Fauna and Flora (Comite Nacional pro Defensa de la Flora y Fauna) (CODEFF): Founded in 1968 by a small group of professionals and friends, CODEFF is the oldest and most experienced non-governmental environmental organization in Chile. Absolutely independent and without ties to political parties, the government, or the private sector, CODEFF's principle areas of focus are Investigation, Environmental Education/Extension, and Political Lobbying. Based in Santiago with a participative national framework, the organization relies on 3500 members and 8 branch offices throughout Chile. CODEFF's technical proposals are backed by field research carried out by a team of 25 researchers, professionals and technicians and by more than 100 active volunteers. These researchers, specialists in the natural and social sciences, law, and education, carry out projects in the fields of forestry, biodiversity, environmental education, and legal tools for protection of the environment. Funding is provided by private foundations, providing the organization with an operating budget of approximately US$270,000 dollars annually.

Esquel Group Foundation – Brazil: Esquel Brazil was established in 1984 and is directed by Executive Secretary, Dr. Silvio Sant'Ana. The goal of the foundation is to organize activities which aim to promote sustainable development in the economic, social, environmental, political and cultural spheres. Its ultimate objective is to promote actions that reduce social disparity and increase the possibility of extending the benefits of development to the disenfranchised urban and rural masses and promoting their integration into the national economy. The focus of the work is in development issues, especially in drylands areas, biodiversity and natural resources. Revenue is obtained through individual contributions; service contracts with international organizations such as the Inter-American Development Bank and agencies of the United Nations, the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) of Canada, and the World Bank; and financing from foundations such as C.S. Mott, CODESPA, MacArthur, Ford, Botwinick-Wolfensohn, Banyan Tree, Rockefeller, and Rockefeller Brothers Fund, among others. Dr. Heitor Matallo will participate on behalf of the Brazilian government on this project. He serves with the Esquel Foundation as the Special Advisor to the Minister of Natural Resources and is responsible for the implementation of Brazil's National Action Plan on Desertification. He has also designed, and is currently overseeing "Red Desert" which is an Internet site and network for Latin America which promotes dialogue on desertification issues in the region. As part of his advisory work, Dr. Matallo also addresses and deals with questions of biodiversity in N.E. Brazil and with IBAMA (Brazilian Agency for Environmental Protection.). The annual operating budget for the Esquel Group Foundation – Brazil is approximately US$1.0 million.

Secretaria de Medio Ambiente, Recursos Naturales, y Pesca (SEMARNAP): SEMARNAP was established in 1994 by the government of Mexico and is directed by the Minister of Environment, Ms. Julia Carabias. The goal of the Secretariat is to attend to, coordinate, and develop national policies, projects and programs in forests, soil conservation and restoration, wildlife, natural protected areas, regional sustainable development, environmental standards, air, water, and soil contamination control, water administration, operation of the natural meteorological network, and fisheries administration. The Soil Conservation and Restoration Department promotes actions dedicated to the fight against desertification and promotes soil and river basin restoration and conservation. Funding for operations and activities is provided by the Mexican government, yielding a budget for Semarnap of approximately US$3.4 million dollars per year.

RIOD-MEXICO: RIOD-Mexico is a cohesive network of 40 social organizations working in concert with each other to combat the environmental, social, and economic ravages of desertification and the degradation of natural resources, especially in rural areas. The network is comprised of grassroots and community organizations, NGOs and research institutions. RIOD-Mexico aims to help meet the national obligations of Mexico's ratification of the Convention to Combat Desertification and Drought through coordination with government agencies, such as SEMARNAP, SAGAR and SEDESOL. This network aims to increase national awareness surrounding the issues of desertification, encourage community participation and instigate effective policy reform. Funding for network activities is provided by private foundations which averages approximately US$17.3 million dollars per year.

Natural Heritage Institute (NHI): NHI was established in 1989 and is directed by President, Gregory Thomas. NHI aims to foster conservation and sustainable use of the world's limited stock of natural resources by improving the environmental institutions, policies and tools available to decision makers and private actors. NHI has been published groundbreaking studies on the linkages between migration and land degradation, which have been submitted to the US Congressional Commission on Immigration and the INCD. Funding for general support and project activities is obtained through international organizations, intergovernmental and governmental agencies, and various private foundations, providing the Institute with an average yearly budget of $1.3 million. Funding for NHI projects has come from such diverse sources as the UN Environment Programme, the UN Development Programme, the International Fund for Agricultural Development, the CCD Secretariat, the US Environmental Protection Agency, the US Department of the Interior, the Ford Foundation, the Packard Foundation and the Hewlett Foundation.

14. Information on Project executing agency: *(SEE ABOVE)*

The project will be executed by the above listed groups: the University of Chile – AGRIMED, CODEFF, Esquel Group Foundation – Brazil, SEMARNAP, and RIOD-Mexico, in association with the Natural Heritage Institute.

15. Date of initial submission of project concept:

The PDF-A Project Brief was submitted in November 1998.

Information on Institution Submitting Project Brief

16. Project identification number: tbd

17. Implementing Agency contact person: Ahmed Djoghlaf

18. Project linkage to implementing Agency programs(s):

UNEP has a primary role in the GEF in catalysing the development of scientific and technical analysis and in advancing environmental management in GEF-financed activities. UNEP also provides guidance on relating the GEF-financed activities to global, regional and national environmental assessments, policy frameworks and plans and to international environmental agreements. This project will therefore be linked to UNEP's activities including its existing work on monitoring the state of the environment and analysing global environmental trends through its global environmental outlook. In particular, the project will build on the UNEP's Enrin and CCAD strategy for environmental information management, which includes the development of indicators to assess the state of the environment in various regions. Of those, biodiversity is a key area. Directly related to that strategy, the CCAD is now coordinating the implementation of REDBIO, a regional network for management of biodiversity information for Mesoamerica, with national focal points. The project will also build on the "UNEP-Ciat project for environmental and sustainability indicators for Latin America and the Caribbean." This project has advanced the use of the indicator framework (and has been accepted), and developed indicators that are being used at the regional and national level. UNEP is also working on a new potential project in Mesoamerica, to assess the state of the environment from an ecosystem point of view, and to develop indicators for those ecosystems. In the second phase of this project, UNEP will be focusing more on national/regional level indicators for Central America for sustainable rural development in association with the World Bank.

II. PROJECT DESCRIPTION

Project Rational and Objectives

By way of background, this project was developed to address the following problem. In the face of accelerated land degradation in the drylands of Latin America, the unique bio-diversity of this biome and the livelihood of dryland residents are increasingly threatened. Human migration and biological losses in the drylands have largely remained a non-documented phenomenon. Lack of monitoring and policy responses to this issue increases the likelihood of unsustainable soil and land management practices, continued agricultural productivity declines, deepening poverty and further species habitat loss. Although international efforts to ameliorate the social impacts of dryland degradation and desertification have expanded in recent years, policymakers so far have not addressed biodiversity, environmental and socio-economic impacts in a systematically integrated manner that recognizes their close correlation, serving both causes and consequences of one another.

This lack of understanding of the important linkage between desertification, biodiversity loss and social and economic problems in rural drylands has led to inadequate or simply non-existent policies to combat the root causes of the phenomenon. One key reason for this lack of understanding is the complexity of the issues: it is difficult for many policy makers to grapple with the complicated links between agriculture, pastoralism, land degradation, biodiversity, demographics and culture without the necessary research, education, and, most especially, workable tools that can make the connections clear and to provide realistic projections of future trends. Thus, an analytical and predictive tool could serve to significantly advance targeted policy reforms.

In February 1999, the project partners convened a workshop bringing together leading policy and environmental experts from Brazil, Chile, Mexico and the United States for a 2 day workshop in

Mexico City. The purpose of the workshop was to design the action plan for developing the Indicator Model for Dryland Ecosystems and prepare the Medium Sized Project Brief for the Global Environment Facility ("GEF"). This Workshop was funded by the PDF-A Planning grant. During the workshop, participants identified the scope and criteria for pilot studies and designed the framework for the public participation plans. In addition, the workshop identified preliminarily the sites in each country that would meet the criteria for pilot studies, as described in more detail below.

