

GLOBAL  
ENVIRONMENT  
FACILITY

WORK PROGRAM  
PROPOSED FOR COUNCIL APPROVAL

GEF Council Meeting  
Washington, D.C.  
October 25 - 27, 1995

GEF/C.6/4/Rev.1  
October 18, 1995

**DRAFT COUNCIL DECISION**

The Council reviewed the proposed work program presented in Document GEF/C.6/4, and approves it. The Council requests the Implementing Agencies to develop further the approved project proposals, taking into account the comments raised by the Council and any subsequent written comments by the Members. Members are requested to submit their comments to the Secretariat by November 17, 1995.

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### PROPOSED WORK PROGRAM

#### A. Climate Change

##### *Enabling Activities*

1. Brazil: Enabling Brazil to Fulfill Commitments to the UNFCCC
2. Lao PDR: National Greenhouse Gas Inventory Project
3. Lebanon: Building Capacity for GHG Inventory and Action Plans in Response to UNFCCC Communications Obligations
4. Uzbekistan: Country Study on Climate Change
5. Zaire: Enabling Zaire to fulfill its Commitments to the UNFCCC
6. Regional: Pacific Island Climate Change Assistance Project

##### *Projects*

7. Indonesia: Renewable Energy Small Power Project
8. Indonesia: Solar Home System Project
9. Romania: Capacity Building for GHG Emission Reduction through Energy Efficiency
10. Uganda: Photovoltaic Pilot Project for Rural Electrification

**B. Biodiversity**

*Projects*

- 11. Comoros: Island Biodiversity and Participatory Conservation
- 12. Vietnam: Creating Protected Areas for Resource Conservation
- 13. Regional: Action for a Sustainable Amazonia
- 14. Regional: Biodiversity Enterprise Fund for Latin America

**C. International Waters**

- 15. Jordan: Gulf of Aqaba Environmental Action Plan

**D. Global**

- 16. Small Grants Programme



## PROPOSAL FOR REVIEW

<b>Project Title:</b>	<b>Enabling Brazil to Fulfill Commitments to the UNFCC</b>
<b>GEF Focal Area:</b>	<b>Climate Change</b>
<b>Country Eligibility:</b>	<b>Convention Ratified 28 February, 1994</b>
<b>Total Project Costs:</b>	<b>US \$ 7.0 million</b>
<b>GEF Financing:</b>	<b>US \$ 1.5 million</b>
<b>Cofinancing/Parallel Financing:</b>	<b>5.5 million (Brazilian Government and Bilateral)</b>
<b>GEF Implementing Agency:</b>	<b>UNDP</b>
<b>Executing Agency:</b>	<b>Government of Brazil</b>
<b>Local Counterpart Agencies:</b>	<b>The Ministry of Science and Technology</b>
<b>Estimated Approval Date:</b>	<b>October 1995</b>
<b>Project Duration:</b>	<b>18 months</b>
<b>GEF Preparation Costs:</b>	<b>None</b>
<b>Government Endorsement:</b>	<b>Received 7 January, 1995</b>

## BACKGROUND AND PROJECT CONTEXT

1. Brazil is located in the central eastern part of South America between 5 degrees Latitude North and 33 degrees Latitude South and between 34 and 73 degrees Longitude West. It has an area of 8,511,996 km<sup>2</sup> being the 5th largest country in the world and occupying 47.7% of the South American continent. Geographically Brazil is divided in five main regions: the North, with equatorial climate, where the Amazon forest is located; the North-East, with a semi-arid climate; the South-East, concentrating all the main states of Brazil and industrialized cities (67% of Gross National Product); South Region with a subtropical climate; and the Central-West Region with tropical climate. Administratively Brazil consists of 26 states plus a federal district, in the middle of the country where is located Brasília, Brazil's capital. The national language is Portuguese and the national currency is Real (R\$).

2. The total population of Brazil, according to the 1991 census, was 146 million inhabitants. The growth rate of the population is 1.93%, decreasing, fast approaching the European rate of 1.2%. More than 75% of the population lives in urban areas. The main cities are São Paulo (9,6 million inhabitants) and Rio de Janeiro (5,5 million inhabitants). The economy of Brazil is the 10th largest in the world with a Gross National Product in 1992 amounting US\$ 417 billion (agriculture 11.1%, industry 35.4% and services 53.5%). Export amounts US\$ 36 billion.

### *Forestry*

3. Approximately 40% (3.5 million km<sup>2</sup>) of the total land area of Brazil is covered by the Amazon Forest, of which two million km<sup>2</sup> is composed of dense forest and 1.1 million km<sup>2</sup> of open forest. In addition, Brazil has a large savanna area ("cerrado", more than 2.5 million km<sup>2</sup>), a semi-arid vegetation region ("Caatinga", more than 1.5 million km<sup>2</sup>), a remaining part of the Atlantic forests and also an important swamp region called "Pantanal."

4. Brazil has also 6.5 million ha of planted forests mainly composed of Eucalyptus and Pignus species. Two Brazilian States alone - Minas Gerais and Espiritu Santo in the South-East Region - comprise 43% of the total reforested area in the country. Half of this reforested area was planted before 1980 and yields low productivity. These areas are being reformed to increase their productivity (more than 21% of reforested area has already been reformed).

5. The carbon content of Brazilian forest is the highest among tropical countries (more than 100 PgC), followed by Zaire and Indonesia (more than 30 PgC, FAO 1992).

6. The biomass contents of the different kinds of forests were estimated in two main forestry inventories. The first inventory, called "Radam Brazil Project" was prepared by the Brazilian Government during the period from 1973 to 1983. The project set down different codes for each type of vegetation, drew vegetation maps in the scale 1:250,000; printed them on a scale 1:1,000,000 and presented all data and information collected in a set of more than 50 books.

7. The vegetation classification was done by IBDF (now IBAMA) and IBGE (the Brazilian Geography and Statistical Institute) later on and was presented on maps in the 1:5,000,000 scale. Classification done in this manner - not very detailed - indicates 28 types of vegetation only for the legal Amazonian region, of which 19 types refer to types of forests.

8. The second inventory was elaborated by the Food and Agriculture Organization (FAO) and was published during the 1950's under the title "Florestas Tropicais Latifoliadas Produtivas Não-Perturbadas das Americas".

### *Agriculture and Livestock*

9. The agriculture and livestock sector is a very important one in Brazil, not only given the necessity of feeding the Brazilian population but also because its large extension allows enhancing production for exportation. As far as climate change is concerned, Brazil is one of the largest (8th) rice producers in the world, although its contribution to greenhouse gas emissions is relatively small (rice is produced mainly in dry fields), and it has one of the largest cattle population in the world (over 156 million heads or, in relative terms, more than one head per capita). Poultry is very numerous in Brazil as well (over 600 million heads).

10. Several of the permanent cultures, like coffee (production of over 2.5 million tons, representing presently only a small part, approximately 2 %, of Brazilian exports), oranges, cocoa, cashew nuts and produced over 500,000 ha each. Seasonal cultures like sugar cane (over 270 million tons), cassava and crops (like soya, corn, wheat and rice) are also very important. Brazilian total crops production amount over 75 million tons.

11. Due to raw material availability for lime and fertilizers and low land costs, the "cerrado" is the region where agriculture activities are growing and it has become the new agriculture frontier of Brazil.

### *Energy sector*

12. The total primary energy consumption in Brazil in 1990 was 183.6 Mtoe of which petroleum accounted 30.0%, natural gas 2.0%, coal 5.0%, nuclear 0.3%, hydropower 36.9%, ethanol 9.9%, fuelwood 14.9% and others 1.0 %. The share of renewable sources of energy has traditionally been high in Brazil and thus the CO<sub>2</sub> emissions per energy consumed compared to many other countries are considerably lower. Main source of CO<sub>2</sub> emissions in the energy sector are the petroleum products used in industry and transportation. Although still a net importer, Brazil has developed rapidly its domestic oil production and reached the goal of producing more than 750,000 barrels of oil per day in 1994, a figure greater than some OPEC countries. In the transportation sector petroleum products are used together with ethanol, which was launched 20 years ago through a National Alcohol Program, PRO-ALCOHOL to reduce the dependency of Brazil on imported oil and to provide a cost-effective alternative for the, at that time expensive oil. Mainly as a consequence of the sharp decrease of oil prices in the 80's the program started to face difficulties and its continuation reassessed. Thus the future of the program is at the moment somewhat unclear.

Brazil has launched also a number of other ongoing programs in the energy sector. These are, *inter alia*, PROCEL (National Programme for Conservation of Electricity), CONPET (National Programme for the Rational Use of Natural Gas and Petroleum Products), PRODEEM (National Programme for Wind and Solar Energy), and PROCONVE (National Programme for Pollution Control of Vehicles).

14. Brazil has been publishing National Energy Balances annually since 1972. After 1981, the Ministry of Mines and Energy adopted the Energy Balance Methodology developed by OLADE, the Latin-American Energy Organization. The Energy Balance presents all the information needed for the evaluation of the inventory of greenhouse gas emissions in the energy and industry sector using the "top-down" approach. Using the "bottom-up" approach of the IPCC methodology needs, however, additional data collection and analysis.

#### *National Institutions*

15. After the United Nations Conference on Environment and Development, called "Earth Summit" held in Rio de Janeiro, Brazil in 1992, the government of Brazil established an Inter Ministerial Committee for the Sustainable Development - CIDES by a President's Decree (Decree 1,160 in June 21, 1994) aiming at adopting all the necessary policies and measures to endorse Agenda XXI, considering also that the complexity of the measures for sustainable development need to bring together a great number of institutions in different areas.

16. CIDES is led by the Ministry of Planning and is constituted by all other Ministers. It consists of three Coordination bodies:

- \* Coordination of Foreign Affairs, under the responsibility of Ministry of Foreign Affairs;
- \* Coordination on Climate Change, under the responsibility of Ministry of Science and Technology, and
- \* Coordination of Biological Diversity, under the responsibility of the Ministry of Environment, Water Resources and Legal Amazonia.

17. Regarding land-use and forestry, there are a number of institutions which have different responsibilities in this area. The Ministry of Agriculture is responsible for agricultural land use (incl. animal husbandry) and it also operates the state owned company EMBRAPA - National Company for Agricultural and Livestock Research. With respect to forestry there are several institutions in different Ministries. In the Ministry of Environment, Water Resources and Legal Amazonia, the IBAMA - Brazilian Institute for the Environment and Renewable Resources has the responsibility for forestry. In the Ministry of Science and Technology, the INPE - National Institute for Space Research and a "non-profit" institute FUNCATÉ have responsibilities for the development of technology and for the operational application of remote-sensing technology for forest monitoring using satellite images. The INPA - National Institute for Amazon Research conducts research in the Amazonian region, including also forestry.

18. The energy sector in Brazil is under the responsibility of Ministry of Mines and Energy - MME. MME has three National Departments, two dealing with regulatory issues related with water and electric energy (DNAEE) and fuel (DNC), and one in charge of energy planning (DNDE). The two main state-owned companies in the energy sector are Petróleo Brasileiro S.A. - PETROBRÁS which has the constitutional monopoly in the oil and natural gas sector and has a distribution company responsible for 37% of the market, and ELETROBRÁS - Centrais Elétricas Brasileiras which is a holding company responsible for the coordination and operation of the electricity sector in Brazil and owns four subsidiary companies FURNAS (Southeast region and Central-western region), CHESF (Northeast region), ELETROSUL (South region) and ELETRONORTE (North and Central-western region)

19. Waste management is the responsibility of the states and counties and there are companies in almost all the main states. The two biggest are in the states of São Paulo (CETESB) and in Rio de Janeiro (FEEMA).

#### *Project Background*

20. As the host of the Earth Summit, held in Rio de Janeiro 1992, Brazil was the first country to sign the United Nations Framework Convention on Climate Change, and ratified on 28 August, 1994. As a Party to the Convention, Brazil has accepted the commitment to produce a national communication to the Conference of Parties by March of 1997. A fundamental component of this communication is a National Inventory of Greenhouse Gases following the guidelines developed by the Intergovernmental Panel on Climate Change (IPCC).

21. Due to the amount and complexity of the work to be undertaken, especially with respect to land use change but also in other areas, the Brazilian Government has requested external funding to undertake the necessary steps to finalize the inventory and the National Communication to the COP. Brazil is participating in the second round of the U.S. Country Study Initiative and under this framework an agreement providing US \$ 400,000 to prepare a "first step" inventory (or US \$ 270,000 allocated directly for the inventory) has been signed. The implementation of the project is expected to start at the end of 1995 depending on the availability of the funds from the U.S. side. Nevertheless, it is understood, and also clearly stated in the U.S. Country Study Project configuration that the funds provided will not allow the enhancement of the available data and information, and are thus not sufficient to carry out all the analysis necessary to produce high quality and credible estimates in the different areas, because of the vast area of the country and considering the importance of this area from global point of view. It is estimated that the full effort required to prepare a fully developed National Communication will require on the order of US \$ 7,000,000. This has prompted the Government of Brazil to request GEF funding to prepare the first national communication of Brazil to the COP and to complement the work undertaken under the U.S. Country Study Initiative to prepare the inventory needed for the communication. In response to this request a mission to Brazil was undertaken in August 1995 in order to clarify linkages to the Brazilian Case Study under the U.S. Initiative for Country Studies and prepare a project brief for submission to the GEF Council Meeting.

## PROJECT OBJECTIVES

22. The immediate objective of the project is to prepare the first National Communication of Brazil to the Conference of the Parties in accordance with Article 12 of the UN Framework Convention on Climate Change, and to build capacity to fulfil its commitments to the Convention on a continuous basis. The communication will consist of an inventory of greenhouse gases in 1990 made in accordance with the IPCC guidelines, general description of steps taken or envisaged by the Party to implement the Convention and other relevant information on the policy measures, technologies and research related to climate change.

23. The greenhouse gases that will be addressed in the study will include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>) and in addition, assistance is requested for the development and application of inventory methodology related to fully fluorinated compounds (FFCs).

24. Beside making the inventory for the base year 1990, the project will complement the existing mechanisms by establishing permanent mechanisms for regular and periodic updating of the data required for the national inventories (as well as in the later stage in order to identify potential mitigation options) in the areas in which there are still data gaps. Especially one should mention the end use fuel consumption and technology data in the energy sector, including transport sector (needed in the bottom-up approach of the IPCC methodology) and much of the basic data needed in the agricultural and waste sector for the inventory. The project will also "test" and contribute on the further development of the IPCC guidelines, methodologies (especially in the forestry sector), and default factors for emission coefficients by evaluating and applying them in wide range of areas, different type of forests and vegetation, agricultural practices and waste management.

25. Last but not least, the project can be seen as an essential exercise to enhance general awareness and knowledge of climate change related issues in Brazil, strengthen the institutions and build capacity in order to take views and ideas related to climate change into account in the different sectors of economy. A part of this task is to develop an institutional mechanism/framework to strengthen the dialogue, information exchange and cooperation among all the relevant stakeholders. This will include governmental, non-governmental, academic, private and "grassroots" sectors.

## PROJECT DESCRIPTION

26. During the project preparation, the following components and activities have been identified to respond to the objectives of the project and implement the project successfully:

- i. Identify a local Project Coordinator/Manager and establish a National Steering Committee with participants from all the project relevant sectors to prepare a detailed work plan for the project and involve the institutions that will be responsible for implementing the different subcomponents of the project (And those that will continue to do so after the project, as needed). During the project implementation the Project Steering Committee will:

- \* provide guidance in the monitoring of project's implementation;
  - \* work as one additional information link between the project and the "outside world";
  - \* establish permanent links to coordinate climate change related issues and initiatives in the country; and
  - \* ensure and support a smooth transition from this enabling activity to the potential follow-up projects.
- ii. Strengthen the links to both national and international sources of information (such as the U.S. Country Study Programme and other bilateral programmes, UNEP, IPCC, CC:TRAIN, international research institutes dealing with climate change, ongoing national projects and programmes in recipient countries etc.) in order to undertake the specific tasks of the project; learn from experiences and ideas of similar kind of projects elsewhere; and avoid duplication of effort. One goal of this activity is to find potential international partners to cooperate either on this project or on the identified follow-up projects. Specific attention will also be paid to dissemination of and public access to the available information (as well as to the results of this project) in order to enable a wide participation and involvement of all the interested individuals and organizations both during and after the project. The possibility of using electronic networks (Internet + World Wide Web, tele- and videoconferencing ) is evaluated and to the extent possible encouraged to save on both domestic and international travel costs (which are considerably high in Brazil due to the geographical scattering of the different institutions), as well as to enhance internationally the geographical coverage of available information. Indeed, most of the institutions to be involved in the project are already connected to the Internet and many of them have, e.g. , own "home pages" in the World Wide Web.
- iii. Undertake the inventory in the land use and forestry sector
- Activity 3.1 Digitize the available vegetation maps of areas outside the Amazon forest, prepared in the 1970's (comprising tree volume information, which can be interpreted in terms of carbon density). In the Brazilian Amazon , retrieve such data from existing data set in the scale 1:1,000,000 or alternatively, if an independently funded FUNCATE/SAE project proceeds at a sufficiently fast rate, retrieve more accurate data on a scale of 1:250,000.
- Activity 3.2 Retrieve data on the geographical distribution of gross deforestation in the Amazon, for the period 1974-1994 - of which 9 years data sets are available from existing data sets (up to 1991) and other 2 years data sets will be produced by the on-going, independently funded, INPE/MCT project (data for 1992-1994) - and combine it with the best available information on forest classes to produce a time-evolution table of gross deforestation stratified by carbon density.