The workshop resulted in the completion of a planning process and the design of a functioning program to develop the Indicator Model for Dryland Ecosystems. Specifically, as developed by Dr. Fernando Santibanez at AGRIMED, the University of Chile, this Model will be tested in sites within three participating countries, Mexico, Chile and Brazil, with a view toward upgrading the Model for the potential application by decision-makers, not just in Latin America but other regions of the world, such as Africa. Subsequent to the Workshop, the project partners completed this GEF Medium-Sized Project Brief. Additional details on the workshop and planning activities are provided in the Final Report to UNEP for the PDF-A, Attached to this Brief, including the workshop agenda and list of stakeholder participants.

Consistent with GEF Operational Program Number 1, this project will provide the GEF and its partners , IGOs, policymakers, non-governmental organizations, and affected communities with the *Indicator Model for Dryland Ecosystems*, a tool to identify vulnerable dryland ecosystems, and vulnerable communities (those dependant on these ecosystems that are caught in a spiral of low agricultural production, poverty and migration), develop appropriate management plans, and monitor the direction of change following the implementation of these plans in Latin America. Moreover, the issues related to the ecosystems and climate regions that are being targeted in this study are not unique to this hemisphere. Loss of habitat for dryland species and the human impact of land degradation are problems facing countries around the world, especially in Western and Sub-Saharan Africa. The approach used in designing and testing this *Model*, and the ensuing recommendations will be applicable to other regions suffering from over-cultivation of agricultural lands, out-migration of rural communities, and the decreasing numbers of biodiversity

How the Indicators Model and Program Will Work

Through the use of this unique *Indicator Model*, the project aims to promote the maintenance of biodiversity in dryland areas by providing the GEF and its partners, policymakers, and non-governmental organizations with a unique model, that will move beyond a research and theoretical design to an applied tool that can identify, analyze and predict trends in the proximate, intermediate, and ultimate causes of land degradation and biodiversity loss in dryland areas. It can accomplish this by integrating and correlating a myriad of databases in these sectors and projecting acute interrelationships within geographic areas and over time. Using Geographic Information Systems (GIS) the model builds and displays maps on the status of data available in a particular sector (biological diversity, density of population, rate of soil erosion/habitat loss) *and* it can manipulate the data and maps it displays to demonstrate the correlation of data in the various sectors. In other words, the *Model* will be able to generate spatial representation of data, i.e. maps, that will clearly delineate the land areas inside a given country affected by biodiversity losses, desertification , and socio-economic problems. Perhaps even more important is the model's capability to *predict trends* in these sectors, thereby allowing policy makers to anticipate losses and intercept the potential problems with appropriate policy reforms. Relying on historic as well as current data, the *Indicator Model* will be able to predict which areas or sectors could suffer the highest rates of biodiversity loss resulting from desertification, deforestation, deepening poverty and other socio-economic problems, in relation to the data supplied to and upgraded in

the model. Furthermore, use of the *Indicator Model* will integrate otherwise unlinked elements within the demographic, social, physical, ecological, economic, and cultural fields that are contributing to land degradation and biodiversity loss in the dryland regions.

To assure the model can move from research to an applied tool, the model will be tested by the partners (NGOs, officials, and academics) in selected pilot regions in each targeted country to determine its utility for identifying significant adverse impacts on the sustainable use of biodiversity, the productive capacity of the natural resources in dryland areas, and community development. It will provide technology transfer to resource planners and managers. Absent this kind of operational testing, refinement, and evolution of the model, it is unlikely to infuse the policy and planning process of agencies and communities in a manner which can arrest land degradation and biodiversity loss in Latin America's arid zones.

The following diagrams indicate how the *Indicator Model* is designed to operate and produce reliable data. Figure 1 represents the framework for the socio-economic sub-model in relation to decision-making, in a system that is confronted with the deterioration of its resources. In whatever condition humans find themselves, they must elect strategies to survive. These depend on their level of education, economic resources and culture. The elected strategy can be more or less environmentally sensitive, ranging from complete indifference to the needs of future generations, with over-utilization of resources and a goal of maximizing short-term benefits on the one hand, to extreme conservation on the other, where there is a refusal to utilize the natural resources even for their maintenance. In the case of desertification, the degradation of the ecosystem can bring about both species loss and human abandonment if it becomes impossible to survive in a hostile and degraded environment. As palliative measures to this situation there is the possibility of managing the ecosystem in a restorative manner by means of changing the productive system and developing new techniques for reversing environmental degradation.

FIGURE 1

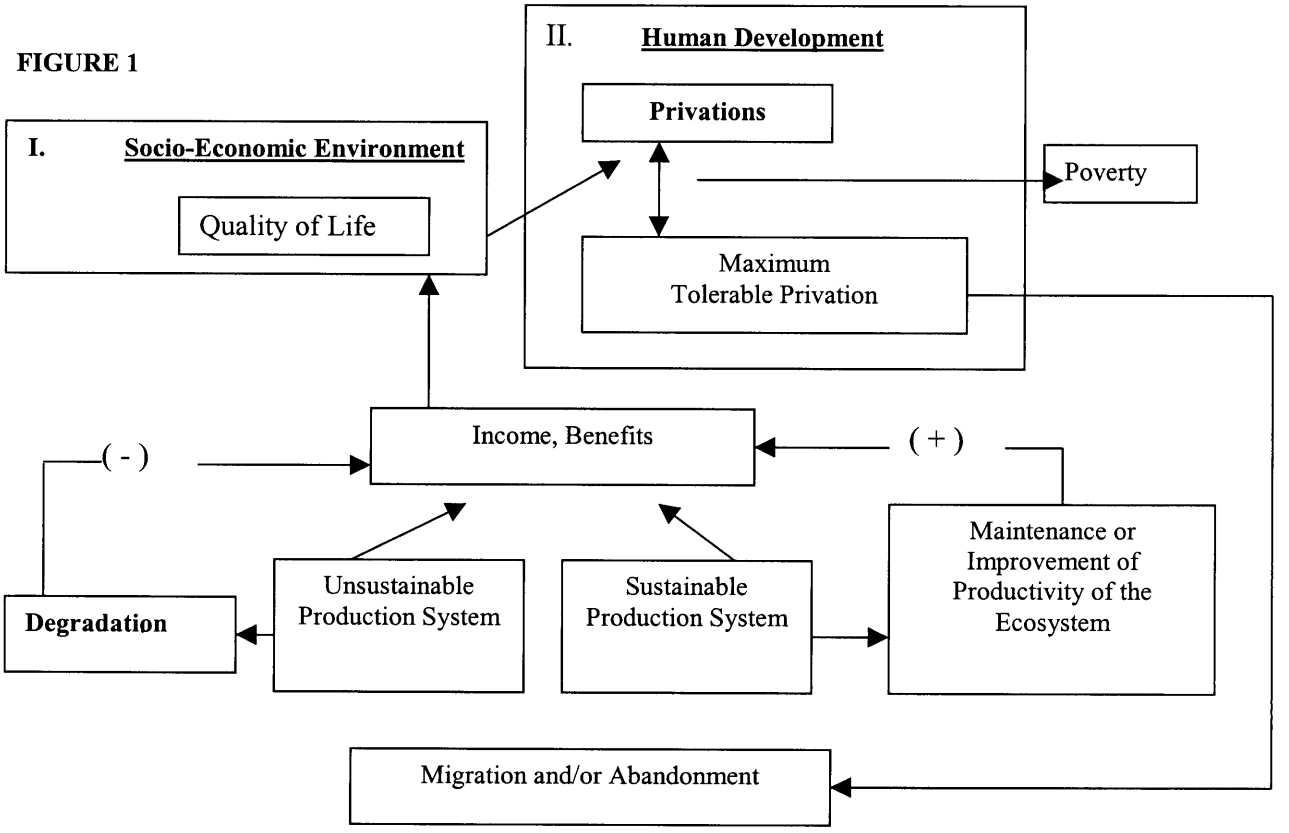

Figure 1. Diagram of the functioning of the socio-economic sub-model linked to the process of environmental deterioration.

It is through the transfer of technology to resource planners and managers, NGOs and community groups, that this project will compliment and extend existing activities in a unifying framework. The benefit of project outcomes will be to target and evaluate their actions in the face of arid land degradation, a capability which is not currently available. Without GEF funding, the model is unlikely to infuse the policy dialogue at the regional level and assist in stemming land degradation in Latin America's arid zones while protecting the economic, demographic, and cultural needs of the affected communities.