- Activity 3.3 Obtain and analyze LANDSAT satellite imagery in the scale 1:250,000 in two different years (mid 1980' and mid 1990's) for a representative random sample of the portion of Brazil covered by vegetation in the broad classes of Atlantic forest, "cerrado" and "caatinga", in order to produce maps of vegetation change. Combine such maps with the available information on vegetation classes to produce tables of changes of land-use stratified by carbon density class.
- Activity 3.4 Apply existing methodology developed in independently funded research projects to analyze existing LANDSAT satellite images in terms of forest regeneration and interpret the results for carbon uptake.
- Activity 3.5 Evaluate the available material and undertake selected field studies in order to fill major data gaps in the carbon density or regrowth rate of some specific type of the vegetation or forests or provide other information needed for the inventory.
- Activity 3.6 Aggregate the results to obtain a complete inventory (with respect to available financial resources) of CO<sub>2</sub> emissions from land use changes in all the geographical areas and forest types of Brazil.
- Activity 3.7 Estimate the methane emissions from the hydro reservoirs build for hydropower production.
- Activity 3.8 Publish a full detailed description of the methodology for the estimation of net emissions from land-use changes

iv. Undertake the inventory in the energy sector

- Activity 4.1 Using the "bottom-up" approach of the IPCC guidelines, evaluate the existing data gaps and establish a permanent data collection and management system to provide fuel consumption and technology data of stationary sources by different economical sectors for the inventories and undertake the inventory of GHG emissions from stationary sources.
- Activity 4.2 Evaluate the applicability of the existing emission calculation models for road transportation sector like US/MOBILE and EU/COPERT with respect to the availability of data and other specific characteristics of Brazil.
- Activity 4.3 Select an appropriate model to calculate the emissions from road transportation, establish a permanent data collection and management system to fulfil the eventually existing data gaps, and undertake the inventory of GHG emissions from transportation.
- Activity 4.4 Establish a permanent data collection and management system to gain fuel consumption and technology data from the transportation sector other than road



transportation, and undertake the inventory of GHG emissions from transportation other than road transportation.

- Activity 4.5 Collect and improve the quality of data of biomass fuels, especially charcoal, bagasse and fuelwood in the energy balance, and evaluate the applicability of IPCC default emission factors in that context, in order to undertake the inventory and reduce the uncertainties of GHG emissions from this source.
- Activity 4.6 Estimate the fugitive emissions from coal mining and handling as well as from oil and natural gas activities.
- v. Estimate the GHG emissions from industrial processes (including CO<sub>2</sub> from cement production, CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub> from aluminium production, SE<sub>6</sub> from electronic industry and electric sector, and N<sub>2</sub>O from adipic acid and nitric acid production).
- vi.. Estimate the emissions from solvents and other product use.
- vii. Undertake the inventory in the agricultural sector.
- Activity 7.1 Evaluate the existing information and applicability of the IPCC default factors related to domestic livestock, and undertake studies to fill the major data or information gaps. Undertake the inventory of GHG emissions from the domestic livestock.
- Activity 7.2 Estimate the CH<sub>4</sub> emissions from rice cultivation.
- Activity 7.3 Evaluate the applicability of IPCC methodology and the default emission factors with respect to savanna burning, collect data using satellite images and other available information, undertake studies to fill the existing data or information gaps, and undertake the inventory of the emissions from savanna burning.
- Activity 7.4 Evaluate the applicability of IPCC methodology and the default emission factors with respect to burning of agricultural residues, collect data and other available information, undertake studies to fill the existing data or information gaps, and undertake the inventory of the GHG emissions of burning agricultural residues.
- viii. Undertake the inventory in the waste sector
- Activity 8.1 Collect data on the amount and type of waste as well as disposal methods in the 11 main States covering 80 % of the population of Brazil.

**Activity 8.2** Evaluate the applicability of the IPCC default emissions factors with respect to the specific characteristics of Brazil and undertake studies to fill the existing data or information gaps.

**Activity 8.3** Undertake the inventory of GHG emissions from waste disposal.

- ix. Using the results of this project as well as other ongoing projects prepare the first National Communication of Brazil to the COP.
- x. Prepare the final report of the project presenting in detail the different methodologies and practices used to prepare the inventory, emissions factors used in the different areas and discussion about the applicability of the IPCC methodologies and default emission factors in the Brazilian context.
- xi. Organize a workshop (with wide local participation and relevant international partners) to present the results of the project, together with the results or status of other ongoing projects relevant to the issue and to discuss about the results considering the potential follow-up measures.

## **RATIONALE FOR GEF SUPPORT**

27. The project is consistent with the enabling activity and capacity building objectives listed in INC Document (A/AC.237/90/Add.3), prepared jointly by the interim secretariat of the UNFCCC and the GEF Secretariat in order to facilitate coordinated and timely assistance to countries for the implementation of the Convention. This project responds to such objectives by implementing an activity needed to enable Brazil to fulfil its commitments to implement the Convention. This activity is unlikely to be carried out without GEF funding.

28. Due to the size of the country and insufficient or inaccurate data and information in many areas, the costs to produce even a comparatively reliable inventory in Brazil are relatively high.

29. With respect to the inventory under the U.S. Country Study Initiative, it will clearly be a very initial one using easily accessible data from the various sources and using mainly the IPCC default factors to calculate the emissions. The GEF funds requested will complement the funds provided under the U.S. Country Study Initiative by involving a wider range of relevant institutions to start the work with climate change related issues and undertake more "in-depth" studies in each sector in order to fill the existing data and information gaps, evaluate the reliability of the data and the IPCC default emission factors and thus produce a fully credible and consistent inventory following the IPCC guidelines. By involving a larger number of institutions the project will also enhance the general knowledge and awareness in Brazil, of the information mechanisms, specific technologies and practices related to the sources and sinks of greenhouse gases as well as their relative importance from the global point of view, and thus establish a basis for future work with the potential measures to mitigate these gases. The approach of combining these two sources of

funding (or three with the Government contribution) has been used also in order to prepare the project budget. At first the total amount of funds needed to complement each task to produce a "full-scale" inventory has been estimated, and of this amount the expected U.S. Country Study Contribution for each task has been subtracted, the remaining part being the requested GEF funding.

30. Making a thorough inventory in a country like Brazil will contribute directly to the development and evaluation of the IPCC methodology and default factors, which in many areas are still fairly inaccurate, especially with respect to land use change and emissions of other GHGs than CO<sub>2</sub>. As a developing country covering a very variable geographical area, a broad field of economic activities as well as possessing remarkable technical capacity and a number of institutions to undertake, if needed, very demanding research, Brazil is in an excellent position to contribute through this project to the overall effort of the IPCC to produce more reliable estimates of the sources and sinks of greenhouse gases, and the climate change phenomena itself. For instance, considering that Brazil has about one-third of the world's tropical forests and that the net emissions from tropical deforestation are one major source of uncertainty of the global carbon cycle (of the order of plus or minus 1 billion tons of carbon a year) the development of the IPCC methodology in this area will have a remarkable effect on the credibility of the estimates of greenhouse gas emissions on a global scale.

31. Considering the regional cooperation one should mention especially the collaboration with the MERCOSUR countries (incl. Argentina, Brazil, Paraguay and Uruguay) by establishing consultations to exchange information and evaluate technical data that will be contained in the draft national communications. Thus, the results of this projects will be directly distributed and utilized also in other MERCOSUR countries with ongoing enabling activities or others about to commence.

32. Finally, the Government of Brazil has endorsed that GEF funds, under the framework of enabling activities, will only be requested for the preparation of the national inventory and its communication to the COP. Other elements normally included as a part of enabling activities, such as vulnerability assessment and mitigation analysis, will be paid out of Brazil's own resources.

## **SUSTAINABILITY AND PARTICIPATION**

33. The Government of Brazil fully supports the objectives of this project and gives a very high priority to it due to the reasons already mentioned in the chapters "Background and Project Context" and "Rationale for GEF Support ". The Government has also stated that the project outputs will be used for the National Communication in compliance with the UN Framework Convention on Climate Change. In financial terms, the Government is contributing "in kind" covering the office costs and project support staff. Government is also contributing to the most expensive part of the inventory in the land use sector by providing the LANDSAT satellite images for the inventory (annual costs US \$ 1 million) as well as launching a project to estimate the geographical distribution of gross deforestation rate on the basis of the LANDSAT images

(estimated cost US \$ 1 - 1.5 million). In the waste sector Government is covering the major part of the cost (including personnel) of the data collection of amount and type of wastes (total estimated costs close to US \$ 900,000). The combined GEF and U.S. Country Study Contribution will be mainly used to cover some workshops, domestic travel as well as some specific material and equipment in order to estimate the emissions.

34. After the project has ended and the first communication for the Conference of the Parties has been finalized, the Government will take responsibility of regularly updating the inventory and preparing further communications to the COP, in accordance with the agreements reached by CC-FORUM, the COP and the Inter-Agency Task Force on Climate Change.

### **LESSONS LEARNED AND RESPONSE TO THE TECHNICAL REVIEW.**

35. In the course of technical reviews of enabling projects, the importance of cooperation and networking of a broad range of experts has been noted and duly reflected in the present proposal. The project recognizes the importance of exchange of information and experience at the national level, as well as regionally and internationally.

36. In the technical review a number of issues are raised which have been taken into account in the revised project brief.

37. As the Reviewer rightly notes, the proposal is unusual in many respects from most proposals for enabling activities related to global warming. This leads to the basic question: If GEF will provide funding only for a very basic inventory for countries like Brazil using already existing data, IPCC default factors and "top-down" methodologies, the funds provided under the U.S. Country Study Program are clearly enough and additional GEF funding is not needed. However if it is seen as important that GEF should provide funding for more comprehensive inventories for the countries which are large contributors of GHG emissions, willing to undertake a more thorough inventory comparable to most developed countries, and which have also the technical capacity to undertake the tasks needed, clearly additional funding is needed to the funds provided under the U.S. Country Study Program. Beside reducing directly the uncertainties of the global estimates of sources and sinks of the greenhouse gases as a result of the inventory itself, more comprehensive projects in some selected countries like Brazil with very diverse geographical and economical coverage will contribute also to the overall development of the IPCC methodology and emissions factors and their applicability in developing countries, and thus in the long term enhance the credibility of the inventories also in other developing countries. In that context specific attention will be paid to the publication and distribution of the results of the project regionally as well as internationally. Therefore the timing of the project is equal important since most of the developing countries are either in the process of preparing their national inventory or just going to start it.

38. Regarding the Reviewer's comments on possible weaknesses of project coordination, the costs of the Project Manager will be paid by the Brazilian Government as in-kind contribution to the

project. This will be the case also considering the costs of convening the Steering committee, including travel expenses where appropriate.

39. The time scale of the project is largely determined by the preparation of the National Communication of Brazil which is due in May, 1997. Thus the time scale of the project was maintained at 18 months. It is expected that the tasks to be undertaken will be finalized within this timeframe, since a lot of preparatory work has already been done in Brazil to start the effective implementation of the project as soon as possible.

40. Considering the institutionalization of the activities covered during the proposed project, one of the main objectives and outputs of the activities is to establish permanent mechanisms to manage the data and update it on a regular basis as needed for the inventories. Through the Project Steering Committee, as well as bringing all the stakeholders together which are relevant from the climate change point of view, the project will help to establish permanent links to continue the work with the climate change related issues including the identification and implementation of measures to mitigate greenhouse gases.

41. Finally, considering the comments of not including vulnerability assessments or mitigation analysis in the project, the Government of Brazil prefers at this stage to request funds only for the preparation of the National Communication in accordance with the Article 12.1 of the UNFCCC, without these additional elements. If the final decisions on the content of the Communication of the non-annex 1 countries will include these additional elements, the Government of Brazil has endorsed that they will be paid out of Brazil's own resources.

## PROJECT FINANCING, BUDGET AND INCREMENTAL COSTS

42. As an enabling activity, this project would not take place outside of the context of Art. 12 of the UNFCCC. Therefore, the full costs of the project equal the incremental costs of the project. With the exception of the "in-kind" contribution of the Government of Brazil, GEF is being requested to fund the full amount of the project. The detailed project budget reflecting the different sub-tasks is presented below:

### Component 1 (Project Coordination Unit):

Personnel (Project Assistant + Secretary)	US \$ 70,000
Operational Costs (incl. publishing of the reports)	US \$ 20,000
<b>GEF Total</b>	<b>US \$ 90,000</b>

### Component 2 (Strengthen the Information Links)

- costs for this activity will be covered in the sub-budgets of the component 1 and components 3-11

### Component 3 (Inventory in Land Use and Forestry sector)

FUNCATE (Digitization and superimposition of the vegetation maps + inventory)

Amazonas	US \$ 200,000
Atlantic Forests	US \$ 115,000
Savannah	US \$ 180,000
North East Forests	US \$ 150,000
FBDS (managed forests)	US \$ 40,000
INPE (regrowth rate of the forests)	US \$ 50,000
INPA, Universities (selected field studies)	US \$ 100,000
ELECTROBRAS (methane from hydroreservoirs)	US \$ 50,000
Expected US Country Study (USCS) "contribution"	- US \$ 100,000
<b>GEF Total</b>	<b>US \$ 785,000</b>

### Component 4 (Inventory in Energy Sector)

COPPE ("bottom-up" analysis of the energy end use +) technical expertise considering the other activities)	US \$ 100,000
ELECTROBRAS (thermal power plants)	US \$ 20,000
PETROBRAS (oil refining, oil and natural gas production, transportation and distribution)	US \$ 40,000
COMGAS, CEG (methane emissions from natural gas distr.)	US \$ 20,000
SNIEC (methane emissions from coal mining)	US \$ 10,000
COPERSUCAR, ABRACAVE, IBAMA (biomass burning)	US \$ 50,000
PETROBRAS, CETESB (transport sector)	US \$ 50,000
Expected USCS "contribution"	-US \$ 100,000

**GEF Total****US \$ 190,000**

**Component 5 (Emissions from Industrial Processes) +  
 Component 6 (Emissions from solvents and other product use)  
 SNIC, ABAL, ELECTROBRAS, ABIQUIM, RHODIA, PETROBRAS**

**US \$ 50,000****GEF Total****US \$ 50,000****Component 7 (Inventory on Agricultural Sector)****EMBRAPA, COPERUCAR****US \$ 220,000****Expected USCS "contribution"****-US \$ 50,000****GEF Total****US \$ 170,000****Component 8 (Inventory on Waste Sector)****CETESB****US \$ 130,000****Expected USCS "contribution"****-US \$ 20,000****GEF Total****US \$ 110,000****Component 9 + 10 (National Communication + Other Reports)**

- costs for these activities will be covered in the sub-budjects of the component 1 and components 3 - 11

**Component 11 (Workshop)****GEF Total****US \$ 60,000****GEF Subtotal****US \$ 1,455,000****Project Support Services (3%)****US \$ 45,000****(including Executing Agency Support Costs)****GEF TOTAL****US \$ 1,500,000**

## ISSUES, ACTIONS AND RISKS

43. The ultimate criteria of success will be how the project will contribute over the long term to capacity building related to environmental and climate change related issues in Brazil, contribute to the global effort to produce more reliable estimates of sources and sinks of greenhouse gases, and finally how the project will contribute to address mitigating greenhouse gases. The project addresses this by involving a number of institutions to produce reliable data for the inventories, "testing" and evaluating of the IPCC methodology and default factors in a developing country like Brazil; as well as establishing a basis for future work by establishing an institutional framework for cooperation and involvement of all the relevant partners in order to identify and raise awareness of the sources and sinks of greenhouse gases, their relative importance from the global point of view, and to identify potential mitigation measures in a "win-win" or "no-regret" basis.

44. Considering the immediate results of the project, the crucial element determining its success will be, as well, close collaboration between the different "implementing" institutions as well as international collaboration when preparing a work plan for and implementing the research oriented activities. During this process, common methodologies which respond to the specific characteristics of Brazil will be used. Among others, IPCC and UNEP will be consulted to ensure that the methods and details of the subjects are appropriate also from the global point of view. The project will also use the results of ongoing or finalized projects to avoid duplication of effort and ensure an effective implementation of the project.

## INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

45. The project will be executed by the Government of Brazil. The Project Steering Committee will be charged with overseeing, coordinating and advising project execution and will have decision making power over all aspects of the project and consist of, in addition to the national coordinator, the individuals and organizations taking lead responsibility for key areas of work. The project will also collaborate closely with all the other relevant ongoing projects in Brazil, both through the Project Steering Committee and between the research teams in order to enable an effective information exchange between the projects and full utilization of their results.