For this model, an example of a tool for rapid biological/ecological/social assessment, to catalyze this infusion, it must first undergo a series of trials in various geographic settings to gauge its generic utility for desertification/biodiversity/economic/migration policymakers. After subjecting the model to "field testing", its strengths and shortcomings should become evident. By the conclusion of the project the model will be enhanced to remedy its shortfalls, prepare it for wider application in the drylands of the participating countries. Ultimately, the widespread use of the tool would facilitate two important proposed outputs of Operational Program Number 1, sectoral integration and sustainable use. Once placed in the context of this project, the *Indicator Model* can produce data and predictions on resource impacts in the future that will be necessary for policy and program developments, as shown below in *Figure 2.*

FIGURE 2

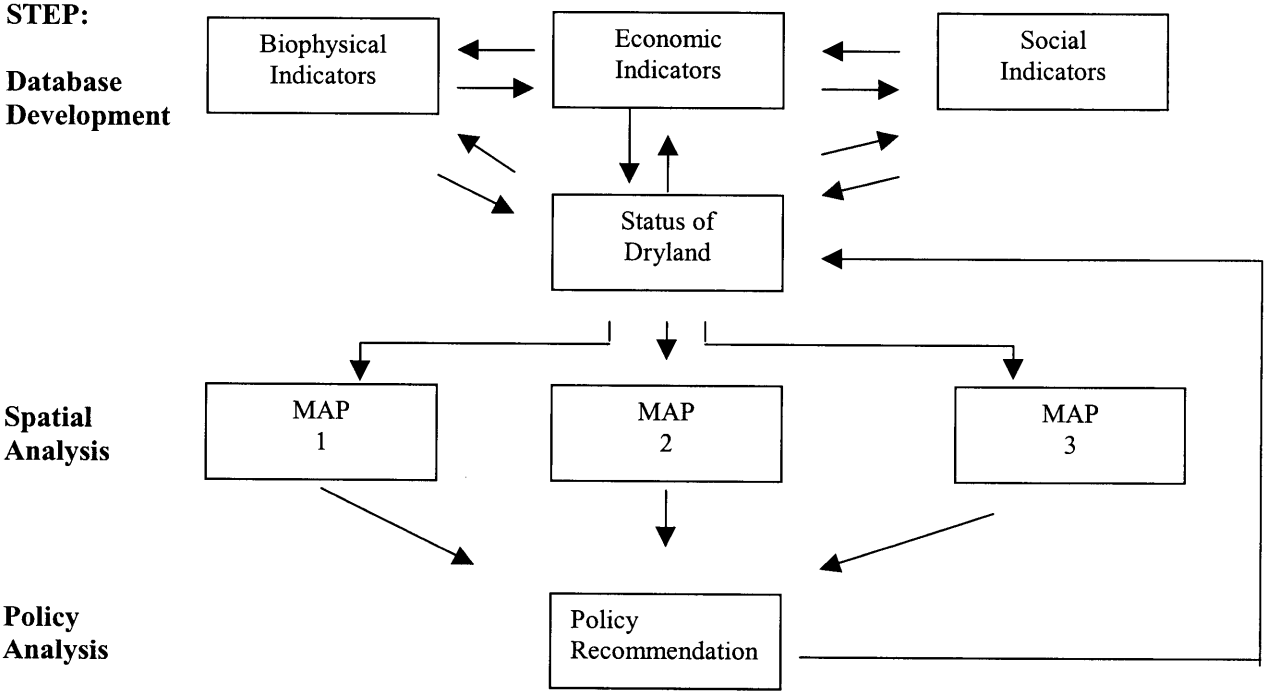

Figure 2: Conceptual Framework for the Indicator Model for Dryland Ecosystems

The refinement and planning level application of the *Indicator Model for Dryland Ecosystems* may also help the GEF measure program level progress towards it organizational objectives. Under Operational Program Number 1, the GEF articulated a vision for the conservation and sustainable use of biological diversity in arid and semi-arid zones. In order to add up performance measures from individual projects, a common framework for integrating various types of indices measured against uniform scales must be available to the GEF. This is exactly what the model seeks to do.

Current Situation

The South American Pacific desert lies in the rain shadow of the high Andes. Storms crossing the Amazon Basin are wrung out as they pass over these mountains, leaving little moisture to fall on the leeward band of Chile's Pacific Coast. Here lies the driest desert on Earth, the Atacama. Although deserts do not often conjure up images of rich bio-diversity, the semi-arid margins of the Atacama continue to reveal a varied species composition. Last year a bromeliad, *Tillandsia tragophoba*, with a unique water capturing structure, was identified near Papose, Chile. It is typical of arid land species, which commonly have a restrictive geographical distribution and a wide range of morphological, physical, and chemical adaptation to their harsh environment. These traits make them rich sources of genetic material and medicinal compounds.

Mexico's drylands also contain a wide array of plant species. Shrubs and grasslands dominate this biome, which covers half Mexico's territory. These lands contain 82% of the world's agave species and the sage species which are endemic to Mexico represent 88% of the world's total. Together with United States, Mexico is also home to 90% of the Earth's species of cactus. In terms of animals, Mexico ranks 1st globally in reptile diversity, 2nd for mammals, and 4th for amphibians. The fauna of Mexico's drylands include 250 species of vertebrates, 20 of which are considered endangered.

The Brazilian Caatinga, the principal dryland ecosystem in the country, has many species of great ecological and economic value. Approximately 452 tree, bush and shrubbery species have been identified, many of which possess significant economic value. Among the wide variety of animals in the Caatinga, two species of birds, one primate and one of ground vertebrate are endemic and endangered. Many of these species are under threat of loss of habitat, such as the Lear's Macaw, *Anodorhynchus leari*, which inhabits the dry, rugged Caatinga, especially in areas of *Syagras coronata* palm trees. The current population is estimated at 139 birds and has been listed as a critically endangered species of Latin and Central America.

Like most semi-arid regions of the world, each of these areas are inhabited by agro-pastoral communities which rely upon local land and water resources for survival. Although the exact causes are unresolved, globally, land and water degradation has become an acute environmental, economic and social problem. Each year, erosion claims 24 billion tons of the world's topsoil and in the arid zones soil erosion is a critical component of desertification. When coupled with a breakdown in soil structure, a loss of both plant cover and species diversity, and a reduction in plant productivity, the process of desertification imperils both agro-pastoral communities and native species, leading to destruction of important natural resources, and the national and international migration of people in all three countries. This cycle leads to deepening poverty for the affected communities.

While attention has been focused on the loss of bio-diversity in the humid subtropics, arid and semi-arid lands remain largely unprotected. While greater than 25% of Chile's southern forest

have been afforded some form of legal protection, less that 5% of the Pacific desert benefits from similar assurances. Although the dryland biome covers half of Mexico, it contains only 9 of 25 priority protected areas. Only around 3%, of the Brazilian Caatinga is currently under a conservation regime. And still land degradation continues to impoverish local agro-pastoralist and threaten important and unique biological communities. This project rests on two assumptions: that a lack of insight regarding the root causes of land degradation makes it difficult to design appropriate policy responses; and that the *Indicator Model* can provide the missing insight. Given the current situation in each of these partner countries and the lack of an integrated effort to address land degradation, migration and habitat loss in these regions, it is imperative that this project be implemented, in that it will provide a comprehensive tool for policymakers, IGOs, and NGOs to improve the socio-economic health of their countries in a more holistic fashion.

Preliminary Identification of Pilot Study Areas for Each Country

The planning workshop supported by the PDF-A produced criteria for the selection of the pilot testing areas for each country. These are: the dynamics of land degradation, the existence of and threats to the abundance and diversity of important biological resources, existence of social and economic problems, including agricultural production, poverty indices, population trends, and migration, motivation of local authorities and community based organizations to address the problems.

The partners have identified on a preliminary level key areas in each country that meet this criteria and in which the project can be undertaken with a greater likelihood of success. In Chile, of the 35 million hectares affected by desertification, one-third has considerably reduced its biodiversity and biological productivity. One of the most affected region is Administrative Region IV (Chile is divided into 12 such regions), "Coquimbo," which lies at the southern edge of the Atacama Desert and corresponds to an arid Mediterranean climate (250 to 100 mm/y). Here, 57 shrubs and 13 trees in the semi-arid zone which are believed significant for their potential medicinal properties are considered endangered. The social and economic problems in this area resulting from widespread desertification are also acute. More than 60% of the young people ages 20-29 have been forced to migrate out of the area in search of livelihood between 1982-1992. These individuals often travel to the mining areas in the North, such as the copper mines in Antofagasta, La Serena or to urban centers, such as Santiago where they have difficulty finding jobs. The high rates of migration also create social erosion within the communities they leave.