46. The project will be managed by a national coordinator, representing the Ministry of Science and Technology (MCT). As mentioned already before, MCT has responsibility for coordinating the issues related to the Climate Change Convention under the Inter Ministerial Committee for the Sustainable Development - CIDES. This committee will provide a mechanism for coordination with other work on Climate Change in Brazil and will formulate strategies and national policies, taking into account sustainable development in accordance with "Agenda 21".



47. Under the different sub-tasks, working links with international partners will be established in order to ensure effective exchange of information and appropriate implementation of the project.

48. With these arrangements the project seeks to establish close links with other climate change related activities being carried out by other GEF implementing agencies or by other multilateral and bilateral organizations. It will do so practically as figured above and also by participating in the informal consultative mechanism, CC:FORUM, being set up by the UNFCCC secretariat, to ensure that results and outputs of this project will be shared among all actors involved in climate change activities in order to enable such actors to mutually benefit from one another's activities for the present and for the future.

49. A number of institutions will participate in technical aspects of the study, under the guidance of the coordinating committee. These will include:

#### **I. Energy Sector and Industry**

- **National Department of Fuels - DNC/Ministry of Mines and Energy National Fuel Regulatory Entity**
  - responsible for the regulations and price control of some fuels, like oil products, natural gas and alcohol as fuel for vehicles.
- **PETROBRÁS - Oil State Company.**
  - responsible for generation of information in the oil and natural gas sector.
- **National Department of Water and Electric Energy - DNAEE/Ministry of Mines and Energy**
  - National Electric Sector Regulatory Entity responsible for the regulations and price control in the electric sector.
- **ELETROBRÁS**
  - main source of information in the electric sector.
- **CEMIG - Energy Company Minas Gerais**
  - Minas Gerais State Energy Company has a large experience in energy planning in Brazil.
- **COPPE/UFRJ - Energy Department/Federal University of Rio de Janeiro**
  - COPPE has several studies done in the area of greenhouse gas emissions in Brazil, in collaboration with foreign institutions like LBL - Lawrence Berkeley Laboratories (Berkeley, U.S.), CIRED (France) and RISO (Denmark).
- **USP - Energy Institute/University of São Paulo**
  - University of São Paulo has several studies done in this area.
- **SNIEC - Coal Producers Association**
  - the association is responsible for the generation of data in the coal sector.
- **ABRACAVE - Charcoal Producers National Association**
  - association of charcoal producers is responsible for the generation of information for this industry branch.
- **SNIC - Cement Producers National Association**

- association of cement producers is responsible for the generation of information for this industry branch.
- **ABAL - Aluminum Producers National Association**
  - association of aluminum producers is responsible for the generation of data of aluminum production. It will be important in the discussion of fully fluorinated compounds gas emissions.

## II. Forestry Sector

- **FUNCATE, the Foundation for Space Science, Applications and Technology (a non profit organization)**
  - FUNCATE is specialized in satellite imagery of the Amazonian forest, which is complementing the satellite surveys to produce a fully geo-referenced database (under the contract with the Ministry of Science and Technology/National Institute for Space Research - INPE/MCT). FUNCATE has been working with INPE in the development of a digital database on the scale 1:250,000, with an effective resolution of 100 meter, for the evolution of forest cover of Legal Amazonia (400,000,000 out of 500,000,000 ha) with highest vegetation density, for the period 1974/94, based on the interpretation of LANDSAT satellite imagery. The theme mapped from LANDSAT images is the gross deforestation, i.e., the conversion from forest to other low-density vegetation cover. This effort will produce estimates of the evolution of the extent and rate of gross deforestation stratified by vegetation classes for the 20 year period. FUNCATE has also developed a joint project together with the Secretariat for Strategic Affairs - SAE and the FBDS - Brazilian Foundation for Sustainable Development, which is responsible for the ecological and economic zoning of the Brazilian territory and Amazonia in particular, which will result in the superposition upon the satellite land-use change database, of the available vegetation maps of the region which contain information that can be interpreted in terms of carbon density. This effort involves the use of the RADAM database and other regional studies.
- **INPE - National Institute for Space Research, Ministry of Science and Technology.**
  - INPE has been developing technology for the survey of the gross deforestation in Legal Amazonia with the use of satellite images which is applied for comprehensive surveys by FUNCATE, as well as conducting field surveys of the carbon density in the forest in cooperation with INPA. This work is at present being conducted by the FUNCATE, which has been involved in all of the previous INPE surveys. INPE is also developing methodology based on automatic digital classification of satellite data with the aim of developing techniques to map forest re-growth thus allowing for the estimation of net deforestation.
- **IBAMA - Brazilian Institute for the Environment and Renewable Resources, Ministry of Environment**
  - IBAMA is working on the identification of vegetation classes of the Amazonian forest to be incorporated into the RADAM classification. The relationships between forest

classes and carbon density will be established by the use of statistical relationships between tree volume and carbon content obtained in field experiments. IBAMA intends to organize new field campaigns for this purpose, with a view to producing better samples with emphasis on the areas where the deforestation rate is higher, as opposed to the presently available samples which tend to concentrate in forest areas where there is an interest for other reason, and which do not coincide with the areas where deforestation actually occurs. Similar work will be conducted to estimate the carbon density of the re-growth vegetation, including the tree -ring works of IBAMA.

- INPA - National Institute for Amazon Research, Ministry of Science and Technology
- FBDS - Brazilian Foundation for Sustainable Development
- EMBRAPA - Brazilian Agricultural Research Corporation (a state company responsible for agricultural and livestock research in Brazil);
- USP - University of São Paulo is studying methane emissions from the hydroelectric power plants reservoirs

### III. Agricultural and Livestock Sector

- EMBRAPA - Brazilian Agricultural Research Corporation
- Ministry of Agriculture
  - The evaluation of emissions from the agricultural and livestock sector will be conducted by EMBRAPA, the State-owned Brazilian Corporation for Agricultural and Livestock Research, of the Ministry of Agriculture, with the use of statistical data collected by IBGE, the Brazilian Institute of Geography and Statistics. Together, these two institutions will have the necessary knowledge of the processes and of the intensity of agricultural activities in the country, which are needed for the inventory. The structure of EMBRAPA, with almost 40 country-wide specialized centers, devoted to specific products, is such that a series of visits and workshops will be necessary to ensure the engagement of appropriate technical staff. EMBRAPA will also maintain all the technical data related with methane emissions from livestock, flooded rice paddies, nitrous oxide emissions from fertilizers use and also emissions from burning of agricultural crops residues.

### IV. Waste Management

- São Paulo State Secretary of Environment
- CETESB
  - the São Paulo State Company responsible for waste management in the most important State of Brazil

## **Monitoring and Evaluation**

50. After the detailed work plan has been prepared, an external review of it will be undertaken. The purpose of the review is to identify in the very early stage of the project the eventual gaps, overlaps and other risks of successful implementation as well as to identify potential partners and sources of information which could benefit the project.

51. The Project Steering Committee will be responsible for monitoring the project on a continuous basis. In order to do this, the Project Manager with the help of the leaders of the research teams will prepare regular reports on the progress of the project as whole and the different sub-tasks under it. In addition to this, an external midterm evaluation will be conducted about 12 months after the start of the project. The purpose of the evaluation is to review the overall success of the project and suggest modifications to the implementation of the project for the remaining part. It is vital that the recommendations from the evaluation are disseminated immediately, so that appropriate action can be undertaken without delay. A joint meeting of the evaluators together with the Project Steering Committee has been designed for this purpose.

52. For the remaining part the project will rely on the common UNDP monitoring and evaluation practices.

CAPACITY TABLE FOR CLIMATE CHANGE ENABLING ACTIVITIES IN BRAZIL

Enabling Activity	Planning	Instit Strength	Training	Research	Education
<b>Background Information for National Communication</b>					
<b>Emission inventory</b>					
- CO2 from energy sources	X(US)	X(US)	X(US)	X(US)	X(US)
- CO2 from land use changes	X(US)	X(US)	X(US)	X(US)	X(US)
- CH4	X(US)	X(US)	X(US)	X(US)	X(US)
- N2O	X(US)	X(US)	X(US)	X(US)	X(US)
- other sources and gases	X(US)	X(US)	X(US)	X(US)	X(US)
<b>Mitigation Options</b>					
<b>Energy related</b>					
- industry	0(UNR)	0(UNR)	0(UNR)	0(UNR)	0(UNR)
- transport	0(UNR)	0(UNR)	0(UNR)	0(UNR)	0(UNR)
- residential	0(UNR)	0(UNR)	0(UNR)	0(UNR)	0(UNR)
- energy supply	0(UNR)	0(UNR)	0(UNR)	0(UNR)	0(UNR)
- other	0(UNR)	0(UNR)	0(UNR)	0(UNR)	0(UNR)
<b>Non-Energy Sources</b>					
- agriculture	0	0	0	0	0
- forestry	0	0	0	0	0
- waste management	0	0	0	0	0
- other	0	0	0	0	0
- sink enhancement	0	0	0	0	0
<b>Vulnerability Assessment</b>					
- agricultural sector	0	0	0	0	0
- forestry	0	0	0	0	0
- coastal zone	0	0	0	0	0
- water resources	0	0	0	0	0
- health impacts	0	0	0	0	0
- natural ecosystems	0	0	0	0	0
- other impacts	0	0	0	0	0
<b>adaptation options (stage 1)</b>	0	0	0	0	0
<b>National Plans</b>					
- national plan (mitigation)	0	0	0	0	0
- national plan (adaptation)	0	0	0	0	0
- other elements?	0	0	0	0	0

Formulation of National Communication					
- inventory	X	X	X	X	X
- mitigation options	X	X	X	X	X
- vulnerability and adapt.	X	X	X	X	X
- information on research and observation	X	X	X	X	X
- information on education	X	X	X	X	X
- other relevant information	X	X	X	X	X

## Key to Table

- X** = Areas to be covered by the proposed project  
**'SSS'** = Areas already covered by other projects or programs, Following acronyms are used:  
 ADB = Asian Development Bank  
 ALG = ALGAS Project  
 CCT = CC:TRAIN  
 GEF = Other Regional or Country Specific GEF "Enabling" Project  
 GTZ = German Agency for Technical Cooperation  
 OEC = OECD/IPCC Programme  
 UNE = UNEP-GEF Country Case Studies  
 UNR = UNEP-RISO Greenhouse Gas Abatement Costing Studies  
 US = U.S. Country Studies Program  
**'X(SSS)'** = Some preliminary activities have already been undertaken, but completing activities presented in the proposed project are needed to finalize the task  
**0** = Remaining ability gaps for which additional funding from GEF or other sources might still be requested  
**'0(SSS)'** = Some preliminary activities have already been undertaken, but completing activities not undertaken by the proposed project might be needed to finalize the task  
**NA** = Non-applicable or nonsensical entry (e.g coastal vulnerability assessment for land-locked country)

To: Mr. Vesa /or/ Richard Hoesier

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### Brazil Climate Change Enabling Activity

OVERALL. This project brief is unusual in many respects from most proposals for enabling activities related to global warming. It demonstrates a strong awareness of issues involved in climate change analysis. There is a great deal of detail both on the background as well as the steps to be taken, and by which specific institution. The project is limited to preparing the inventory of GHG sources and sinks. There are no activities on vulnerability or impact assessment, nor on the development of mitigation and adaptation strategies. The project brief recognizes (and rightly) that available data are inadequate to preparing an accurate inventory, and includes studies to be undertaken in order to fill data gaps. Some of the areas of data collection and analysis are relatively unusual in an enabling activity. Among these are the measurement/estimation of the balance of many non-carbon dioxide GHGs, e.g. methane emissions from land flooded by hydroelectric projects. The project brief shows awareness that these aspects are likely to be pioneering. The project therefore includes not only input from the experience from other countries, but also output that would permit the Brazilian experience to be accessible to other countries with similar data shortcomings. The project deserves support. The only possible doubts relate to project coordination and the assurance of sustainability. A more detailed review follows.

Brazil is the fifth largest country in surface area and also fifth in population. Its territory includes the Amazon rainforest, by far the largest tropical rainforest in the world. The future evolution of this and other ecosystems is crucial not only for its impact on global warming but also on biodiversity.

While in most countries, fossil fuel combustion is responsible for most GHG emissions, Brazil's case is quite different, since renewable sources make up for a large share of energy supply, producing little or no net CO2 emissions. On the other hand, land use changes potentially account for a large share of emissions and/or reduction in sinks. Land use changes and their impact on emissions/sinks are much more difficult to quantify than the almost trivial calculations of CO2 emissions from fossil fuel combustion.

The importance and difficulty of this task is recognized by the Brazilian government in the project brief, reflected both in the procedure described for undertaking the corresponding tasks, and the relative budget requests. The analysis starts from satellite data collected for a different purpose. The digitization and superimposition of vegetation maps in order to develop inventories makes up for \$645,000 of the project budget. While this seems high, one must keep in mind that the areas involved are immense, and the survey work at the scale resolution to be accurate, is arduous.

Elsewhere, where the emissions are less important, the budget request for quantification is also much smaller, e.g. \$10,000 and \$20,000 for methane emissions from coal mining and natural gas movement, respectively. Indeed, the budget request for "bottom-up" analysis of energy end use (\$100,000) is slim, and is only feasible because Brazil has strong technical manpower.

Unlike some project briefs for enabling activities that I have reviewed, there is no specific budget request for components 9 and 10. This shows

To Mr. Vesa or Richard Huser p2/2

that the budget has not been padded.

An important part of the project brief is the list of institutions who would be involved in conducting specific portions of the overall tasks. Many of the institutions named are known to me, and have an excellent track record. Others are industry associations, whose involvement is important not only during the time frame of the project but also later.

Given the scale of the project, and the number of institutions involved, one possible weakness could be in project coordination. The first component includes the designation of a Project Manager and the setting up of a National Steering Committee. The budget item corresponding to this shows (as personnel) one project assistant + secretary. The Project Manager is not mentioned. P. 15 states "the project will be managed by a national coordinator, representing the Ministry of Sc. and Tech. (MCT)". I feel that the process should be clarified, e.g.:

- (1) A Project Manager to be designated by MCT;
- (2) The Steering Committee to be made up of representatives of ... ministries, ... trade organizations, ... universities, etc.
- (3) Several meetings of the Steering Committee during the course of the project;
- (4) A budget for convening the Steering Committee, including travel expenses where appropriate.

The scale of the project coordination unit and the operational costs are too low, given the project scale. Also (p. 14 bottom) there is mention of setting up "an institutional framework for cooperation...". These are additional, and essential, activities that will take up time. Besides the Proj. Manager, there will need to be one or more technical staff, and two or more secretarial and support staff. This should be recognized, even if the Brazilian government intends to pay for it.

The time scale of the project (18 months) is too short for the activities. I believe a two-year time frame would be more suitable, without increasing the budget proportionally.

The only significant weakness, in my opinion, is an adequate description on how the activities covered during the proposed project will become institutionalized and permanent. This is all the more important since the project scale is large and involves so many institutions. I believe this should go beyond what is specified under item 11 (p. 10) "Organize a workshop". Which institutions shall be responsible for project sustainability? Besides modifying item 11, a paragraph should be added at the end of the Institutional Framework section explaining this aspect.

Summarizing, I find the project brief to be excellent, and suggest a few modifications based on observations noted above. The budget, though large compared to those of other countries, is adequate (or a little short) considering the size of the country, and the importance and difficulty of the tasks proposed.



## **PROPOSAL FOR REVIEW**

<b>Project Title:</b>	<b>Lao: PDR National Greenhouse Gas Inventory Project</b>
<b>GEF Focal Area:</b>	Climate Change
<b>Country Eligibility:</b>	Convention Ratified January 4, 1995
<b>Total Project Costs:</b>	US \$ 413,000
<b>GEF Financing:</b>	US \$ 313,000
<b>Country Contribution:</b>	US \$ 100,000
<b>GEF Implementing Agency:</b>	UNDP
<b>Executing Agency:</b>	United Nations Office of Project Services
<b>Estimated Approval Date:</b>	January 1996
<b>Project Duration:</b>	2 years
<b>GEF Preparation Costs:</b>	US \$ 10,000
<b>Government Endorsement:</b>	Received 19 July, 1995

## 1. COUNTRY AND SECTOR BACKGROUND

With an estimated annual per capita income of US 290, Lao PDR ranks among the poorest and the least developed countries of the world. Its economy is virtually undiversified and depends largely on the natural resource base. Although the economy is expected to diversify and grow in the coming years as a result of *New Economic Mechanism* reforms initiated in 1985 to reorient the country toward a market oriented economy, judicious use of the country's natural resources and policies to encourage such use of the natural resources will remain key to future development of Lao PDR. The need for a national policy framework for sustainable use of natural resources has been enshrined in the constitution of Lao PDR: "All organizations and citizens must protect the environment and natural resources...".

The process of incorporating environmental concerns in social and economic development planning and implementation, however, is in the formative stages in Lao PDR. Some notable efforts in this direction include the adoption of Guidelines on Reducing Shifting Cultivation, the Tropical Forestry Action Plan and the formulation of the draft National Conservation Strategy. Another major step in this direction was the preparation of the *National Environmental Action Plan* (NEAP) with the assistance of the World Bank in November 1993. The NEAP presented an assessment of the major environmental issues and problems. The NEAP also analyzed the underlying reasons for the major concerns (especially rapid resource degradation) and recommended specific strategies to address the problems (eg - legislation to place large areas land under legal protection, developing comprehensive forestry law etc ...). A number of these measures have since been initiated.

A key environmental concern highlighted in the NEAP was the rapid resource degradation, particularly forest resources, in the country. Lao PDR is highly dependent on forest resources for its foreign exchange (about 55% in 1991), income (about 15% of its GDP in 1991) and energy needs (80% of the domestic energy consumption is wood fuel based) for a large share of its people. Despite the degradation of forest resources, about 47% (11.2 million ha) of the land remains under forest cover of crown density of more than 20%. About 70% of the country was covered by forests in 1940. The National Reconnaissance Survey indicated deforestation estimates of 470,000 ha between 1982 and 1989. In addition, it is estimated that over 300,000 ha of forest land is affected annually due to slash-and-burn agricultural practices with over half of this area being in the northern part of the country.

As a result of pressure on the forest resources, much of the attention of environmental policy in Lao PDR has focussed on evolving more effective ways of managing the forests. The issuance of the *Prime Minister's Decree No. 164* in October 1993, putting 2.825 million ha (about 12% of the total area of the country) under legal protection is an indication of the Government's commitment. The Government of Lao PDR has also recognized the importance of a comprehensive forestry law to make the regulation of forestry contracts enforceable. This is reflected in the *Prime Minister's Decree No. 169* of November 3, 1993 (The Forest Decree) on the management and use of forests and forest lands. The Government is committed to presenting a comprehensive land and forestry legislation to the National Assembly by September 30, 1997.

Incorporating environmental concerns in social and development planning is in a nascent stage in Lao PDR. Government agencies are devoting resources in trying to develop procedures to examine

the environmental effects of development activities. The *National Environmental Action Plan* has highlighted the need for greater efforts in this direction. Science Technology and Environment Organization (STENO) of the Prime Minister's office, Ministry of Industry and Handicrafts and the Ministry of Agriculture and Forestry are some of the Government agencies involved in the ongoing efforts to develop sectoral guidelines for environmental impact assessments.

#### ***Institutional Arrangements for the Environment Sector***

Different aspects of environmental policy and management are the responsibilities of different agencies in the Lao PDR government. The coordinating role in environment related matters, including climate change, has been vested in the Science Technology and Environment Organization (STENO). Line ministries such as the Ministry of Agriculture and Forestry (primarily the Department of Forestry within the ministry) and Ministry of Public Health also have responsibilities in the environmental sector. The specific roles of the different agencies is briefly described below.

**Science Technology and Environment Organization (STENO):** With over 40 senior technical officers, STENO has been designated as the coordinating agency in the environment sector. STENO, directly responsible to the Prime Minister's Office, has the following operational units: the Departments of Cabinet, Environment, Intellectual Property, Metrology and Standardization, and Institute of Technology and Science Services Center. The responsibilities of some of the Departments within STENO of particular relevance to this proposal are summarized below.

The Department of Environment consists of two divisions: Policy and Programs Appraisal Division and the Regulations and Compliance Monitoring Division. The Policy and Programs Appraisal Division is responsible for preparing the national environmental policy framework using technical assistance and other inputs from line agencies. The current focus of the Policy and Programs Appraisal Division is:

- developing and operationalizing environmental assessment procedures to aid the decision making by the Committee for Planning and Cooperation (CPC);
- work together with the CPC during project appraisal;
- monitor compliance with the procedures identified during the appraisal process; and
- carry out regular policy impact reviews and evaluations.

The Regulation and Compliance Monitoring Division is responsible for collating and reviewing the legal and regulatory framework covering environmental planning and management. The Division is also responsible for reviewing the relevant environmental planning and management regulations for different sectors for consistency and compliance during the implementation stage. The Division works closely with the relevant line ministries. For instance, it works with the Department of Forestry and the Ministry of Justice for regulations relating to natural resources; with the Ministry of Industry and Handicrafts for mining related environmental regulations; etc.

For scientific and technical support, STENO can rely on the Institute for Science and Technology located within STENO. In addition, STENO works closely with the relevant line ministries and at a formal level this coordination is aided by the Inter Ministerial Working Group (IMWG) on the Environment. The IMWG has members from the relevant line ministries and agencies and the IMWG is designed to provide an effective coordination and cooperation between different ministries

and government departments. The IMWG is designed to provide an institutional arrangement for possible resolution of conflict arising out of resource use and environmental concerns.

The Institute of Science and Technology of STENO provides scientific and technical support to STENO.

**Department of Forestry (DOF) of the Ministry of Agriculture and Forestry:** The jurisdiction of the DOF extends to a whole range of issues in the forestry sector with direct relevance to the environment. The DOF is responsible for regulation of all forest management and use, including both, legal and illegal logging. DOF is also responsible for management of protected areas, watershed management and protection, limiting shifting cultivation. The Department of Forestry is also responsible for all support services to the forestry sector. These include planning and inventory of forest resources through forest reconnaissance, soil and land use mapping, nation-wide water quality testing and collection of rainfall and hydrology data nation-wide. Much of the data collected is of great relevance to the development of the national GHG inventory.

**Ministry of Public Health (MPH):** The jurisdiction of the MPH of relevance to the environment sector extends to ensuring improved living standards in both rural and urban areas. The MPH is responsible for water, air, and soil quality.

While no national non-governmental organization (NGO) currently exist in Lao PDR, some international NGOs are active in the country. In the environmental sector, the World Conservation Union (IUCN) is the most active of the international NGO in the Lao PDR. The IUCN is involved in the forestry sector activities and will be called upon to assist STENO in climate change activities. In addition, the academic community and the relevant academic institutions of the Lao PDR will be involved in the project (through the Support Network) to the greatest extent possible. Wide involvement of the NGO and the academic community will be ensured in the finalization of the project document.

#### *Climate Change and Lao PDR*

With the ratification of the United Nations Framework Convention on Climate Change (UNFCCC) on January 4, 1995, Lao PDR is committed to the obligations of the UNFCCC. Articles 4 and 12 of the UNFCCC obligate countries to prepare and report on:

- national inventory of anthropogenic emissions by sources and sinks of greenhouse gases (GHG), and
- steps taken or envisaged to implement the Convention.

The UNFCCC recommends and provides for (Article 4, Paragraph 3) the development of indigenous capacity within the countries to prepare the inventory of emissions, sinks and measures possible/ taken implement the UNFCCC.

While the commitment and the sensitivity of the Government of Lao PDR with global environmental concerns in general, and climate change in particular, is reflected in the ratification of the UNFCCC, limited capacity of the Government agencies has hindered the development of either a national climate change strategy or any project in this area. there is a relative lack of awareness of

issues related to climate change and Lao PDR's commitments under UNFCCC. This is possibly the reason for the absence of any official strategy document or approach paper on how the UNFCCC obligations would be fulfilled by the Government. Issues directly related to climate change do not appear in the *National Environmental Action Plan*. In addition, there is no Government, multi- or bi-lateral sponsored activity directly in the climate change area in Lao PDR.

It is expected that this project would increase awareness in Lao PDR of issues related to climate change and of the obligations under the UNFCCC. The project also aims to enhance the capacity of the relevant Government agencies, particularly the Science Technology and Environmental Organization (STENO), to analyze issues related to the global environment, formulate a climate change strategy for Lao PDR, and further develop STENO's capabilities as a national environmental planning and management agency.

#### ***Prior and ongoing assistance***

There are no multi- or bi-lateral sponsored activities, specifically related to the area of climate change in the Lao PDR. Forestry and related upland farming, and agro-forestry systems have been major focus of donor assistance and are likely to benefit climate change related activities in the Lao PDR, in addition to fulfilling their primary objectives in the forestry sector. Capacity building in selected Government agencies for environment policy and management has also received the attention of some donors and these are summarized below insofar as they are likely to be interest to the activities proposed in this project.

Swedish International Development Authority (SIDA) has been, and continues to be, a key donor to the forestry sector of Lao PDR. Together with Asian Development Bank, Food and Agriculture Organization (FAO), International Development Association (IDA) and the United Nations Development Programme (UNDP), SIDA assisted the Government in preparing the Tropical Forestry Action Plan in 1991. SIDA is currently providing substantial financial (US\$ 18.5 million in the period 1992-95 under the *Lao-Swedish Forestry Programme*) and technical assistance to the Department of Forestry of the Ministry of Agriculture and Forestry for forest inventory and management planning, silviculture research and development, and training. SIDA is also supporting the IUCN (World Conservation Union) implemented project on conservation management and environmental protection. At the field level, SIDA plans to continue assistance for the implementation of management of protected areas and test community forest management models.

The World Bank financed *Forest Management and Conservation Project*, which is co-financed by FINNIDA (Finnish International Development Agency) and the Global Environment Facility in the biodiversity focal area (GEF project entitled *Wildlife and Protected Area Management*) hopes to further the SIDA efforts. The objectives of this five year, US\$ 20.3 million project include

- implementation of an appropriate institutional framework and formulation of the necessary regulatory framework for the forestry sector;
- implementation of national programme on (i) forest resource inventory and planning; (ii) sustainable forest management and protection; and (iii) establishment and management of protected areas;
- human resource development; and
- technical assistance.

The project would zone an estimated total forest area of 500,000 ha which are to be delineated into village, protection, conservation and production forests and placed under sustainable forest management and protection.

There are some efforts to enhance the capabilities for environmental planning in other sectors besides forestry. The focus of these activities has been on enabling STENO to fulfil its mandate of becoming the national environmental planning and management agency and implementing national strategies such as the *National Environmental Action Plan* (NEAP). The lack of manpower skills within STENO is a major constraint in designing and implementing plans to achieve its mandate such as that of implementing NEAP. The lack of adequate human capacity means that environmental planning and regulation activities are not carried out effectively and are residual rather than a central activity within STENO. The project funded by the World Bank not only hopes to further develop and define STENO's mandate and capabilities as a national environmental planning and management agency, it also hopes to develop the guidelines for different sectoral environmental impact assessment system. It is expected that the proposed project and the training activities that it envisages would complement the ongoing efforts of enhancing skills within STENO to develop it as the national environmental planning and policy agency.

## 2. PROJECT OBJECTIVES

The short-term objectives of the project are to fulfill Laos PDR's obligations under Articles 4 and 12 (Communication of Information Related to Implementation), paragraph 1 of the UNFCCC. In accordance with Article 4, paragraph 1, each Party shall communicate to the Conference of the Parties, through the Secretariat, the following elements of information:

- (a) A national inventory of anthropogenic emissions by sources and removal by sinks of all greenhouse gases not controlled by the Montreal Protocol, to the extent capacities permit, using comparable methodologies to be promoted and agreed upon by the Conference of the Parties;
- (b) A general description of steps taken or envisaged by the Party to implement the Convention.

The project will provide special emphasis under objective (a) to determining emissions and sinks from land-use change in the Lao PDR. In addition, the project will initiate the preparatory work under the UNFCCC and will lay the foundation for future activities under the Convention.

The objectives will be met through:

- Improving the institutional and technical capacity of Lao PDR to comply with the requirements of the UNFCCC by fulfilling the reporting requirements under Article 12 of the UNFCCC by March 1997;
- Facilitating the development of Lao national approaches to the UNFCCC and include these in the official first Lao PDR communication to the UNFCCC; and
- Strengthening the capacity of Lao PDR to develop and implement climate change projects that also advance long term development objectives and to generate donor and private sector funding support.

### Long-term Project Objectives

On a long-term basis, the activities proposed by this project will further the fulfillment of another commitment under Article 4 (Commitments), Para 1:

"All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall:

- (f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view of minimizing adverse effect on the economy, on public health and on the quality of the environment, of projects and measures undertaken by them to mitigate or adapt to climate change;

### **3. PROJECT DESCRIPTION**

#### **Location**

The proposed project will be located within the Science Technology and Environmental Organization (STENO) in the Prime Minister's Office of the Government of Lao PDR.

STENO has been designated as the coordinating agency for all matters relating to the environment. Hence, the location of the project at STENO is expected to facilitate the cooperation of the different line ministries and agencies in the effort of the project to enhance and/or create the relevant capacity to meet Lao PDR's commitments under the UNFCCC.

#### **Specific Outputs and Activities**

The objectives of the project are to create/enhance local capability to

- develop baseline inventory of anthropogenic emissions of GHG by different sectors and to regularly update this inventory,
- identify national sinks for GHG's, and
- develop national strategies, policies, plans and programs for reducing the GHG emissions.

Following consultations with the Government of the Lao PDR it was decided not to include a component in the project on adaptation/vulnerability assessment as part of this project as this was not considered appropriate at this point in time. However, the Government of the Lao PDR reserves the right to request GEF funding in the future for climate change activities related to adaptation and vulnerability assessment in order to complete its national communications to the Conference of Parties. The immediate operational objectives of the proposed project, the outputs and the activities associated with each individual output is summarized below.

**Objective 1:** Create and/or enhance the national capacity to prepare inventories of GHG emissions and sinks to meet the national commitments under Article 12 of the UNFCCC.

**Output 1.1:** Establishing a Technical Working Group within Science Technology and Environmental Organization (STENO) and enhancing capacity of the Technical Working Group for generating national GHG inventories and mitigation strategies for implementing the UNFCCC. The Technical Working Group will

Activity 1.1.1: Identify the human and technical requirement for Lao PDR to fulfil the UNFCCC commitments.

Activity 1.1.2: Constitute the following:

- (a) Technical Working Group within STENO linked with the Inter Ministerial Working Group, drawing appropriate expertise from relevant line ministries and government agencies as necessary.
- (b) local Support Network (both inside and outside STENO, including relevant Government line agencies, research and academic institutions and the non-government sector) to provide guidance to the Technical Working Group in STENO; and
- (c) National Climate Change Committee of local, regional and, if required, international experts.

Activity 1.1.3: Enhancing the capacity of the Technical Working Group and Support Network through training and participation in national and regional workshops. This activity would involve identifying and creating strong links to both national and international sources of information (such as the USCS, UNEP, IPCC, CC:Train, ALGAS, other bi-lateral programmes as well as ongoing national projects and programmes in order to undertake specific tasks of the project. Learn from experiences of similar kinds of projects elsewhere would be evaluated and taken into account as appropriate. One of the main goals of the project will be to find potential international partners to cooperate with. To the extent possible electronic networks (Internet and WorldWide Web) are used to save travel costs and enhance the geographical coverage of available information.

In particular, capacity will be enhanced through participation and close collaboration with other ongoing activities in the region such as:

- (a) UNDP/GEF *ALGAS* (Asia Least-cost Greenhouse gas Abatement Strategies) project for inclusion of the members of the Lao PDR Technical Working Group to participate in *ALGAS* workshops.
- (b) *CC:TRAIN* programme of the United Nations Institute for Training and Research (UNITAR) and the Climate Change Secretariat to arrange for the *CC:TRAIN* materials (*CC:TRAIN Workshop Package*, *CC:TRAIN Guide on Preparing National Implementation Strategies* and the *CC:TRAIN Operations Manual*); and
- (c) *US Country Studies Programme* to examine the possibility of members of the Technical Working Group to participate in the training workshops of the *US Country Studies Programme*.

This activity would involve (i) reviewing CC:Train and other relevant materials including translating them into Lao, (ii) reviewing national GHG inventory work undertaken by the ALGAS project and applying it to the Lao PDR (iii) adapting this material to the particular circumstances of Lao PDR and (iii) preparing manuals.

Output 1.2: Establish a system for preparing inventories on an ongoing basis to fulfil Lao PDR's reporting requirements under the UNFCCC. The creation of such a system will result in the setting up of a data collection and management system for preparing inventories on an ongoing



basis. As a part of this exercise, a draft manual for accounting for GHG emissions and sinks (also translated to Lao) will be prepared.

Activity 1.2.1: Identify the data requirements and assess at availability of the data (to identify data gaps) in the country for preparing inventories based on the *Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories*.

Activity 1.2.2: Organize workshops (with the participation of GEF/UNDP, Ministry of Agriculture and Forests, Ministry of Industries and Handicrafts and other relevant local agencies in addition to the Technical Working Group, National Climate Change Committee and the Support Network) to develop a plan to fill the data gaps and to prepare a national GHG inventories.

Activity 1.2.3: With the local data, develop current and projected baseline GHG inventories (of both, emissions and sinks) following the *IPCC Guidelines* to the extent feasible. Undertake research work, literature review and surveys, as appropriate, to reduce data gaps. In the process, establish data collection and management system to acquire data to prepare inventories on a regular basis. Compile inventories on the basis of the plan outlined in Activity 1.2.2. A major emphasis of activity will be on collecting data on emissions due to land use change and on removal by sinks of green house gases.

Activity 1.2.4: Finalize the draft manual for preparing greenhouse inventories.

Activity 1.2.5: Finalise, publish and circulate the GHG inventories. Request comments and suggestions on the published inventories. Attempt to coordinate sharing of the results with *ALGAS Project*, *US Country Studies Programme*, and *CC:TRAIN*.