In Mexico, the area preliminarily identified as the site for pilot testing is the Valley of Tehuacan in the central Mexican border area between Puebla and Oaxaca. This area has an above average biodiversity level, even for Mexico, with 2,700 species of vascular plants, or 10% of Mexico's flora. About 30% of its flora is endemic, including the tetecheras, the most important of the group being *Neobuxbaumia tetezo*, the cardonales, *Cephalocereus hoppenstedtii*, selva baja caducifolia, and the izotales, or rosetofilas plant communities. It occupies an important place in the Tehuacan-Cuicatlan Biosphere Reserve. The cultural history of this area is also astounding, with evidence of human occupation of more than 10,000 years. It is believed that the first agricultural forays in Mesoamerica were carried out in this region, including domestication of maize, beans, squash, and other crops. As indicated in the pilot region of Chile, this area has acute social and economic problems that meet the criteria of the project. There is considerable unregulated taking of forest products and the biodiversity in this region is continually threatened. Of the 728 communities (with 500,000 residents), 85% are comprised of fewer than 500 inhabitants and more than 50% of the population is concentrated in three of the 21 municipalities. These are all considered to be in a marginalized zone, where poverty is high and agricultural production low, in large part due to desertification (caused byunsustainable land use practices).

Similarly, in Brazil, the area initially identified for study is the Serido region, state of Rio Grande do Norte, in Northeast Brazil (12,000 square Km) has a large density of biodiversity threatened by desertification and deepening social and economic problems. In particular, indigenous Caatinga vegetation is used for medicinal and vitamin sources, such as quixabeira (Brumelia sartorum), Juazeiro (Ziziphus joazeiro) and Uvaia (Eugenia sp), sources of Vitamin C. Species such as Mororo (Bauhinia cheilantha), Jucazeiro (Caesalpina ferrea), Catingueria (Caesalpinia pyramidalis), Sabia (Mimosa caesalpiniaefolia) and others are used for energy source and cattle food. The region's fauna is exceptional. Analysis demonstrates that there are 83 mammal species, 270 bird species and 44 reptile species, many of which are threatened with extinction because of local hunting and loss of habitat from clearing and farming of drylands. Some are already extinct, including Oncapintada (Panthera onca), Onca vermelha (Felis concolor), Anta (Tapirus terrestre), Guaxinim (Procyon cancrivorus), among others. The area has a population of 258,000 within 26 municipalities. The low economic production is a result of deforestation, soil erosion and increasing drought, which has intensified destruction of species habitat for survival. The area's deepening poverty has also led to a high rate of emigration to the south of Brazil.

Expected Project Outcomes

Responding to guidance in the GEF Biodiversity Operational Strategy, "sustainable use management will be sought by combining production, socio-economic and biodiversity goals" across "ranges of uses from strict protection in reserves through various forms of multiple use with conservation easements to full scale use". Developing a plan for sustainable use management, however, calls for spatial analysis of semi-arid landscapes.

This process will involve extensive data collection in the selected pilot areas related to status of land degradation and bio-diversity in the arid regions. Data sets will include biological, physical, agricultural, demographic, socio-economic, and public health parameters. Official resource managers in these pilot areas, together with community organizations, will use the data products (maps, assessments, composite indices) generated by the *Indicator Model* to identify how the model can contribute to local and national sustainable use plans, development policies and to define how monitoring programs can evaluate the usefulness of the model in reversing land degradation and protecting arid region biodiversity. The project will provide an applied Model that can be used to monitor land management changes and its data can be regularly updated with a particular focus on monitoring the response of important bio-diversity to these land management changes.

At the conclusion of the project, the successful development of the *Indicator Model for Dryland Ecosystems*, which integrates data sets and maps, will allow analysts and policy makers to more efficiently and effectively parse the landscape into regions in need of critical protection, those which merit management refinement, and those which appear to be functioning well under current management patterns, as well as to predict dryland biodiversity and socio-economic trends.

The tangible outcome of the proposed medium-sized project will be a functioning *Indicator Model for Dryland Ecosystems* in a pilot region of each of the three participating countries. In addition, the model and its results, including any improvements to the model developed originally by the University of Chile and other experts in South America, This indicator model will buildon previous experiences in land degradation/conservation mapping and identifiaction of indicators for sustainable land use carried out by international organisations such as FAO, ISRIC and UNEP in programmes such as GLASOD, WOCAT and SOTER and therefore the implementation of this project will be closely linked to these programmes. During project implementation, the most efficacious means of distributing the model, project results, and how the model can be

implemented, to policy makers, research institutions, and NGOs, including posting on the world wide web, will be identified.

The standard of *functionality* will include a working model and identification of options for running the model through commercially available software packages, such as ArcInfo.The model will be informed with the best available databases and its operation by trained official and non-governmental users. Equipped with a functioning model, policy makers and non-governmental groups in each participating country will be able to:

1. Survey important indicators of plant and animal biodiversity and include them in a spatially distributed database of other physical, biological, demographic, and socio-economic data related to land degradation in arid regions.
2. Integrate biodiversity conservation and sustainable use objectives in land use and natural resource use management plans.
3. Identify processes and categories of activities which have or are likely to have significant adverse impacts on the sustainable use of biodiversity, land management and demographic trends.
4. Develop the basic protocol for a long-term monitoring program of key indicators.
5. Develop plans for replicating the application of the *Indicator Model for Dryland Ecosystems* in other arid and semi-arid regions of the country.

The project also has several expected outcomes on a global scale which stem from the general utility which the spatial model can offer those concerned with biodiversity and sustainable development in arid lands. These include:

1. Complimenting the combined efforts of WCMC, RIVM, and IUCN on the development of indicators for forests, agro-ecosystems, freshwater, marine/coastal/SIDS, as the three agencies will be working on the UNEP GEF funded project on biodiversity indicators.
2. Complimenting the UNEP ROLAC's efforts in developing a Latin-America/Caribbean wide program of indicators for sustainable development.
3. Developing a replicable software training program to strengthen institutional capacity to integrate bio-diversity, demographics, and economic development objectives in dryland use plans.

Activities and Financial Inputs Needed to Enable Changes

The program would consist of a series of pilot studies that test the model's methodology in selected high priority areas of Brazil, Mexico and Chile where there are critical problems of land degradation, biodiversity loss and human migration. In order to complete these pilot tests, a series of action steps will be required.

1. **National Consultations** to determine the suite of potential physical, biological, demographic, and socio-economic indicators suited to the conditions in each participating country and to select a pilot region for model testing. Chile and Brazil already participated in a South American dialogue on a unified methodology for assessing and monitoring desertification so consultations in these countries will depend largely on bi-lateral discussions and outreach to stakeholders. Mexico will supplement these activities with a national workshop.
2. **An international coordination meeting of the implementing partners** to achieve comity among the indicators proposed for each country, assure coordination between the pilot sites, and finalize a uniform implementation strategy.
3. **Training of responsible staff** among the partner organizations in the use and implementation of the ***Indicator Model*** in order to effectively transfer institutional capacity to official

recourse managers and community groups in the identified pilot regions. This will include the exchange of software and operating systems for the ***Indicator Model.***

4. **Implementation of the public involvement plan** in each of the pilot zones which will include training in the use of the model, and capacity building for rapid assessment, data collection and database development.
5. **Work with official resource managers**, in collaboration with community organizations, to develop an ***Indicator Model*** in the pilot region of each of the participating countries which can then be used to generate data products which describe the link between demographic socio-economic conditions, arid land management and biodiversity protection.
6. **Model refinement** will occur during an international coordination meeting will be held to assess results of implementation to date, and to identify any needed model refinements or mid-course changes to the project which may have become evident during the database development and spatial analysis processes.
7. **Evaluation and monitoring** of the potential for developing a sustainable use plan for each of the pilot areas which will use the data products developed through application of the model to shape policy recommendations for arresting land degradation.

Sustainability Analysis and Risk Assessment

The document describing the GEF Biological Diversity Operational Program Number 1: Arid and Semi-Arid Zone Ecosystems points out the risks associated with conservation and sustainable use activities in the drylands. Chief among these is the risk that investments made in a project will generate positive changes which are not sustained beyond the life of the project. The failure to remain viable over the long-term is usually rooted in one of two design shortfalls: a lack of funding mechanisms for continued activity; and an absence of institutions capable of continuing project initiatives. Although the *Indicator Model* project will be most severely challenged by institutional issues, some mention should also be made regarding financial arrangements.

Financial Imperatives for Project Sustainability

This project deals primarily with the field testing and refinement of a computer based information management system. Success will be achieved when the tool is adopted by collaborating government agencies and NGOs working in the area of natural resource management in the drylands. The project does not envision creating new institutions, only adding capacity to those already in existence. An implicit assumption is that partnering organizations will be able to fund their continued activity well into the future. This will not be a problem for government supported institutions such as SEMARNAP in Mexico and the University of Chile. Esquel Group Foundation in Brazil and RIOD in Mexico have a proven track record of successful financial management, drawing on both governmental and private sources of funds.

In addition to the partnering organizations, however, a number of resource managers and community leaders at the local level will also receive training in the use of the model. Long-term funding for these individuals may prove more problematic, although it should be pointed out that the development of human capacity with the indicators model is akin to the adoption of new software. While there are front end cost in training which must be absorbed, once the program is mastered then it should generate substantial efficiencies with little additional investment.

Institutional Imperatives for Project Sustainability

The bigger risk is that training in the use of the indicator model will fail to generate an institutional legacy. This legacy can be lost when either the person receiving the training leaves or when the tool is not mastered and cannot be mobilized following the project. The first

eventuality is very hard to safeguard against, other than by assuring that more than one individual in each pilot zone receives training in the use of the tool. The second eventuality can generally be avoided by reasoned selection of participating institutions. The methodology for assuring that capable partners collaborate with this effort is described in the section describing public involvement.

Risk Associated with Project Implementation

Risks associated with this project include: a failure to arrive at uniform set of indicators; a failure to generate local interest in a pilot application; a failure to adequately train collaborators; a failure to gather the required data; and a failure to secure long-term support the continuous collection of monitoring data. Two of the important risk-reducing steps offered in the Operational Program are relevant to these risks: complementarity and absorptive capacity. Complementarity will help insure that the development of an accepted set of indicators and a framework for their integration will take place prior to pilot applications. The absorptive capacity of collaborators to implement the activity will be a key focus of the public involvement plan described below.

Stakeholder Involvement and Social Assessment

As discussed in other parts of this Brief, the project partners convened an international workshop (Feb 1-2, 1999) in Mexico City, bringing together stakeholders from official governmental agencies, intergovernmental organizations, NGOs, community groups, and academic institutions, to recommend strategies for project design. The partners and collaborators identified themselves as interested stakeholders through participation in this planning process. A list of stakeholder participants can be found in the attached Appendix II. Specifically, these groups included such IGOs as the UNEP's Latin American Regional Office, the International Organization on Migration (IOM), UNEP-Nairobi, the UN Secretariat to Combat Desertification and Drought, campesino and community based organizations, such as Organizacion Campesina de la Cuenca de Cieneguilla S. S. S. and Invertir Para La Sustentabilid Ad A.C., and academic institutions such as the University of Mexico (UNAM) and the University of Chile. Many other stakeholder groups and experts were contacted for review and comment on the project, such from the IUCN, WWF, University of California at Berkeley and Davis, Program on Information and Resources in the Environment for Columbia University.

A significant percentage of the project effort will be in the implementation of a Public Involvement Plan. This plan is designed to ensure sustainable participation of local communities, social organizations, and government institutions. In order to achieve this goal, the project sets forth an involvement strategy which incorporates the interested organizations as partners in the regional pilot studies of the project. These organizations will develop strategies to incorporate the Indicators Model into their respective environmental planning, in communication and interaction with the technical team associated with this project. This structure will provide the local community groups, social organizations and the government institutions the tools necessary to verify the advances of the technical team, as well as provide the technical team the ability to examine the skills acquired by the local population. Stakeholder involvement and social assessment will thus be achieved through reciprocation of data between project team members and local organizations.

III. INCREMENTAL COSTS

Overview

This project is unique in that it would substantially strengthen the research and management activities of the partners and collaborating agencies which relate to improving the systems management of conservation of drylands and their important biodiversity, along with predicting trends in desertification and biodiversity loss and their associated socio-economic impacts for affected areas. At present, much of the work on such conservation and socio-economic assessment is being carried out separately by the agencies and groups. This effort would bring together the expertise and activities of these groups toward designing and operationalizing a data information and systems management tool. The baseline activities and costs for this project, absent the project alternative, have therefore been calculated in the following way.

As described below, there is some level of effort being expended by project partners and collaborators in each of the targeted countries to accomplish the goals set forth in this project brief. However, these activities are less than optimal to preserve the sustainable use of biodiversity in dryland areas. Without the implementation of this project and an *applied Indicator Model*, this current level will not be sufficient for future conservation of unique species and their dryland habitats. This is due in part to the lack of effective tools for incorporating biodiversity objectives into country desertification and socio-economic planning and processes by the project partners. This project would allow the partners to build the *Indicator Model* for that purpose, and in effect to obtain an applied tool for addressing these issues. Without this, the baseline scenario as described below would provide for the model's development as primarily a research related activity. The model would not be applied or adapted for use by government agencies or affected communities, or by other international institutions seeking to arrest dryland biodiversity loss.

Baseline Scenarios

Under the baseline scenario, the University of Chile, a project partner, will continue research on methodologies of desertification assessment (such as those which represent the indicator model effort), satellite techniques for land degradation, indicator based monitoring systems for the environment and other activities even without GEF funding. The investment that will be made by the project partner to continue this activity is approximately $500,000. The University project partner would also continue to invest in it's experimental station undertaking arid zone research of the kind indicated here at an investment of $250,000. Project collaborator, CONAF, the agriculture and forestry agency, would also conduct biodiversity research of this type in arid zones at an investment of about $300,000. The Chilean project partner's total baseline for this project can therefore be conservatively estimated at $1,050,000.

In Brazil, Fundacao Grupo Esquel Brazil (FGEB), a project partner, is the responsible party for the preparation of the National Action Plan to Combat Desertification. In this connection, FGEB provides support for REDESERT, an information and documentation network of research institutions, with the intention of tackling the challenges posed by land degradation and related to indicator development, and supports desertification and national action planning programs on these issues. It is estimated that its baseline in continuing this work is $430,000. It also will continue to invest in biodiversity studies and management plan related to indicators at a cost of $260,000. A project collaborator in the federal government is the Conservation Units and Protected Areas which is investing a minimum of $200,000, with an additional $600,000 from environmental National Fund disbursements in such efforts. It will invest another $700,000 for research and training in related areas of the project. Related investments include $4,300,000 toward improving systems management, general conservation, monitoring and licensing of economic activities. The total baseline of the Brazilian project partners is estimated at $2,190,000.

Project partner SEMARNAP's baseline is calculated on the following: it will invest $300,000 in evaluation of socio-economic and dryland biodiversity problems in work with CONABIO (Mexico's biodiversity inventory agency). It will spend an additional $50,000 on identifying and evaluating indicators for socio-economic, biodiversity and desertification issues related to project efforts by the same agency. In addition, SEMARNAP will be investing in regional development programs $180,000 that are related closely to project initiatives, such as evaluating the drylands issues in the pilot area. To develop a system of environmental indicators SEMARNAP is investing approximately $100,000, and in conjunction with Conabio, an additional $150,000 in systems management in biodiversity. While without this GEF project, SEMARNAP will be able to make some progress on identifying desertification indicators, it will not have the capability or tools to effectively integrate biological diversity issues. Moreover, this project has actually catalyzed such agencies in Mexico as Conaza (arid zones commission), Inegi (data management agency), and Conabio (biodiversity agency), to work closely with SEMARNAP on these issues for policy reforms. These agencies have agreed to collaborate on the project closely with the partners. Without this project to catalyze partners and collaborating agencies around the issue of developing a predictive environmental tool, these agencies would not be collaborating on the biodiversity/desertification indicators work.