**Objective 2:** Prepare the first national GHG mitigation strategy and thus initiate the process of developing national capacity to identify, analyze, and formulate viable GHG abatement measures. Build and/or enhance capacity within the Government, academic and research institutions and other relevant institutions on the non-government sector to participate in the process and to undertake studies relating to GHG mitigation.

**Output 2.1:** Development of a (a) list of promising GHG abatement measures in the context of the Lao PDR's national objectives and priorities; (b) Methodology for assessment of GHG abatement measures.

Activity 2.1.1: Based on the inventory identify the major GHG emission sectors and develop an initial list of potential measures as well as methodology for assessment of GHG abatement measures. The development of methodology and subsequent efforts should draw upon the ongoing work in the region by *ALGAS*, *US Country Studies Programme*, *CC:TRAIN*, etc.

Activity 2.1.2: Examine the GHG abatement measures by sources and sectors of emissions, to the extent possible, to prepare promising measures in the local context. This should be based on the potential for GHG abatement based on the baseline inventories developed, costs and other factors that the Technical Working Group, the National Climate Change Committee, the Support Network, and/or external expert(s) may consider relevant. Analyze the impact of the measures on the projected baseline inventories.

Activity 2.1.3: Discuss the outputs of Activity 2.1.2 in a workshop with national and international experts. Attempt to coordinate sharing of the results and receiving comments from *ALGAS Project*, *US Country Studies Programme*, and any other similar project/ forum.

Activity 2.1.4: Prepare the first national greenhouse gas mitigation strategy for the inclusion in the first communication of the Lao PDR to the UNFCCC. In addition, based on the work done in developing mitigation strategies, develop a briefing package for potential funders of climate change projects.

**Objective 3:** Prepare National Implementation Plan for the Lao PDR and the first national communication of the Lao PDR to the Climate Change Secretariat for fulfilling the communication requirement under Article 12 of the UNFCCC.

**Output 3.1** National Implementation Plan using Outputs of the Project

Activity 3.1.1 National Workshop (with local participation and relevant international partners) to present the results of the project, together with the results or status of other ongoing national projects relevant to the issue, with the objective of formulating a National Implementation Plan for the Lao PDR to implement the UNFCCC.

**Output 3.2** First National Communications for the Lao PDR

Activity 3.1.2: Put together and submit the first national communications to the Conference of Parties through the Climate Change Secretariat.

**4. Rationale for GEF financing**

Incorporating environmental concerns into development planning is in the nascent stages in the Lao PDR. While many of the environmental concerns (such as slash and burn agriculture which effects over 300,000 ha annually) in Lao PDR can be related to climate change, there is a need to sensitize the decision makers to incorporate such concerns in the planning process. Due to inadequate information of the risks of climate change and its causes this project would not take place without GEF support. A valuable opportunity to influence the integration of climate change considerations into national development goals would have been lost.

In addition, there are currently no other climate change "enabling" activities ongoing or planned for the Lao PDR at this point in time. This provides a strong rationale for GEF funding for this project to enable the Government of the Lao PDR to complete its first national communications to the COP. In accordance with Article 4, paragraph 1, each Party to the Convention is obliged to communicate to the COP a national inventory of anthropogenic emissions by sources and removal of sinks of all greenhouse gases and a description of steps taken or envisaged to implement the convention. The proposed project facilitates the implementation of the objectives of the UNFCCC and will lay the foundation for the future implementation of measures for GHG abatement in the Lao PDR.

As an enabling activity, GEF will meet the agreed full costs of the project.

Finally, the project is consistent with enabling activity and capacity building objectives listed in INC document (A/AC.237/90/Add3) prepared jointly by the interim Secretariat of the UNFCCC and the GEF Secretariat in order to facilitate coordinated and timely assistance to countries for

implementation of the project. It is also fully consistent with the Interim Guidance for programming of GEF resources for 1995 which emphasizes "enabling activities" as a priority in the short-term for GEF.

#### 5. Sustainability and Participation

The project's emphasis on training, capacity building and institutional development coupled with the establishment of a functioning and active national network (National Climate Committee) is the primary mechanism that will promote the sustainability of the project objectives beyond the period of GEF support. In addition, the project's emphasis on long-term mitigation strategies that are compatible with long-term food security and poverty alleviation will help stimulate national long-term support for the services and activities of the project.

#### 6. LESSONS LEARNED AND TECHNICAL REVIEW

There have been no climate change related activities in Lao PDR, to date. However, previous technical reviews of enabling projects for the UNFCCC have noted the importance of cooperation and networking of a broad range of experts. This has been specifically provided for in this project. Technical reviews of this proposal by STAP roster experts have noted the importance of providing for a clear and logical sequencing of activities and the need to carefully review the inventory work being undertaken by other related projects in the region before commencing with this project. These concerns have been incorporated into the revised project brief. The proposal was not modified, as suggested by the reviewer, to include as a project activity the identification of a future GHG reduction project as this activity would in future be undertaken under the PDF.

#### 7. PROJECT FINANCING AND BUDGET

Estimates of the estimated project expenses for the major expenditure categories by each objective is summarized below. The estimates for the costs of achieving each objective are as follows:

<b>COST BY EACH OBJECTIVE:</b>	<b>Total Cost:</b>
<u>Objective 1: Capacity Building for GHG Inventories</u>	135,000
<u>Objective 2: GHG Mitigation Strategy</u>	85,000
<u>Objective 3: National Implementation Plan and First National Communications</u>	55,000
Project Document Preparation	10,000
Evaluation and Monitoring (2%)	5,700
Project Support Services and Executing Agency Support Costs (8%)	23,300
<b>UNDP/GEF CONTRIBUTION:</b>	<b>313,000</b>
Lao PDR Contribution:	100,000
<b>TOTAL PROJECT COSTS:</b>	<b>413,000</b>

## **8. INCREMENTAL COSTS**

As an "enabling activity" under Article 12 of the UNFCCC, the agreed full costs of this project would be paid in full by the GEF. As the activities described in this proposal have not been undertaken by the Lao to address their development goals but are required on account of the United Nations Framework Convention on Climate Change (UNFCCC) the *baseline* does not involve any action or expenditure. Consequently, the incremental costs of the project are equal to the full costs.

## **9. ISSUES, ACTIONS AND RISKS**

The project's emphasis on training, capacity building, and institutional development will ensure the sustainability of the project objectives beyond the period of GEF project. By locating the project within the Science Technology and Environment Organization (STENO), the likelihood of sustainability of the efforts beyond the project duration has been maximized. By relying on STENO and its affiliate organizations, effort has been made in the project design to significantly enhance capacity for climate change related issues.

## **10. INSTITUTIONAL ARRANGEMENTS FOR PROJECT DEVELOPMENT AND IMPLEMENTATION**

The project will be located at Science Technology and Environment Organization (STENO). The overall coordination of the execution of the project will be managed by the United Nations Development Programme (UNDP) field office in Vientiane through a Project Coordinator. In addition, the proposal visualizes a Project Director at STENO to be responsible for ensuring effective functioning of the Technical Working Group. The project, therefore, visualizes that the:

- Science Technology and Environment Organization (STENO) will be the lead agency for the project implementation since it is responsible for the implementation of the UNFCCC;
- National Climate Committee (NCC), which will be constituted by STENO in consultation with other line ministries and agencies, will provide advice to STENO and will be the body charged with the technical oversight of project execution;
- Technical Working Group (TWG) within STENO which will be responsible for fulfilling the countries commitments under Article 12 of the UNFCCC. While the Technical Working Group would be responsible for the execution of the project, the National Climate Committee would be the body charged with the technical oversight and guidance to the Technical Working Group; and
- Support Network comprising of individuals, NGO's, research institutions, and national and international experts for technical support, as required, to the working group.
- Inter-Ministerial Working Group (IMWG) on the Environment will have an oversight role for the project.

The project will establish links with other projects being carried out by other GEF implementing agencies or by other multilateral and bilateral organizations as elaborated upon earlier in the documentation.

## **11. MONITORING AND EVALUATION**

The project will adhere to all UNDP guidelines and the emerging GEF guidelines for monitoring and evaluation of projects, including a formal tripartite (representatives of the Government, executing agency and the UNDP/GEF) review (TPR) at least once every 12 months. A progress

report will be prepared every three months for evaluation by the National Climate Change Committee. The report would also be forwarded to the Support Network for review. A project terminal report will be reviewed at the final tripartite review meeting and shall be prepared in draft form at least 4 months prior to the final tripartite meeting.

A post project evaluation will be undertaken by UNDP in collaboration with the relevant parties not later than one year after the termination of the project in order to evaluate its success and the extent to which the outputs of the project are being used as intended.

## **12. SCHEDULES/ DURATIONS**

The key activities and their expected duration is summarized below in Annex 1. For more details on the activities, refer to Section 3 (*Project Description*). Annex 2 provides a capacity table matrix for the Lao PDR for climate change enabling activities.

## **13. LIST OF ANNEXES**

**ANNEX 1 - SCHEDULE OF ACTIVITIES**

**ANNEX 2 - CAPACITY BUILDING TABLE FOR CLIMATE CHANGE ENABLING ACTIVITIES FOR THE LAO PDR**

**ANNEX 3 - STAP TECHNICAL REVIEW**

## **ANNEX 1 - Schedule of Activities**

[illegible]

**ANNEX 2**  
CAPACITY TABLE FOR CLIMATE CHANGE ENABLING ACTIVITIES IN LAO PDR

Enabling Activity	Planning	Instit Strength	Training	Research	Education
<b>Background Information for National Communication</b>					
<b>Emission inventory</b>					
- CO2 from energy sources	X	X	X	X	X
- CO2 from land use changes	X	X	X	X	X
- CH4	X	X	X	X	X
- N2O	X	X	X	X	X
- other sources and gases	X	X	X	X	X
<b>Mitigation Options</b>					
<b>Energy related</b>					
- industry	X	X	X	X	X
- transport	X	X	X	X	X
- residential	X	X	X	X	X
- energy supply	X	X	X	X	X
- other	X	X	X	X	X
<b>Non-Energy Sources</b>					
- agriculture	X	X	X	X	X
- forestry	X	X	X	X	X
- waste management	X	X	X	X	X
- other	X	X	X	X	X
- sink enhancement	X	X	X	X	X
<b>Vulnerability Assessment</b>					
- agricultural sector	0	0	0	0	0
- forestry	0	0	0	0	0
- coastal zone	0	0	0	0	0
- water resources	0	0	0	0	0
- health impacts	0	0	0	0	0
- natural ecosystems	0	0	0	0	0
- other impacts	0	0	0	0	0
<b>adaptation options (stage 1)</b>	0	0	0	0	0
<b>National Plans</b>					
- national plan (mitigation)	X	X	X	X	X
- national plan (adaptation)	0	0	0	0	0
- other elements?	X	X	X	X	X

Formulation of National Communication					
- inventory	X	X	X	X	X
- mitigation options	X	X	X	X	X
- vulnerability and adapt.					
- information on research and observation	X	X	X	X	X
- information on education	X	X	X	X	X
- other relevant information	X	X	X	X	X

## Key to Table

X	= Areas to be covered by the proposed project
'\$\$\$'	= Areas already covered by other projects or programs; Following acronyms are used: ADB = Asian Development Bank ALG = ALGAS Project CCT = CC:TRAIN GEF = Other Regional or Country Specific GEF "Enabling" Project GTZ = German Agency for Technical Cooperation OEC = OECD/IPCC Programme UNE = UNEP-GEF Country Case Studies UNR = UNEP-RISO Greenhouse Gas Abatement Costing Studies US = U.S. Country Studies Program
'X(\$\$\$)'	= Some preliminary activities have already been undertaken, but completing activities presented in the proposed project are needed to finalize the task
0	= Remaining ability gaps
'0(\$\$\$)'	= Some preliminary activities have already been undertaken, but completing activities not undertaken by the proposed project might be needed to finalize the task
NA	= Non-applicable or nonsensical entry (e.g coastal vulnerability assessment for land-locked country)



ANNEX 3

LAO PDR: NATIONAL GREENHOUSE INVENTORY PROJECT

1. OVERALL IMPRESSIONS

The project addresses the two key obligations of the Framework Convention on Climate Change, i.e., the development of an inventory of greenhouse gases (GHGs) and the description of steps taken or envisaged by Lao PDR to implement the convention, which every signatory is required to satisfy. The project will enhance the capacity of Lao PDR to prepare an inventory, develop an inventory of GHG emissions, and describe the steps to implement the convention's requirements.

The overall project proposal is sound and the proposers are cognizant of the various ongoing bilateral and multilateral activities. The proposal mentions the identification of a project idea as one output/activity. I would suggest broadening this to include the identification of many projects, which might become suitable candidates for a GHG reduction project.

2. APPROPRIATENESS OF THE PROJECT APPROACH

The general approach is appropriate and the project will lead to the preparation of an emissions inventory. The project should explicitly consider the determination of new GHG coefficients in order to modify the default ones provided by the IPCC. This has been a source of intense discussion between IPCC methods developers and practitioners in developing countries.

3. OBJECTIVES OF THE PROJECT

The objectives stated in the proposal are appropriate for a project focused on the development of an inventory.

4. ACTIVITIES

The activities stated in the proposal are appropriate for a project focused on the development of an inventory.

5. COUNTRIES

The proposal is for Lao PDR, so no other countries are involved.

6. OMISSIONS IN BACKGROUND DISCUSSIONS

The background sector should refer to the many inventories that have been completed under the bilateral and multilateral programs. The inventory work being conducted as part of CC:Train, ALGAS, US Country Studies and others should be carefully reviewed prior to the start of the project so that inventors can learn from the experience from these studies.

## PROPOSAL FOR REVIEW

<b>Project Title:</b>	<b>Lebanon - Building Capacity for GHG Inventory and Action Plans in Response to UNFCCC Communications Obligations</b>
<b>GEF Focal Area:</b>	Climate Change
<b>Country Eligibility:</b>	Convention Ratified 15 December, 1994
<b>Total Project Costs:</b>	US \$ 329,600
<b>GEF Financing:</b>	US \$ 292,600
<b>Counterpart Financing:</b>	US \$ 35,000
<b>GEF Implementing Agency:</b>	UNDP
<b>Executing Agency:</b>	Ministry of Environment
<b>Estimated Approval Date:</b>	October 1995
<b>Project Duration:</b>	24 months
<b>GEF Preparation Costs:</b>	None

## BACKGROUND AND PROJECT CONTEXT

1. Lebanon, a prosperous middle-income country in the mid-70s, has been devastated by over 17 years of turmoil as a result of a violent civil strife and military occupation. Beside trying to cope with the social consequences of the civil strife, Lebanon is facing an extraordinary task of planning, financing and executing a comprehensive reconstruction of country's physical infrastructure. Damages have been both a direct result of the war as well as the accumulated effects of a near total disruption in capital investments and maintenance.
2. The impact of the civil war on social conditions has been grave. In addition to the tragic loss of life and disabling of hundreds of thousands of people, about 200,000 professional and skilled Lebanese have sought employment in other countries. While this has resulted in major shortages of skilled workers in various sectors of the economy, unemployment nevertheless is estimated at 35 per cent of the resident labour force, and is believed to be particularly high among urban youth. Nearly one quarter of the total population of 3.6 million has been displaced and now lives in unhealthy shanty towns, and in semi-destroyed and vacated buildings, with severe overcrowding and inadequate housing quality. These problems are especially pressing in Beirut. Public and social services are either non-existent or of poor quality, with only about one third of power capacity operating, water treatment and sewerage virtually nonexistent, and most schools and hospitals damaged.
3. Against this background, the Government of Lebanon has prepared a three year National Emergency Reconstruction Program (NERP) which has recently been extended to ten-year Horizon 2000 program. A large part of the investment program is projectized, but many of the projects need to be further developed in terms of consistency with sectoral policies, engineering soundness, and economic feasibility. The first five years of the Horizon 2000, which includes the NERP, amounts approximately US \$ 5 billion (in constant 1992 prices).
4. One difficulty facing economic analysts and planners is that they are faced with a virtual absence of data for most spheres of economic activity. The Government has no functioning department that gathers economic statistics in an organised and comprehensive manner. A Department of Statistics used to exist in the 1960s and early 1970s as part of the Ministry of Planning, but the Ministry was abolished in the early 1970s and the Department of Statistics was officially put under the direct jurisdiction of the Council of Ministers. There are, however, plans to revive it and place it under the authority of the Council for Development and Reconstruction.

### *Energy sector*

5. Apart from relatively small utilization of hydropower and fuelwood, Lebanon's energy supply is almost totally dependent on imported oil. Almost a half of the oil is used in transport sector as gasoline and diesel oil and the rest is used for electricity production or directly in the industrial and residential sector. Total consumption of primary energy was 3.5 Mtoe in 1993. The installed electric capacity in 1993 was 1512 MW and production 4,720 GWh of which 85 % was produced in thermal power plants (using fuel oil) and 15 % in hydropower plants.
6. According to studies made by ALME (Association Libanaise pour la Maitrise d'Energie), energy use intensity in Lebanon is very high and it has been estimated that with the recovering economy, CO<sub>2</sub> production is going to double every 10 years without additional measures to reduce the growth of it. As a first step to address this issue, ALME has prepared a series of studies of efficient use of energy

and utilization of renewable sources of energy, especially in the residential sector. Assistance for these studies is provided by ADEME (Agence de l'Environnement et de la Maitrise de l'Energie) from France.