Project partner, RIOD Mexico will continue to undertake its special activities for improving communication and community participation in related desertification/biodiversity issues among its members at an amount of $50,000. Project partner the Natural Heritage Institute, will continue its work with groups in Mexico, with an estimated $50,000 to improve the capability of policymakers to integrate and evaluate socio-economic data with environmental data, including deforestation, desertification and migration. The total baseline for the Mexican project partners and collaborators is US$880,000.

In sum, many of the project partners are undertaking some efforts related to building better systems for dryland management but it is not at a level that would allow for integrated land management and sustainable community development. This project would allow the project partners to build a sophisticated system for dryland biodiversity assessment and predicting future trends and identifying hot spots of biodiversity loss and land degradation. Absent this project, policy makers, IGOs and local stakeholder groups will not have the capability to identify and intercept damaging trends that require integrating complex data on biological loss, desertification, agricultural production, poverty and other socio-economic factors that threaten dryland conservation.

COUNTRY	BASELINE	ALTERNATIVE	INCREMENTAL COSTS
Brazil	2,130,000	2,401,000	271,000
Chile	1,050,000	1,375,000	325,000
Mexico	880,000	1,140,000	260,000
International Coordination and Workshops	0	76,000	76,000
Project Evaluation and Monitoring	0	40,000	40,000
Administration	0	68,800	68,800
Planning/PDF A		33,000	33,000
TOTAL	**$4,060,000**	**$5,133,800**	**$1,073,800**
GEF Contribution			**750,000**
Co-Financing			**323,800**

IV. BUDGET SUMMARY

A. Summary of Country and Project Coordination Costs

COUNTRY	COST
Brazil	271,000
Chile	325,000
Mexico	260,000
International Coordination and Workshops	91,000
Project Monitoring and Evaluation	25,000
Project Administration	68,800
Planning for Project/PDF A	33,000
TOTAL	**$1,073,800**

B. Summary of Detailed Costs

ACTIVITIES	COSTS	GEF CONTRIBUTION	OTHER CONTRIBUTION	PROJECT TOTAL
PDF:	33,000	25,000	8,000	33,000
Personnel:	292,000	210,000	82,000	292,000
Subcontracts:	271,500	133,500	138,000	271,500
Travel:	87,500	61,300	26,200	82,500
Equipment/Software	70,000	48,500	21,500	75,000
Documents - Communication	63,000	45,500	17,500	63,000
International Travel/Coordination	91,000	91,000		91,000
Monitoring and Evaluation	25,000	25,000		25,000
Project Administration	68,800	68,800		68,800
Miscellaneous	72,000	41,400	30,600	77,000
Project Total:	**$1,073,800**	**$750,000**	**$323,800**	**$1,073,800**

C. Individual Country Budgets

These budgets represent a more detailed description of costs in budget summary. They do not include the regional program costs, such as regional coordination, monitoring and evaluation, and overall regional project administration.

BRAZIL

ACTIVITIES	COSTS	GEF CONTRIBUTION	OTHER CONTRIBUTION	PROJECT TOTAL
Personnel:	115,000	103,000	12,000 (a definir)	115,000
Subcontracts:	78,000	30,000	48,000 (PNCD)	78,000
Travel:	30,000	20,000	10,000 (PNCD)	30,000
Miscellaneous Communication:	48,000	27,000	21,000 (FGEB)	48,000
Project Total	271,000	180,000	91,000	271,000

CHILE

ACTIVITIES	COSTS	GEF CONTRIBUTION	OTHER CONTRIBUTION	PROJECT TOTAL
Personnel:	95,000	47,000	48,000	95,000
Subcontracts:	68,500	22,500	46,000	68,500
Equipment/Software	65,000	45,500	19,500	65,000
Travel:	40,500	31,300	9,200	40,500
Communication:	8,000	6,000	2,000	8,000
Miscellaneous:	48,000	27,700	20,300	48,000
Project Total:	325,000	180,000	$145,000	325,000

MEXICO

ACTIVITIES	COSTS	GEF CONTRIBUTION	OTHER CONTRIBUTION	PROJECT TOTAL
Personnel:	82,000	60,000	22,000	82,000
Subcontracts:	125,000	81,000	44,000	125,000
Documentation/Rep	10,000	7,000	3,000	10,000
Travel:	17,000	10,000	7,000	17,000
Communication, Equipment, Misc.:	10,000	6,000	4,000	10,000
Workshops/Public	16,000	16,000		16,000
Project Total :	260,000	180,000	80,000	260,000

GEF Budget Line Item Description

Personnel: This line item covers costs for the Project staff of the collaborating institutions in Mexico, Chile, Brazil and for The Natural Heritage Institute.

Subcontracts: This line item covers the estimated costs of consultants to the teams in Chile, Mexico and Brazil, in carrying out the project where the expertise may not be fully covered in the collaborating institutions. These subcontractors may include demographers, economists, and biologists.

Travel: This line item covers the costs of travel for project team members in country, as well as travel for workshop participants for the national workshops.

Equipment/Software: This line item covers costs for computer and software technology required to upgrade the collaborating institution's computer capabilities in order to carry out the testing of the project model.

Documents/ Communication: This line items cover the costs of all communication in country and between countries required for the project, including fax and telephone, as well as covering the cost of publications.

International Travel/Coordination: This line item covers the costs of two international meetings to bring together international experts and the project team members from each country to coordinate the methodologies and implementation activities of the projects, and to exchange results and findings.

Monitoring and Evaluation: This line item covers the cost of monitoring progress of the project team, including reporting on how those results can be more widely replicated within the region.

Project Administration: This line item covers Natural Heritage Institute cost of managing funds and administering the project.

Miscellaneous: This line items covers additional expenses incurred with the translation of all reporting on the project, including the midterm and final reporting to UNEP/GEF, and the briefing documents necessary for international coordination and the national workshop. It is also intended to supplement any additional or unforeseen equipment and software costs and costs associated with assistance to the participation of local communities under the public involvement plan

V. IMPLEMENTATION PLAN

The project is expected to be implemented over a period of two years and expected to make progress as identified in the following graph.

DURATION OF PROJECT (in months)								
ACTIVITIES	**PROJECT-MONTHS**							
Completion of Project Activities	3	6	9	12	15	18	21	24
1. National Consultations								
2. International Coordination								
3. Training of Team								
4. Public Involvement Plan								
5. Pilot Study Implementation								
6. Model Refinement								
6. Evaluation and Reporting								

VI. PUBLIC INVOLVEMENT PLAN

A. Introduction

During the planning process of this project the partners convened an international workshop (Feb 1-2, 1999), bringing together official governmental representatives, intergovernmental representatives, NGOs, community groups, and academic experts, to recommend strategies for project design, including the public involvement plan. This plan and the full proposal, are based on the findings and recommendations of that workshop.

This project will develop technical, social, and methodological processes which will pilot test the capacity and function of biological, physical, agricultural, forestry, demographic, and socio-economic indicators of desertification, as well as the software package proposed by AGRIMED, University of Chile. The diversity of perspectives involved becomes greater with the incorporation of the social organizations into the technical process.

We define the concept of "social organizations" as groups from the civil society that interact in the pilot regions (the community, *campesino* producer groups, professional organizations, NGOs, etc.) This concept will be developed and validated with input from social theory and the professional practices of the partners.

The Plan has promotional, communication, training, and organizing activities, which will incorporate the social organizations and local government institutions present in the pilot zone.

Taking into consideration the rhythms and needs of the population, these social groups will participate in data collection, community research, the systematization of knowledge, and the integration of local indicators into the Indicators Model.

This Public Involvement Plan is designed to make the participation of local social groups and government institutions sustainable. In order to achieve this, the project will develop an involvement strategy, which incorporates these organizations as partners in the regional application of the project.

B. Justification

1. General guidelines

The multidisciplinary team of professionals of the Indicators Model project will develop varied and complex activities, which will divide the work into two general categories:

- Technical action designed to develop the monitoring system, which will be carried out by professionals in scientific fields such as biology, geography, hydrology, statistics, etc.
- Liaison activity which will incorporate the social organizations and government institutions of the region into the project through activities such as data collection and testing of the system and model of indicators in desertification, biodiversity, and socio-economic aspects.

In order to effectively achieve local participation in the different stages of the project, we will search out people and local social and governmental organizations which have the capacity for movement and change and easily accept new ideas. Because these organizations are specific to each country, this Plan simply presents general outlines, which will be adapted to each regional situation.