7. Another institution dealing with environmental impacts of energy production is NCSR (National Council for Scientific Research) which has at the moment an air pollution monitoring project under implementation. Solar and wind options have been studied and a solar map of Lebanon is under preparation. In addition, the American University of Beirut, the Ecole Supérieure des Ingenieurs a Beyrouth (ESIB) and the Lebanese University are all involved in studies and research on energy efficiency and management as well as in renewable energy sources.

### *Environment*

8. Lebanon has a typical semi-arid Mediterranean climate, with hot, dry summers and cool wet, winters. One quarter of the country comprise mountainous terrain, swampland and forests. Forests cover about 5% of the total 10,452 sq km land area. The best agricultural areas are in the coastal strip and the Bekaa Valley.

9. The Ministry of Environment was established in 1993 and as a first step it defined seven priority areas for action:

- Solid waste management (domestic, hospital industrial);
- Sewage related issues;
- Integrated water management;
- Nature protection / combatting deforestation;
- Atmosphere protection;
- Pollution by pesticides; and
- Noise reduction

10. However, to undertake those actions, the Ministry of Environment lacks resources. An outdated legislative framework and non-existent enforcement mechanism hinder the Ministry's ability to regulate activities to ensure sustainable development. As a result, current development and reconstruction practices are often launched in ways that are neither environmentally sound nor sustainable.

11. To address these issues, UNDP has launched a US \$ 610,000 project (with cofinancing from IPF and UNEP) entitled "Establishment of an enabling environment for integrating the principles of sustainable development in Lebanon" under its Capacity 21 program. The anticipated results of this project are:

- Establishment of national institutions for sustainable development;
- Creation of an effective legal and regulatory framework for sustainable development and effective administration and enforcement of this framework, including economic instruments and market incentives;
- Enhanced capacity of stakeholders to participate in and apply the Environmental Impact Assessment process;
- Increased ability of the Ministry of Environment and other stakeholders to:
  - ensure coordination of environmental monitoring;
  - use the information acquired for improved decision making;
  - establish systems for integrated environmental and economic accounting;

- promote greater awareness of the need for sustainable development;
- facilitate greater access to information to sustainable development; and
- Marshall resources necessary for sustainable development.

12. A second UNDP initiative of particular relevance to this project is the UNDP funded sustainable Development Network Programme (SDNP). This project will offer node connection to selected national institutions and departments thereby facilitating increased access to information pertaining to environment issues and sustainable development. The SDNP will help to increase awareness of and capacity to use tools for computer mediated communications such as BBS, e-mail, WWW, electronic conferencing and other similar applications as ways of facilitating collaboration and information exchange.

13. The proposed GEF project will cooperate with and complement these two projects, where applicable.

14. Another project which could be interesting from the GEF's point of view (methane emissions + associated power production) is a US \$ 135 million project "Solid Waste / Environmental Management Project" financed by a US \$ 55 million soft loan from the World Bank, a US \$ 55 million grant from the Japanese Government and a US \$ 25 million grant from the Lebanese Government. Potential links to this project will be clarified during the further project preparation.

#### *Project Background*

15. In May 1995 a mission to Lebanon was undertaken by the UNDP's regional GEF Coordinator in order to organize a meeting and discuss about the possibility of developing a GEF Climate Change project to enable the Government of Lebanon to fulfil its commitments under the UN/FCCC. An official request from the Government of Lebanon as well as a statement that the results of the project will be used to prepare the first national communication of Lebanon to the UNFCCC was sent to GEF in early 1995.

16. At the moment there are no other ongoing or planned projects to assist the Government of Lebanon to fulfil its commitments under the UN/FCCC.

#### **PROJECT OBJECTIVES**

17. The immediate objectives of the project are to cover all the steps to prepare the first National Communication of Lebanon to the Conference of the Parties in accordance with Article 12 of the UN Framework Convention on Climate Change, and build in country capacity to fulfil its commitments to the Convention on a continuing basis.

18. The project can also be seen as an essential exercise to enhance general awareness and knowledge of climate change related issues in Lebanon, strengthen the institutions and build in-country capacity in order to take views and ideas related to climate change into account in the sectoral planning and strategy formulation process currently underway in Lebanon and incorporate them also in the National Reconstruction Programs like "Horizon 2000". A part of this task is to develop an institutional mechanism/framework to strengthen the dialogue, information exchange

and cooperation among all the relevant players in the field including governmental, non-governmental, academic, private and "grassroots" sectors.

19. As part of the fulfilment of the national communications, therefore, the project will ensure substantive capacity building at all levels. Moreover, the project will study potential impacts of climate change on agriculture and on the coastal zone.

20. Last but not least, the project will help Lebanon to identify and develop concrete projects with a target of reducing global greenhouse gas emissions and enhancing sinks. The major emphasis will be on identification of "win-win" measures, measures which are also least cost options or have other national benefits which exceed the additional costs, and on the effort to incorporate these measures to the National Development and Reconstruction Plans. However, emphasis will be put also on to identify projects which are not yet cost-effective, but could be eligible for further funding or cofunding by GEF or other multilateral or bilateral organizations.

## PROJECT DESCRIPTION

21. During the project preparation, the following components and activities have been identified to respond to the objectives of the project and implement the project successfully:

- (a) Identify a local Project Coordinator/Manager and establish a National Steering Committee with participants from all the project relevant sectors to prepare a detailed work plan for the project (eventually with help of an international consultant) and identify the institutions that will be responsible for implementing the different subcomponents of the project (institutions which are able to undertake these tasks independently also after the project, if needed). During the project implementation, the Project Steering Committee will:
  - give guidance for, steer and monitor the implementation of the project;
  - work as an additional information link between the project and the "outside world";
  - establish permanent links to coordinate climate change related issues and initiatives in the country; and
  - ensure and support smooth transition from this enabling activity to the actual implementation of the national GHG mitigation strategy and the identified GHG mitigation measures.
- (b) Establish an Information Centre to identify and create links to both national and international sources of information (such as the US Country Studies Programme, UNEP, IPCC, CC:TRAIN, other bilateral programmes as well as ongoing national projects and programmes in recipient countries, etc.) in order to undertake the specific tasks of the project; learn from experiences and ideas of similar kinds of projects elsewhere; and avoid duplication of effort. One main goal of this activity

is to find potential international partners to cooperate with. To the extent possible electronic networks (Internet + World Wide Web) are used to save travel costs and enhance the geographical coverage of available information.

In accordance with the objectives of the project, information needs such as the following could be identified:

- information on the climate change phenomena itself and its potential effects (as understood now) to the global and local climates and biosystems;
- sources and sinks of greenhouse gases (including greenhouse gas formation mechanisms);
- methods to collect the statistical information needed for the inventories and tools to manage the data;
- internationally available information about the greenhouse gas mitigation strategies and specific technologies and practices in the fields of energy efficiency, renewable energy sources, carbon sequestration, reduction of methane emissions etc; and
- potential international partners to provide services for and assist the implementation of the greenhouse gas mitigation strategy or pre-feasibility studies of the projects related to it.

Specific attention will be paid to dissemination of and public access to the available information (as well as to the results of this project) in order to enable a wide participation and involvement of all the interested individuals and organizations both during and after the project. Information centre staff members will consist of computer specialists (also providing support for other departments) as well as experts of the specific fields related to project (renewable energy sources & energy efficiency, forestry etc.)

- (c) Study the climate change impacts on agriculture as well as the impacts of a sea level rise and adaptation to it with respect to the specific geographical and climatological characteristics of Lebanon. These studies will be built on the existing methodologies, tools and ongoing studies like IPCC Common Methodology on Sea Level Rise, UNEP Country Case Studies on Climate Change Impacts and Adaptation Assessments etc.
- (d) Undertake a national inventory of greenhouse gases in 1990 (or in the most feasible year) with the IPCC methodology and build in country capacity to undertake these inventories on a continuous basis.

- Identify data gaps and establish a data collection and management system to provide the basic statistical data, detailed enough for the initial and following inventories;
  - Undertake an inventory using the IPCC methodology; and
  - Work with Ministry of Environment and other national institutions (ALME, NCSR, etc.) to ensure the institutionalization of a regular inventory process in line with Convention obligations.
- (e) Build capacity, develop tools and undertake studies to provide relevant information for formulation of a national greenhouse gas mitigation strategy
- Based on the inventory, use existing methods and computer models (like MARKAL, LEAP etc.) to estimate the future emissions of different sectors under the assumption of a business as usual scenario (BAU).
  - Build capacity in the research institutes and NGOs working with alternative energy sources or carbon sinks to make preliminary feasibility studies and cost analysis of different options (covering also the regulatory and legislative framework, tariff and fiscal policies, tax incentives etc.) so as to enable these to subsequently process concrete greenhouse gas mitigation projects.
  - Utilization of both the models and scenarios developed under 5.1 and the mitigation options identified under 5.2 to construct a series of climate change mitigation scenarios for Lebanon.
- (f) Organize a workshop (with wide local participation and relevant international partners) to present the results of the project, together with results or status of other ongoing national projects relevant to the issue and to discuss the results with the objective of formulating a national strategy on the reduction of greenhouse gases.
- (g) Using the outputs of this project as well as results of other ongoing projects, prepare the first communication of Lebanon to the Conference of the Parties.

## **RATIONALE FOR GEF SUPPORT**

22. The project is consistent with the enabling activity and capacity building objectives listed in INC Document (A/AC.237/90/Add.3), prepared jointly by the Interim Secretariat of the UNFCCC and the GEF Secretariat in order to facilitate coordinated and timely assistance to countries for the implementation of the Convention. This project responds to such objectives by implementing an activity needed to enable Lebanon to fulfil its commitments to implement the Convention.



23. Given the high priority which the first COP in April 1995 gave to the projects of enabling activities, and with respect to the present economical situation of Lebanon being at the beginning of rehabilitation of its economy and energy sector, the timing of this kind of project, which builds capacity to assess the effects of the different options also from the viewpoint of greenhouse gas emissions, is an ideal one. The results of the project can be used directly in the planning and policy formulation process currently underway in Lebanon as well as to provide information and "tools" for the international donor and loan organizations assisting Lebanon in its efforts.

#### **SUSTAINABILITY AND PARTICIPATION**

24. The Government of Lebanon fully supports the objectives of this project and gives a very high priority to it due to the reasons already mentioned in the "Background and Project Context" section. The Government has also confirmed that the project outputs will be used for national communications in compliance with the UN Framework Convention on Climate Change. In financial terms, the Government and national NGOs are contributing approximately the equivalent of \$35,000 covering office costs and counterpart staff capacity.

25. After the project has ended and the first communication for the Conference of the Parties has been finalized, the Government will take responsibility to regularly update the inventory and prepare further communications to the COP, in accordance with agreements reached by Climate Change: Forum; the COP; and the GEF Inter-Agency Task Force on Climate Change.

26. To ensure wide participation, training of people and coordination of ongoing projects related to climate change, a national Project Steering Committee will be established with representatives from the Ministry of Agriculture, Ministry of Environment, Ministry of Industry and Oil, Ministry of Energy, Ministry of Transport, Ministry of Housing, Council for Development and Reconstruction ? etc.) together with representatives from the National Council for Scientific Research, ALME, and other relevant governmental or non-governmental organizations, research institutes, international experts working in the country or corporations (e.g., Electricite du Liban). It is expected that after successful completion of the project, the Project Steering Committee will continue to deal with UNFCCC related matters on a permanent basis. The Ministry of Environment holds the overall responsibility for the regular updating of the inventory. During the course of the project the capacities of the Ministry as well as that of related institutions will be strengthened and the exact arrangements regarding the final responsibility for the actual completion of future inventories and communications will be worked out.

27. Also, as already mentioned under activity 2, specific attention will be paid to dissemination of and public access to the available information as well as to capacity building in the project relevant sectors in order to target later the actual mitigation of the greenhouse gas emissions.

#### **LESSONS LEARNED AND RESPONSE TO THE TECHNICAL REVIEW**

28. In the course of technical reviews of enabling projects, the importance of cooperation and networking of a broad range of experts has been noted and duly reflected in the present proposal.

This project recognizes the importance of exchange of information and experience at the national level, as well as regionally and internationally. In the sub-region, this project will work in tandem with similar enabling activities to be undertaken in the Arab States region, such as the GEF enabling projects in Jordan, Egypt and the Maghreb. However, the project will also network with other non-GEF project initiatives of multilateral and bilateral character, through the CC:INFO mechanism and the CC:forum being established by the UNFCCC Secretariat.

29. The project was also submitted to an independent STAP Roster Review and a number of changes were incorporated into the document following the review. Specifically, the text of the section dealing with Project Objectives was strengthened in accordance with the recommendation of the reviewer. Furthermore, the various paragraphs dealing with the proposed project activities were improved to add the details suggested by the reviewer.

30. The independent reviewer also suggests that the budget be augmented from the suggested budget of \$294,600 to \$434,500. UNDP has reviewed the suggested budget increases and in view of UNDP's experience with respect to enabling activities, the budget level initially suggested has been maintained.

#### **ISSUES, ACTIONS AND RISKS**

31. The ultimate criteria of success for this project will be, how well the results of the project are incorporated in the broader development and reconstruction work currently under way in Lebanon. The project tries to address this by establishing an institutional framework for cooperation and involvement of all the relevant partners as well as ensuring that other presuppositions for close collaboration exist.

32. Considering the immediate results of the project, a crucial element in determining project success as well, a close collaboration between the different ministries and departments at the institutional level as well as collaboration of the project personnel at the individual level with each other and with the project support staff paid by the Government. Another issue is the international collaboration necessary for preparing a work plan for and implementing the research oriented activities 3 and 4. During this process, the IPCC methodology will be used and UNEP will be consulted to ensure that the methods and details of the subjects are relevant also from a global point of view.

33. As it was mentioned already in the chapter "Background and Project Context", a number of professional and skilled Lebanese have left to pursue employment in other countries. However, it is expected that there are skilled local consultants to be recruited to implement the tasks specified as part of this project. For instance, both ALME and NCSR have already made quite extensive studies on energy use, production and efficiency and both institutions are to take active part in the implementation of this project.

34. The issue of climate change is new in the context of the Ministry of Environment and the Ministry will therefore need support both from other national institutions, as well as from international specialists. However, this project must be seen also as an excellent opportunity for

the local institutions to implement similar kind of projects in the future as well as for the Ministry to gain greater in-depth knowledge on climate change issues.

#### **INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

35. The project will be executed by the Government and the Ministry of Environment will be the Government implementing agency. The GEF Implementing Agency will be UNDP. The Project Steering Committee will be charged with overseeing and advising project execution and will have decision making power over all aspects of the project. The project will also collaborate closely with all the other relevant ongoing projects in Lebanon, both through the Project Steering Committee and between the research teams in order to enable an effective information change between the projects and full utilization of their results in the formulation of a national greenhouse gas mitigation strategy.

36. Under the different sub-tasks, study tours will be undertaken and working links with international partners will be established in order to ensure effective change of information and appropriate implementation of the project.

37. With these arrangements the project seeks to establish close links with other climate change related activities being carried out with the support of other GEF implementing agencies or other multilateral and bilateral organizations. It will do so both as mentioned above and also by participating in the informal consultative mechanism, CC:Forum, being set up by the UNFCCC secretariat, to ensure that results and outputs of this project will be shared among all actors involved in climate change activities in order to enable such actors to mutually benefit from one another's activities for the present and for the future.

#### **Monitoring and Evaluation**

38. After the detailed work plan has been prepared, an external review of it will be undertaken. The purpose of the review is to identify in the very early stage of the project the eventual gaps, overlaps and other risks of the successful implementation as well as to identify potential partners and sources of information of which the project could benefit.

39. The Project Steering Committee in collaboration with the Ministry of Environment at large, will be responsible for monitoring the project on a continuous basis. In order to do this, the Project Manager with the help of the leaders of the research teams will prepare regular reports on the progress of the project as whole and the different sub-tasks under it. In addition to this, an external midterm evaluation will be conducted about 12 months after the start of the project. The purpose of the evaluation is to review the overall success of the project and suggest modifications to the implementation of the project for the remaining part. It is vital that the recommendations from the evaluation are disseminated immediately, so that appropriate action can be undertaken without delay. A joint meeting of the evaluators together with the Project Steering Committee has been designed for this purpose. For the remaining part the project will rely on the common UNDP monitoring and evaluation practises.