To assure that the local organizations develop strategies to incorporate the Indicators Model in their environmental planning, this Public Involvement Plan will establish a formal structure for communication and interaction with the participants responsible for the technical aspects of the monitoring system. This structure will allow the social organizations to verify the advances of the

technical team and, also, allow the technical team to examine the skills acquired by the local population.

2. Identification of the interested parties

The partners in each country already have a preliminary identification of the social organizations with which they will collaborate. For example, in Brazil, in the area where most work will occur, the Seridó region (Rio Grande do Norte state, covering 24 municipios, or municipal areas) , the team will work with GEDES (Grupo de estudo da desertificaçao do Seridó), comprised of more than 15 local institutions (governmental and nongovernmental). In Mexico, the team has identified communities working in the Tehuacan Biosphere Reserve, Technical Scientific Committee of the Reserve, Bioymas A.C., Alternativas A.C., State and municipal governments of the Puebla, Puebla Development Council, and the following universities: de la Américas, Autonoma de Puebla, Autonoma Chapingo, UNAM.

In this stage of the formulation of the project, the networks of social and community organizations will have preliminary knowledge of the activities that they will be involved with. These networks will participate in the National Workshops (Activity 1) where operative strategies for the project will be defined.

3. Dissemination of information and collaboration

The National Workshops will be an important vehicle for dissemination of the project and will provide information to the various sectors interested in these subjects.

The Public Involvement Plan will maintain constant communication with the different sectors of the project: academic, political, and social. This constant participation by the social organizations is the central strategy to assure that the project's activities are disseminated at all levels. In addition to dissemination to project stakeholders and collaborators, this project plans to integrate its findings into efforts of the World Overview of Conservation Approaches and Technologies (WOCAT) and ISRIC, thus furthering the accessibility of this indicator model technology and specific project recommendations.

C. Objective

The social and local government organizations in the pilot region will be included as partners in the application of the indicators system which will be tested in the pilot regions and they will develop the capacity to use those components of the Model which are pertinent to their specific region.

D. Activities

National Workshop

This workshop will convene representatives from all levels of government, academic and research institutions, members of consulting bodies, and the social organizations which are interested in the topic.

The following themes will be addressed:

- Presentation, testing, and integration of the following types of indicators: physical, agricultural, forestry, demographic, migration, social, cultural, traditional knowledge, gender, participation, and health;
- Definition of the priority indicators which will be incorporated into the Model;
- Definition of the value scale in each country (reconciliation of the scale between the three countries will be achieved an international coordination meeting after the national consultations);
- Select region for pilot study using the following parameters:
  1. Biodiversity
  2. Arid zone, semi arid, dry-tropical
  3. Presence of social organizations that can insure community participation throughout the project
  4. Presence of local institutions that can help or provide information
  5. Availability of data and information and/or the possibility to its development
  6. Local institutional structures for field investigation.

Establishment and training of the Public Involvement Team

- Process of community representative identification: (This team will be comprised of community representatives who will participate fully in the project:
  1. Selection
  2. Induction into the project
  3. Training in the methodology
  4. Work Plan
- Dissemination of the Indicators Model proposal which will be tested and of the expected participation from the different organizations to:
  1. Institutions in charge of the use and management of natural resources
  2. Cross sector organizations (government, private, academic)
  3. Social organizations that work in the pilot region
  4. The communities in the pilot region
- Agreements with participation organizations and institutions
  1. Levels of participation
  2. Stages of participation
  3. Individuals who will be assigned to the project

Induction and training for the individuals assigned to the project from the participating organizations in the testing of the Indicators Model

1. The Model
2. Techniques and tools
3. Work plan tailored to the specific organization (developed in Step 5):
   a. Organization
   b. Data Collection
   c. Follow-up to technical activities
   d. Report preparation

Field work

1. Field data collection
2. Data processing
3. Systematization and testing of regional indicators

Follow-up

1. Monitoring of the technical advances by the organizations participating in this Public Involvement Plan
2. Feedback
3. Information dissemination to the regional population
    a. Advances in the indicators system that is being tested
    b. Participation of the different social organizations
    c. Resulting uses and benefits of the Indicators Model
    d. The reach of the Indicators Model

Evaluation

1. Report to the participating organizations
2. Feedback

Final report

1. Preparation of the final products from the public involvement process
2. Presentation of these products to the participating organizations

VII. MONITORING AND EVALUATION PLAN

Realistically, in order to achieve the ultimate goal of the ***Indicator Project for Dryland Ecosystems***, which is to promote the maintenance of bio-diversity in dryland areas through improved information management, efforts will need to extend beyond the proposed two year life of the project. As such, the ability to measure long-term progress towards this goal will rest upon the development of a monitoring program which extends beyond the implementation of this particular set of activities. Recognizing this reality, however, does not eliminate the need to design a monitoring and evaluation plan to measure the degree to which the changes anticipated during project implementation are realized. The project specific monitoring and evaluation plan should describe both the parameters which define progress toward completion of anticipated activities, and a timetable for evaluating these parameters.

Parameters of Progress

In terms of the Project Rationale and Objectives (Section 9 of the Project Summary Matrix) the essential parameters of progress will be the long-term quality of socio-economic activity in the pilot dryland areas and the health of important elements of dryland bio-diversity. Obviously no instrument yet exists to measure such broad concepts. In fact, very little consensus exists around their essential components. However, first developing and then testing a methodology which moves public and private resource managers and policy makers towards such a consensus are the stated intermediate objectives of this project. We will evaluate our success in meeting these objectives by closely monitoring the process of developing and testing the ***Indicator Model***. The primary instrument for tracking this process will be surveys of individuals involved with the project, including the partner organizations and collaborators in the pilot areas. These individuals will rank the perceived usefulness, pertinence, and timeliness of the effort. Surveys will also gauge the degree to which the final methodology used to implement the ***Indicator Model*** was truly unified across the participating countries, and the degree to which this uniformity either enhanced or hindered project implementation in the pilot area.

Evaluating the degree to which anticipated project outcomes are achieved (Section 10 of the Project Summary Matrix) will be facilitated by a review of the sustainable use and long-term monitoring plans which emerge in each of the pilot areas. A failure of the project partners and collaborators to produce these documents would certainly suggest that the proposed outcomes were not achieved. If they are produced, however, the degree to which they rely on the data products developed through an application of the ***Indicator Model*** will be a good benchmark of the success of the unified methodology. Of particular interest will be whether any links can be drawn between socio-economic, demographic and public health data and the condition of the land and its resident bio-diversity. If these links are made then the degree to which they motivate policy responses will also be an important parameter of progress. In additional to these direct measures of the project outcome, the number of communities in each pilot zone which request training in the use of the ***Indicator Model*** will be an important indirect indicator. A strong interest will suggest that this tool is capable of generating broadly subscribed support for land management and bio-diversity protection initiatives in the region.

With respect to the on-going evaluation of the proposed two year project, the most important parameters of progress will be those which measure the progressive completion of the project activities (Section 11 in the Project Summary Matrix). Indicators of this progress are contained in the logical framework. In general, however, the following parameters should prove useful.

- The breadth of participants in national workshops, e.g. from agency, academia, NGOs, and local community group sectors.
- The number of various consultations with interested parties.
- The quality of these interactions as assessed by a stakeholder questionnaire.
- The establishment of criteria for the selection of pilot areas.
- The successful development of a unified methodology for the participating countries.
- Mastery of the ***Indicator Model*** software by the partnering organizations.
- The breadth of sector representatives successfully trained in the use of the software in each of the pilot regions.
- The completeness of the databases needed to implement a unified methodology.
- The quality of the data contained in the databases.
- The number of policy decisions which are reached in the pilot areas based on the successful implementation of the ***Indicator Model.***

Each of these parameters represents an important milestone in the implementation of the proposed activities. The completion of each activity will depend those which precede it, and the achievement of the ultimate goal will rest upon the completion of all the proposed activities. The parameters listed above should serve as a road map for evaluating the implementation of this project.

Timetable for Evaluation

Two evaluations will be conducted to monitor the progress and long-term impact of the project. The first will be scheduled following the initiation of Activity 4. By this time it will be possible to assess the level enthusiasm generated by the project in the pilot region. If the various consultations and the outreach to stakeholders as part of a public involvement plan have been successful, then implementation of the ***Indicator Model*** and the use of its data products for the development of sustainable use and bio-diversity monitoring plans will be possible. If, on the other hand, the mid-term evaluation reveals little excitement surrounding the unified methodology then corrections can and will have to be made prior to completing Activities 5 and 7.