CAPACITY TABLE FOR CLIMATE CHANGE ENABLING ACTIVITIES IN LEBANON

Enabling Activity	Planning	Inst. Strength	Training	Research	Education
<b>Background Information for National Communication</b>					
<b>Emission inventory</b>					
- CO2 from energy sources	X	X	X	X	X
- CO2 from land use changes	X	X	X	X	X
- CH4	X	X	X	X	X
- N2O	X	X	X	X	X
- other sources and gases	X	X	X	X	X
<b>Mitigation Options</b>					
<b>Energy related</b>					
- industry	X	X	X	X	X
- transport	X	X	X	X	X
- residential	X	X	X	X	X
- energy supply	X	X	X	X	X
- other	X	X	X	X	X
<b>Non-Energy Sources</b>					
- agriculture	X	X	X	X	X
- forestry	X	X	X	X	X
- waste management	X	X	X	X	X
- other	X	X	X	X	X
- sink enhancement	X	X	X	X	X
<b>Vulnerability Assessment</b>					
- agricultural sector	X	X	X	X	X
- forestry	X	X	X	X	X
- coastal zone	X	X	X	X	X
- water resources	X	X	X	X	X
- health impacts					
- natural ecosystems					
- other impacts					
<b>Adaptation options (stage 1)</b>	X	X	X	X	X
<b>National Plans</b>					
- national plan (mitigation)	X	X	X	X	X
- national plan (adaptation)	X	X	X	X	X
- other elements?	X	X	X	X	X
<b>Formulation of National Communication</b>					
- inventory	X	X	X	X	X
- mitigation options	X	X	X	X	X
- vulnerability and adapt.	X	X	X	X	X
- information on research and observation	X	X	X	X	X
- information on education	X	X	X	X	X
- other relevant information	X	X	X	X	X

### Key to Table

X	=	Areas to be covered by the proposed project
"SSS"	=	<p>Areas already covered by other projects or programs; the following acronyms are used:</p> <p>ADB = Asian Development Bank</p> <p>ALG = ALGAS Project</p> <p>CCT = CC:TRAIN</p> <p>GEF = Other Regional or Country Specific GEF "Enabling" Project</p> <p>GTZ = German Agency for Technical Cooperation</p> <p>OEC = OECD/IPCC Programme</p> <p>UNE = UNEP-GEF Country Case Studies</p> <p>UNR = UNEP-RISO Greenhouse Gas Abatement Costing Studies</p> <p>US = U.S. Country Studies Program</p>
"X(SSS)"	=	Some preliminary activities have already been undertaken, but completing activities presented in the proposed project are needed to finalize the task.
0	=	Remaining ability gaps for which additional funding from GEF or other sources might still be requested
"0(SSS)"	=	Some preliminary activities have already been undertaken, but completing activities not undertaken by the proposed project might be needed to finalize the task
NA	=	Non-applicable or nonsensical entry (e.g coastal vulnerability assessment for land-locked country)

## **UNDP Response to Comments of External Technical Reviewer**

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**Project:**Lebanon - Enabling Activity (Building Capacity for GHG Inventory and Action Plans in Response to UNFCCC Communications Obligations)

**Comment:**The Project Profile was revised and modified in accordance with the suggestions of the External Technical Reviewer. The following comments should be noted:

- The section dealing with Project Objectives has been strengthened
- The Reviewer's suggestions with respect to the Activities Sections have all been incorporated.
- The Ministry of Environment has been listed as the institution with the overall responsibility for fulfilling the communications obligations under the UNFCCC. The project brief now also points out that the specific details with respect to the completion of future UNFCCC communications will be determined during the implementation of the project.
- The reviewers suggestions with respect to the proposed augmentation of the budget were not taken into account, in view of UNDP's experience with respect to resource needs for enabling activities.

## **ANNEX 1: PROJECT FINANCING AND BUDGET**

As an enabling activity, this project would not take place without the FCCC. Therefore, the full costs of the project equal the incremental costs of the project. With the exception of the contribution of the Government of Lebanon, GEF is being requested to fund the full amount of the project. The detailed project budget reflecting the different sub-tasks is presented below:

**Activity 1** Identify a local Project Coordinator/Manager, establish a National Steering Committee and prepare a detailed work plan

- (a) Project Coordinator US \$48,000
- (b) Equipment 5,000
- (c) Travel 5,000
- (d) Other operational expenses (mail, photocopies etc.) 2,000

**Subtotal: US \$60,000**

**Activity 2** Establish an Information Centre to identify and create links to both national and international sources of information and gain information on issues and options related to climate change and mitigation of greenhouse gas emissions

- (a) Local Experts /International Consultants US \$ 24,000
- (b) Travel 10,000
- (c) Equipment (computers, copy machine etc.) 10,000
- (d) Operational costs (electronic networks, publications etc.) 10,000

**Subtotal: US \$54,000**

**Activity 3** Study the impacts of a sea level rise and adaptation to it with respect to the specific geographical and climatological characteristics of Lebanon

- (a) Local Experts US \$ 4,000
- (b) Travel 5,000
- (c) Equipment 5,000
- (d) Operational costs 2,000

**Subtotal: US \$36,000**

**Activity 4** Undertake a national inventory of greenhouse gases and establish a data collection and management system to gain information on GHG emissions on a continuous basis

- (a) Local Experts US \$24,000
- (b) International Consultants 15,000
- (c) Travel 5,000
- (d) Equipment 5,000
- (e) Operational costs 2,000

**Subtotal: US \$51,000**

**Activity 5** Build capacity and undertake studies to provide relevant information for formulation of a national greenhouse gas mitigation strategy

- (a) Local Experts US \$24,000
- (b) International Consultants 15,000
- (c) Travel 5,000
- (d) Equipment 5,000
- (e) Operational costs 2,000

**Subtotal: US \$51,000**

**Activity 6** Organize a workshop to present the results and discuss about them with the objective of formulating a national strategy on the reduction of greenhouse gas  
US \$10,000

**Activity 7** Prepare the first Communication of Lebanon to the COP

(a) Personnel (the Project Coordinator/Manager is responsible for the preparation of the communication and the costs are thus under activity 1)

(b) Operational and Reporting Costs, Materials etc. US \$10,000

Monitoring and Evaluation US \$14,000

**Project Costs US \$ 286,000**

UNDP Support costs (3%) 8,600

**Total Project Costs US \$ 294,600**



**ANNEX 3: STAP ROSTER MEMBER COMMENTS****LEBANON ENABLING ACTIVITY (BUILDING CAPACITY FOR GHG INVENTORY AND ACTION PLANS IN RESPONSE TO UNFCCC COMMUNICATIONS OBLIGATIONS)**

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**OVERALL**

The project is essential to meeting UNFCCC obligations and build capacity for Lebanon to pursue climate change activities. Given Lebanon's recent past and immediate priorities for reconstruction, these activities are unlikely to be carried out without GEF funding. The project description is well developed. It recognizes that it is part of a parallel worldwide effort and the advantages of information sharing, thus giving priority to the creation of an information center (Activity 2) with the dual purpose of assimilating information from international sources as well as disseminating it nationally. Incorporating the mostly minor comments below, the project would be well formulated and deserving support. The only significant observations are that the budget should be increased and a project schedule added.

**BACKGROUND**

The section provides an excellent summary of the current situation in Lebanon, including the possibility of integrating climate change activities within the National Emergency Reconstruction Program (NERP) and the Horizon 2000 program. The difficulties stemming from the complete atrophy of economic data collection are also noted (p.2).

**PROJECT OBJECTIVES** (p.4) do not completely reflect the Activities listed (p.5-6). Specifically, a paragraph needs to be added between the 2nd and 3rd existing ones to specify the development of capacity related to, and the preparation of, a national inventory of GHG sources and sinks (Activity 4). Activity 3 (impact assessment of sea level rise) is not mentioned in the Objectives.

Also the capacity building aspects of developing a GHG mitigation strategy (Act. 5) are not mentioned in the Objectives.

The last paragraph of the Objective refers to identifying projects for reducing GHG emissions. To be complete, it should add "and enhancing sinks".

On the other hand, the identification of mitigation projects including those that might be eligible for future GEF or other funding, mentioned in Objectives are not reflected in Act. 5, which focuses on capacity building.

Perhaps a better format for improving the match between Obj. and Activities could be as follows:

Overall Project Objectives Objective 1 Activities 1.1, 1.2, etc Objective 2 Activities 2.1, 2.2, etc etc.

## PROJECT DESCRIPTION

The PROJECT DESCRIPTION (p.5-6) is clearly set forth. Some minor comments follow, by activity.

### Activity 1.

The project steering committee should work as an ADDITIONAL information link. Clearly each Activity (especially the Information Center) could and should have direct contact with the "outside world". The last item should include implementation of "national GHG inventory" as well as mitigation strategy, etc.

### Activity 2.

Excellent. Recognizes the need to learn from other projects elsewhere, and not duplicate effort. Also the explicit mention of Internet and WWW as means to improve communications while reducing travel costs, recognizes the power of these tools. Mentions "potential international partners." It is not clear what this refers to: efforts such as the US Country Studies Program? Are partners in other developing countries contemplated?

### Activity 3.

Good. Should be included in Objectives.

### Activity 4.

Should add something on how the inventory would be incorporated into an ongoing process after project completion. Given that the existing statistical reporting infrastructure is weak, which agency would be responsible?

### Activity 5.

Add an item 5.3: "Prepare a preliminary strategy for GHG mitigation". I understand 5.2 to mean an analysis of individual mitigation options. Act. 5.3 would synthesize these into an overall strategy.

### Activities 6 and 7.

Fine. No comments.

## SUSTAINABILITY AND PARTICIPATION

2nd Para. Specify which agency will have the responsibility for updating inventory.

## BUDGET

While clearly broken down, the budget for several Activities appears to be too low.

**Activity 1.**

The Project Coordinator is likely to participate in 3-4 international meetings over the two-year period. A level of \$10,000 might be more appropriate for Travel. Apparently, the Steering Committee would consist of professionals from other organizations whose participation in this activity would be ad honorem. There would, however, be expenses associated with convening the Steering Committee. Thus Operational Expenses are likely to be higher, especially if phone/fax expenses over a two-year period are included. A frugal budget item (d) might be \$5,000. Secretarial staff (say 12 person months @ \$800/mo.) would be almost \$10,000.

**Activity 2.**

Similarly, secretarial and support staff might be 36 person months @ \$800, almost \$30,000. Note that between Activities 1 and 2, I propose 2 full time support persons. They cover all project activities, so that there are no budget items for this purpose in the remaining Activities.

**Activity 3.**

Travel and operational costs might be higher, for an Activity total of around \$40,000.

**Activity 4.**

Includes data collection and analysis (for preparing the inventory). Given the lack of an existing comprehensive Statistical data base, much work would be involved in data collection. Overall costs might be \$70,000.

Activity 5. Similarly, a total of \$70,000 might be more appropriate for this activity.

Activity 6. If partners from developing countries are to be included, as is desirable, there needs to be a budget for the purpose (travel etc.). A more reasonable total for this activity might be \$20,000.

Finally, UNDP support costs are perhaps 10%, not 3%, so that the revised estimate of the budget would be as follows:

Item.	Budget (\$1000s)
Activity 1	80
2	85
3	40
4	70
5	70
6	20
7	10
Monitoring/eval.	20
SUBTOTAL	395.0
UNDP overhead	39.5
<b>TOTAL</b>	<b>434.5</b>

**A NOTE ON SALARIES**

Clearly, I have no direct knowledge of the cost of living in Lebanon. Conversation with a friend, just back from Lebanon, suggests that the Project Coordinator's salary (\$24,000) might be an underestimate. Also benefits (vacation, medical coverage, etc.) are not included and would increase the overall figures.

The budget should specify the in-kind contribution of the Lebanese government. Even if it is only furnished office space, it would probably exceed the \$35,000 identified in the Proj. Doc. If secretarial and administrative staff, and other overhead are included, it could be considerably higher.

**A PROJECT SCHEDULE** was missing from the version reviewed, and should be included.

Only one observation on the remainder of the Project Document: Middle of p. 10 calls for study tours and working links with international partners: clearly important, and would require additional budget as I have suggested.

## PROPOSAL FOR REVIEW

<b>Project Title:</b>	<b>Uzbekistan: Country Study on Climate Change</b>
<b>GEF Focal Area:</b>	<b>Climate Change</b>
<b>Country Eligibility:</b>	<b>Eligible under paragraph 9 (b) of the Instrument</b>
<b>Total Project Costs:</b>	<b>US \$ 325,500</b>
<b>GEF Financing:</b>	<b>US \$ 325,500</b>
<b>Country Contribution:</b>	<b>In kind</b>
<b>Cofinancing/Parallel Financing:</b>	<b>Not applicable</b>
<b>GEF Implementing Agency:</b>	<b>UNDP</b>
<b>Executing Agency:</b>	<b>Government of Uzbekistan</b>
<b>Local Counterpart Agencies:</b>	<b>State Hydrometeorological Department State Committee on Nature and Environmental Protection</b>
<b>Estimated Approval Date:</b>	<b>October 1995</b>
<b>Project Duration:</b>	<b>2 years</b>
<b>GEF Preparation Costs:</b>	<b>None</b>
<b>Government Endorsement:</b>	<b>Received 7 February, 1995</b>

## BACKGROUND AND PROJECT CONTEXT

1. The Republic of Uzbekistan is situated in the center of the Eurasian continent within the subtropical zone of the northern hemisphere. The climate is typical continental-subtropical with dry hot summers and fluctuating weather in winter. The territory of Uzbekistan covers 447,400 km<sup>2</sup> of which almost 80% is occupied by the deserts. The deserts are flanked by extensive mountains in the east and southwest which occupy 15% of the territory. The main water arteries are the two transboundary rivers, the Amudarya and the Surdarya which deliver their waters into the Aral Sea.

2. The population of Uzbekistan in 1993 was 22.5 million with an annual growth rate of 2.5%. As with most of the New Independent States (NIS) of the former USSR, Uzbekistan has, during its four year period of independency, experienced a declining economy, fiscal and monetary imbalances, and a general deterioration in the standard of living. To address these problems and to attract foreign investments into the country, the Government has launched a program to transform the economy from the former centralized decision-making system to a more market-based one. The key areas which have been addressed are:

- ▶ agricultural sector (removal of state orders and liberalization of prices, especially for cotton and grains)
- ▶ utilization of the country's considerable mineral and energy resources
- ▶ telecommunications
- ▶ transport
- ▶ environment

3. The main economical sector in Uzbekistan is agriculture, especially the cultivation of cotton which is the main source of income, employment and foreign exchange. The cotton sub-sector has also generated about 80% of the Government's tax revenue.

### *Energy*

4. All the Central Asian countries, especially Kazakhstan but also Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan are rich in energy resources. These include coal, oil, natural gas and/or hydropower, depending on the country. Besides the "conventional" sources of energy, the Central Asian countries also have a remarkable potential in considering the uses of renewable sources of energy. With respect to wind energy, Kazakhstan has the best natural and climatic conditions; regarding hydropower, Turkmenistan and Kyrgyzstan are the first. All the Republics have excellent dispositions for using solar energy. For instance, Uzbekistan experiences, on average, over 300 cloudless days per year. Uzbekistan and Kazakhstan are also estimated to possess large geothermal resources.

5. The main source of energy in Uzbekistan is natural gas which made up almost 80% of the total primary energy consumption of 48.4 Mtoe in 1992. The share of coal and oil was approximately 10% each. The total electric capacity is 11,280 MW of which 9,570 MW is

thermal power and 1,710 MW hydropower. The total electricity consumption in 1992 was 50.8 TWh.

### *Environment*

6. A distinctive feature of Uzbekistan as a part of the former Soviet Union was the massive development of the agricultural sector on the basis of cotton monoculture and extensive use of irrigation, fertilizers and pesticides. Besides the economical benefits, it also resulted in the major environmental problems that Uzbekistan is facing at the moment. The main concern is the drying up of the Aral Sea connected to the general depletion and pollution of surface and ground water resources in Uzbekistan.

7. Air pollution is primarily a problem in the largest urban centres (Tashkent, Ferghana and Margilan), which combine high population densities and polluting enterprises which use fuel oil or coal as an energy source or which process raw materials containing sulphur or nitrogen. In city centres, traffic is the major source of pollution, for example in some main intersections of Tashkent concentrations of carbon monoxide greatly exceed the acceptable levels.

8. The two main institutions dealing with environmental issues in Uzbekistan are the State Committee on Nature and Environmental Protection and the State Hydrometeorological Department. The work has been shared so that the State Committee of Hydrometeorology is responsible for monitoring the Environment "as a whole" (including air, water resources and land degradation), and the State Committee on the Protection of Nature is responsible for determining the legislative and regulative framework for considering environmental issues and monitoring individual enterprises that they work under this framework. It can also impose fines for the enterprises which do not follow the regulations.

9. According to an initial inventory of greenhouse gases made by the State Committee on Hydrometeorology in 1994, the total emission of carbon in 1992 was 33,639,000 m<sup>3</sup>tons, (the major source being, not surprisingly, energy production), with an average of 1.57t carbon per capita.

### *Project Background*

10. A request for a GEF enabling activity to fulfil the commitments of Uzbekistan to the UN Framework Convention on Climate Change was sent to UNDP at the end of 1994 and further discussion were held in New York during the INC meeting in February 1995. With respect to this request, a mission to Uzbekistan was undertaken in July 1995 in order to organize a joint meeting with the relevant local partners and prepare a project brief for submission to the GEF Council Meeting. There are no other ongoing or planned projects to assist the Government of Uzbekistan to fulfil its commitments to the UNFCCC.