The final project evaluation will take place at the completion of Activity 6. As previously stated, at the end of two years it will be impossible to determine if implementation of the ***Indicator Model*** will enhance the long-term viability of communities and eco-systems in the pilot areas. It will be entirely possible, however, to gauge the usefulness of the project in terms of its utility in the process of developing sustainable use and monitoring plans. The results of this end-of-project evaluation will help determine if the ***Indicator Model*** needs additional refinement and whether an effort to more broadly apply the unified method in Latin America and the Caribbean is worthy of support. A positive response to this second question would represent an enormous step towards the development of an instrument for measuring socio-economic activity and eco-system health in the drylands, both in the western hemisphere and around the world.

UNEP Involvement

The final evaluation will be overseen by UNEP, the GEF Implementing Agency for this project.

COMISION NACIONAL DEL MEDIO AMBIENTE

Santiago, 14 OCT 1999

ORD. N° 4853/00

Señor
Carlos del Castillo
Representante Residente
Programa de Naciones Unidas para el desarrollo
Av. Dag Hammarskjöld 3241
Vitacura
Santiago

Ref.: Proyecto " Operationalizing A Model Of Indicators To Evaluate The Physical And Socio-Economic Dimensions Of Desertification"

Estimado señor del Castillo:

Por la presente me refiero a la solicitud del señor Fernando Santibáñez, Director de la Facultad de Ciencias Agrarias y Forestales de la Universidad de Chile, para el financiamiento del proyecto arriba mencionado. Como punto focal del Fondo para el Medio Ambiente Mundial apruebo su solicitud. Este proyecto ha sido discutido y aprobado en Comité Técnico de CONAMA.

Sin otro particular, lo saluda atentamente,

RODRIGO EGAÑA BARAONA
Director Ejecutivo
COMISION NACIONAL DEL MEDIO AMBIENTE

REB/AC/CK/TS

31/35

13/19

SECRETARIA DE HACIENDA Y CREDITO PUBLICO

DIRECCION GENERAL DE CREDITO PUBLICO
DIRECCION DE ORGANISMOS FINANCIEROS INTERNACIONALES
Subdirección de Proyectos Ambientales y de Desarrollo Urbano

MTF

6882

Oficio No. 383. III. 4. - 389

México, D.F., a 14 de octubre de 1998.

LIC. JOSE LUIS SAMANIEGO LEYVA
Coordinador de la Unidad de Asuntos Internacionales
Secretaría de Medio Ambiente, Recursos Naturales y Pesca
Lateral del Periférico Sur 4209, piso 6,
Colonia Jardines en la Montaña
C i u d a d

Hago referencia a su comunicación No. UCAI/4915/98, del 24 de septiembre de 1998, relativo a la propuesta para el proyecto regional "Evaluación de la metodología para determinar indicadores físicos y socioeconómicos de la degradación de la tierra", que sería apoyado con recursos del Fondo Mundial para el Medio Ambiente (GEF), a través del PNUMA como Agencia Instrumentadora del GEF en México.

Sobre el particular, a través del presente me permito comunicar a Usted que esta Secretaría de Hacienda y Crédito Público, en su carácter de Punto Focal del GEF en México, está de acuerdo en que nuestro país participe en dicho proyecto; lo anterior, en virtud de que esta iniciativa contribuirá al cumplimiento de metas sectoriales de desarrollo.

Mucho le agradeceré nos mantenga informados del trámite que guarden estas gestiones, y sin otro particular por el momento, aprovecho la ocasión para reiterar a Usted las seguridades de mi más atenta y distinguida consideración.

A t e n t a m e n t e,
SUFRAGIO EFECTIVO. NO REELECCION.
El Director de Organismos Financieros Internacionales

P.A. Claudia [signature]

Ricardo Ochoa

RECIBIDO
COORDINACION DE ASUNTOS INTERNACIONALES
OCT 14 PM 5:30
SECRETARIA DE MEDIO AMBIENTE RECURSOS NATURALES Y PESCA

ON: SEMARNAP-UCAI TO: 6585059 10-13-98 22:07 PAGE: 1

SEMARNAP

Unidad Coordinadora de Asuntos Internacionales

UCAI/5231/98

México D.F., 14 de octubre de 1998

Ing. Rafael Obregón V.
Director General de Restauración y Conservación de Suelos
Subsecretaría de Recursos Naturales
Presente

Me permito hacer referencia a su comunicado de fecha 21 de septiembre relativo al proyecto regional "*Evaluación de la Metodología para determinar indicadores físicos y socio económicos de la degradación de la tierra*", que será presentado por el Instituto del Patrimonio Natural (NHI) al Fondo Mundial para el Medio Ambiente (GEF), para su financiamiento.

Al respecto, informo a usted que, a través del oficio 393.111.4-359 (se anexa copia de referencia) de la Dirección de Organismos Financieros Internacionales de la Secretaría de Hacienda y Crédito Público, en su carácter de Punto Focal del GEF en México, se avala dicha iniciativa en el entendido de que contribuirá con las actividades que en la materia se están llevando a cabo en el sector.

Sin otro particular, aprovecho la ocasión para enviarle un cordial saludo.

Atentamente

José Luis Samaniego Leyva
Titular de la Unidad

c.c.p. M.en C. Julia Carabias Lillo.- Secretaría de Medio Ambiente, Recursos Naturales y Pesca.- Presente.
Dr. Víctor M. Villalobos Arámbula, Subsecretario de Recursos Naturales/SEMARNAP.- Presente
Sr. Rafael Rodríguez, Oficial de Programa del Programa de Naciones Unidas para el Medio Ambiente.- Presente

MVH

33/35

MINISTÉRIO DO PLANEJAMENTO, ORÇAMENTO E GESTÃO
SECRETARIA DE ASSUNTOS INTERNACIONAIS

Ofício nº 398 /ASAIN/MP

Brasília, 22 de setembro de 1999

Senhor Ministro,

Muito agradeceria suas gentis providências no sentido de solicitar à Embaixada do Brasil em Nairóbi que notifique o Programa das Nações Unidas de Meio Ambiente - PNUMA das seguintes manifestações deste Ponto Focal Nacional Operacional do GEF às propostas de projetos:

- Proposta de "Medium Sized Project Concept" "***Migratory Waterbirds as Indicators of Sound Wetland Management and Conservation in the Southern Cone Region of South America***", apresentada pelo PNUMA "acknowledgement" a proposta deverá ser examinada por esta Secretaria em versão de "Medium Sized Project Brief" para que obtenha endosso.

- Proposta de "Medium Sized Project Brief" "***Indicator Model for Dryland Ecossystems***", apresentada pela Fundação [illegible] Esquel "endorsement"

2 Encaminho, em anexo, cópias das propostas.

Cordiais saudações,

MÁRIO VILALVA
Secretário de Assuntos Internacionais

Ao Senhor
Ministro EVERTON VARGAS
Chefe da Divisão do Meio Ambiente
Ministério das Relações Exteriores
Esplanada dos Ministérios, Anexo II, Sala 29[illegible] Andar
70170-900 Brasília-DF

c/c. Dr. Silvio Santana
Presidente em Exercício
Fundação Grupo Esquel
Fax: 322 1060

MINISTÉRIO DO MEIO AMBIENTE,
DOS RECURSOS HÍDRICOS E DA AMAZÔNIA LEGAL
· GABINETE DO MINISTRO ·

Brasília, september 21st 1998.

To
Michelle Leighton
Natural Heritage Institute
114 Sansome St., Ste 1200
San Francisco, CA 94104
USA

Dear Mrs. Leighton,

On behalf of the Minister of Environment, Water Resources and Legal Amazon, I would like to convey the support of this Ministry to the accomplishment of the Project on Indicators to be carreid out by competent institutions as the Grupo Esquel Foundation Brasil, the University of Chile and the Natural Heritage Institute.

The Ministry of Environment, Water Resources and Legal Amazon is carrying out an outstanding work to combat desertification and drought in Brazil, in co-operation with Grupo Esquel Foundation Brasil, being the object indications very relevant in this respect.

Therefore, I wish to reiterate our support to this initiative and we are looking forward to benefitting from its results as soon as possible.

Yours sincerely,

Heitor Matallo
Coordinator National Action Program