## PROJECT OBJECTIVES

11. The immediate objectives of the project are to cover all the steps to prepare the first National Communication of Uzbekistan to the Conference of the Parties in accordance with Article 12 of the UN Framework Convention on Climate Change, and build in country capacity to fulfil its commitments to the Convention on a continuous basis. The communication will consist of an inventory of greenhouse gases in 1990 made in accordance with the IPCC guidelines; material for calculation of emission trends (if feasible); a general description of available or envisaged mitigation options; an assessment of the country's vulnerability to climate change and a general description of available or envisaged adaptation options.

12. Beside the communication, a national greenhouse gas mitigation strategy will be prepared in order to identify and develop concrete projects with the target of enhancing sinks or reducing global greenhouse gas emissions. The major emphasis will be on the identification of "win-win" measures, measures which are also least-cost options or have other national benefits which exceed the eventually additional costs, and on the effort to incorporate these measures in National Development Programmes. However, emphasis will also be put on identifying projects which are not yet least-cost options, but could be eligible for further funding or co-funding by GEF or other multilateral or bilateral organizations.

13. The impact assessment and adaptation study will focus on agriculture and water resources which are the most vulnerable sectors in the Uzbekistan's case. To the extent feasible also other sectors can be addressed depending on the resources and information available.

14. Last but not least, the project can be seen as an essential exercise to enhance general awareness and knowledge of climate change related issues in Uzbekistan; to strengthen the institutions and build in country capacity in order to take views and ideas related to climate change into account in the sectoral planning and strategy formulation process currently underway in Uzbekistan; and incorporate them also in the National Development Programmes. A part of this task is to develop an institutional mechanism/framework to strengthen the dialogue, information change and cooperation among all the relevant players in the field including governmental, non-governmental, academic, private and "grassroots" sectors.

## PROJECT DESCRIPTION

15. During the project preparation, the following components and activities have been identified to respond to the objectives of the project and implement the project successfully:

- 15a) Identification of a local Project Coordinator/Manager and establishment of a National Steering Committee with participants from all the project relevant sectors to prepare a detailed work plan for the project (eventually with help of an international consultant) and to identify the institutions that will be responsible for implementing the different subcomponents of the project (institutions which are able to undertake these tasks



independently also after the project, as needed). During the project implementation the Project Steering Committee will:

- ▶ give guidance to, steer and monitor the implementation of the project;
- ▶ work as an additional information link between the project and the "outside world";
- ▶ establish permanent links to coordinate climate change related issues and initiatives in the country; and
- ▶ ensure and support smooth transition from this enabling activity to the actual implementation of the national GHG mitigation strategy and the identified GHG mitigation measures.

15b) Identify and create links to both national and international sources of information (such as the US Country Study Program and other bilateral programmes, UNEP, IPCC, CC:TRAIN, international research institutes dealing with climate change or mitigation of greenhouse gas emissions, ongoing national projects and programmes in recipient countries, e.g., the U.S. Country Study Project implemented in Kazakhstan, etc.) in order to undertake the specific tasks of the project; learn from experiences and ideas of similar kinds of projects elsewhere; and avoid duplication of effort. One main goal of this activity is to find potential international partners to cooperate with either on this project or on follow-up projects dealing with implementation of the identified mitigation or adaptation measures. To the extent possible electronic networks (Internet + World Wide Web) are used to save travel costs and enhance the geographical coverage of available information.

In accordance with the objectives of the project, information needs such as those listed below could be identified:

- information on climate change phenomena itself and its potential impacts (as understood now) to the global and local climates and biosystems;
- sources and sinks of greenhouse gases;
- methods to collect the statistical information needed for the inventories and tools to manage the data;
- internationally available information about the methodologies and practises related to the impact assessments and preparation of greenhouse gas mitigation strategies as well as information on different technologies and practices in the fields of energy efficiency, renewable energy sources, carbon sequestration, reduction of methane emissions, adaptation to climate change etc.; and

- potential international partners to provide services and/or funding for the implementation of the greenhouse gas mitigation strategy or pre-feasibility studies of the projects related to it.

Specific attention will be paid to dissemination of and public access to the available information (as well as to the results of this project) in order to enable the wide participation and involvement of all the interested individuals and organizations both during and after the project. The personnel of this activity will consist of computer specialists (providing support for all the partners involved) as well as experts of the specific fields related to project (renewable energy sources & energy efficiency, impact assessments etc.). As a part of this activity a "Documentation Center" will be established to facilitate information dissemination as well as to serve as a repository for the documentation related to the project activities.

- 15c) Study the impacts of climate change especially on agriculture and water resources, and develop recommendations on adaptation to it with respect to the specific geographical and climatological characteristics of Uzbekistan. The study will be built on the existing methodologies, tools and ongoing studies like the UNEP Country Case Studies on Climate Change Impacts and Adaptation Assessments. In this context also links to the ongoing UNDP project "Aral Sea Basin Capacity Development" will be established.
- 15d) Complete the initial 1990 national inventory of greenhouse gases based on the IPCC methodology and build in country capacity to undertake these inventories on a continuous basis.
  - d.1 Identify existing data gaps, evaluate the reliability of the data and prepare a strategy or undertake specific studies to fill the data gaps or enhance reliability of the data up to the level needed in the inventory.
  - d.2 Establish a data collection and management system under cooperation of the relevant institutions (including at least Ministry of Agriculture, Ministry of Energy, State Hydrometeorological Department, State Committee on the Protection of Nature, State Committee on Forecasting and Statistics) to provide the basic statistical data, detailed enough for the actual and following inventories, on a continuous basis.
  - d.3 Complete the inventory using the IPCC methodology
- 15e) Build capacity, develop tools and undertake studies to provide relevant information for formulation of a national greenhouse gas mitigation strategy.
  - e.1 Organize a workshop to present different methods and tools for mitigation analysis (like MARKAL, LEAP etc.) and clarify challenges and opportunities of such an analysis for the relevant institutions in Uzbekistan; not only from the

viewpoint of greenhouse gas reduction but also related to the general planning and development processes currently underway in the country.

- e.2 Establish a research group consisting of representatives from the relevant institutions to undertake the mitigation analysis and/or provide essential background information for the analysis and train the group to use the selected tools. Relevant fields are energy production and end use in the industrial and residential sector, transport, agriculture, forestry and waste treatment.
  - e.3 Build capacity in the research institutes and NGOs working with alternative energy sources, energy efficiency, advanced agricultural practises or carbon sinks to make preliminary feasibility studies and cost analysis of different options (covering also the regulatory and legislative framework, tariff and fiscal policies, tax incentives etc. ) in order to provide the essential background information for the mitigation analysis and formulation of a national greenhouse gas mitigation strategy.
  - e.4 Undertake a mitigation analysis using the selected tools and the collected background information in order to construct a series of different climate change mitigation scenarios, evaluate their consistency with the general development goals of Uzbekistan and prepare a draft proposal to implement the most promising mitigation measures.
- 15f) A workshop, with wide local participation and relevant international partners, will be organized to present the results of the project, together with results or status of other ongoing national projects relevant to the issue and to discuss the results with the objective of formulating a national greenhouse gas mitigation strategy.
- 15g) Using the outputs of this project as well as results of other ongoing projects, prepare the first communication of Uzbekistan to the Conference of the Parties.

#### **RATIONALE FOR GEF SUPPORT**

16. The project is consistent with the enabling activity and capacity building objectives listed in INC Document (A/AC.237/90/Add.3), prepared jointly by the interim secretariat of the UNFCCC and the GEF Secretariat in order to facilitate coordinated and timely assistance to countries for the implementation of the Convention. This project responds to such objectives by implementing an activity needed to enable Uzbekistan to fulfil its commitments to implement the Convention. This activity is unlikely to be carried out without GEF funding.

17. Given the high priority which the first COP in April 1995 gave to the projects of enabling activities, and with respect to the present situation of Uzbekistan being in the middle of a economic transition, the timing of this kind of project, which builds capacity to assess the effects of different options also from the viewpoint of greenhouse gas emissions, is an ideal one. The

results of the project can be used directly in the planning and policy formulation process currently underway in Uzbekistan as well as to provide information and "tools" for the international donor and loan organizations assisting Uzbekistan in its efforts.

## **SUSTAINABILITY AND PARTICIPATION**

18. The Government of Uzbekistan fully supports the objectives of this project and gives a very high priority to it for the reasons already mentioned in the chapter "Background and Project Context". The Government has also endorsed that project outputs will be used for national communications in compliance with the UN Framework Convention on Climate Change. In financial terms, the Government is contributing "in kind" covering the office costs and project support staff.

19. After the project has ended and the first communication for the Conference of the Parties has been finalized, the Government will take responsibility to regularly update the inventory and prepare further communications to the COP, in accordance with agreements reached by COP.

20. To ensure wide participation, training of people and coordination of ongoing projects related to climate change, a national Steering Committee will be established with representatives from the State Committee on Agriculture, State Committee on Energy, State Committee on Forecasting and Statistics, State Committee on the Protection of Nature, and State Hydrometeorological Department, together with representatives from UNDP, Academy of Sciences and other relevant governmental or non-governmental organizations, research institutes, international experts working in the country (e.g., under EU TACIS) or corporations. It is expected that after successful implementation of the project, the Project Steering Committee will continue to deal with UNFCCC related matters on a permanent basis. Also, as already mentioned under Activity 2, specific attention will be paid to dissemination of and public access to the available information, as well as to capacity building in the project relevant sectors in order to target the actual mitigation of greenhouse gas emissions at a later stage.

## **LESSONS LEARNED AND RESPONSE TO THE TECHNICAL REVIEW**

21. In the course of technical reviews of enabling projects, the importance of cooperation and networking of a broad range of experts has been noted and duly reflected in the present proposal. The project recognizes the importance of exchange of information and experience at the national level, as well as regionally and internationally. At the national level the project will create links, e.g., to the UNDP project "Aral Sea Basin Capacity Development"; and at the regional level, e.g., to the US Country Study Project implemented in Kazakhstan. Lessons learnt from these projects will be used both during the further preparation of the project as well as during its actual implementation.

22. A number of comments and suggestions made by the Technical Reviewer have been incorporated into the present document. Regarding the project budget, some of the changes were made, some were not. For instance, under component 5 (mitigation analysis) it is expected that

the need to use international consultants to train people for a mitigation analysis, assist in the evaluation of different mitigation options is higher than US \$ 15,000 (approximately one person/month) proposed by the Technical Reviewer. However, the cost for this sub-item was reduced from US \$ 50,000 to US \$ 30,000.

23. Under the inventory component the personnel costs were maintained at US \$ 24,000, because some initial work related to inventory has already been done in Uzbekistan.

### **PROJECT FINANCING, BUDGET AND INCREMENTAL COSTS**

24. As an enabling activity, this project would not take place without the UNFCCC. Therefore, the full costs of the project equal the incremental costs of the project. With the exception of the "in-kind" contribution of the Government of Uzbekistan, GEF is being requested to fund the full amount of the project. The detailed project budget reflecting the different sub-tasks is presented below:

**Activity 1** Identify a local Project Manager, establish a National Steering Committee and prepare a detailed work plan

a) Project Manager (US \$ 500 p/m)	US \$ 12,000
b) International Consultants	US \$ 10,000
c) Equipment	US \$ 5,000
d) Travel	US \$ 10,000
e) Other operational expenses (mail, photocopies etc.)	US \$ 3,000

**Subtotal: US \$ 40,000**

**Activity 2** Identify and create links to both national and international sources of information and gain information on issues and options related to climate change and mitigation of greenhouse gas emissions

a) Local Experts	US \$ 24,000
b) International Consultants	US \$ 0,000
c) Travel	US \$ 10,000
d) Equipment (computers etc.)	US \$ 10,000
e) Operational costs (Internet connections, publications etc.)	US \$ 10,000

**Subtotal: US \$ 54,000**

**Activity 3** Study the impacts of climate change especially on agriculture and water resources, and develop recommendations on adaptation to it with respect to the specific geographical and climatological characteristics of Uzbekistan.

a) Local Experts	US \$ 24,000
b) International Consultants	US \$ 15,000
c) Travel	US \$ 10,000
d) Equipment	US \$ 5,000
e) Operational costs	US \$ 2,000
<b>Subtotal:</b>	<b>US \$ 56,000</b>

**Activity 4** Complete the initial national inventory of greenhouse gases in 1990 based on the IPCC methodology and build in country capacity to undertake these inventories on a continuous basis.

a) Local Experts	US \$ 24,000
b) International Consultants	US \$ 15,000
c) Travel	US \$ 5,000
d) Equipment	US \$ 5,000
e) Operational costs	US \$ 2,000
<b>Subtotal:</b>	<b>US \$ 51,000</b>

**Activity 5** Build capacity and undertake studies to provide relevant information for formulation of a national greenhouse gas mitigation strategy

a) Local Experts	US \$ 24,000
b) International Consultants	US \$ 30,000
c) Travel	US \$ 10,000
d) Equipment	US \$ 5,000
e) Operational costs	US \$ 6,000
<b>Subtotal:</b>	<b>US \$ 75,000</b>

**Activity 6** Organize a workshop to present the results and discuss about them with the objective of formulating a national strategy on the reduction of greenhouse gas

US \$ 20,000

**Activity 7** Prepare the first Communication of Uzbekistan to the COP

- a) Staff : Project Coordinator/Manager  
(costs appear under activity 1)
- b) Operational and Reporting Costs, Materials etc. US \$ 5,000
- c) Monitoring and Evaluation US \$ 15,000

**ISSUES, ACTIONS AND RISKS**

25. The ultimate criteria of success will be how the results of the project will be incorporated in the broader development and reconstruction work currently under way in Uzbekistan. The project tries to address this by establishing an institutional framework for cooperation and involvement of all the relevant partners as well as ensuring that other presuppositions for close collaboration exist.

26. Considering the immediate results of the project, a crucial element will be the close collaboration between the different State Committees and Departments, especially between the State Committee on the Protection of Nature and State Hydrometeorological Department but also with other institutions and research institutes at institutional level as well as collaboration of the project personnel at the individual level with each other and with the project support staff paid by the Government. Another issue is the international collaboration, especially when preparing a work plan for and implementing the research oriented activities 3, 4 and 5. During this process, common methodologies will be used and among others IPCC and UNEP will be consulted to ensure that the methods and details of the subjects are also relevant from the global point of view. The project will also use the results of ongoing or finalized projects like UNEP Country Case Studies on Climate Change Impacts and Adaptation Assessments, UNDP/GEF ALGAS (Asian Least-Cost Greenhouse Gas Abatement Strategies), CC:TRAIN and US Country Study Programme (especially of the project implemented in Kazakhstan) to avoid duplication of effort and ensure the effective implementation of the project.

**INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

27. The project will be executed by the Government of Uzbekistan and the Implementing Agency will be UNDP. The Project Steering Committee will be charged with overseeing, coordinating and advising project execution and will have decision making power over all aspects of the project. The project will also collaborate closely with all the other relevant ongoing projects in Uzbekistan, both through the Project Steering Committee and between the research teams in order to enable an effective information change between the projects and full utilization of their results in the formulation of a national greenhouse gas mitigation strategy.

28. Under the different sub-tasks study tours will be undertaken and working links with international partners will be established in order to ensure effective change of information and appropriate implementation of the project.

29. With these arrangements the project seeks to establish close links with other climate change related activities being carried out by other GEF implementing agencies or by other multilateral and bilateral organizations. It will do so practically as figured above and also by participating in the informal consultative mechanism, CC:FORUM, being set up by the UNFCCC secretariat, to ensure that results and outputs of this project will be shared among all actors involved in climate change activities in order to enable such actors to mutually benefit from one another's activities for the present and for the future.

## **MONITORING AND EVALUATION**

30. After the detailed work plan has been prepared, an external review on it will be undertaken. The purpose of the review is to identify in the very early stage of the project the eventual gaps, overlaps and other risks of successful implementation, as well as to identify potential partners and sources of information of which the project could benefit.

31. The Project Steering Committee will be responsible for monitoring the project on a continuous basis. In order to do this the Project Manager, with the help of the leaders of the research teams, will prepare regular reports on the progress of the project as whole and the different sub-tasks under it. In addition to this, an external midterm evaluation will be conducted about 12 months after the start of the project. The purpose of the evaluation is to review the overall success of the project and suggest modifications to the implementation of the project for the remaining part. It is vital that the recommendations from the evaluation are disseminated immediately, so that appropriate action can be undertaken without delay. A joint meeting of the evaluators, together with the Project Steering Committee has been designed for this purpose.

32. For the remaining part, the project will rely on the common UNDP monitoring and evaluation practises.



CAPACITY TABLE FOR CLIMATE CHANGE ENABLING ACTIVITIES IN UZBEKISTAN

Enabling Activity	Planning	Instit Strength	Training	Research	Education
<b>Background Information for National Communication</b>					
<b>Emission inventory</b>					
- CO2 from energy sources	X	X	X	X	X
- CO2 from land use changes	X	X	X	X	X
- CH4	X	X	X	X	X
- N2O	X	X	X	X	X
- other sources and gases	X	X	X	X	X
<b>Mitigation Options</b>					
<b>Energy related</b>					
- industry	X	X	X	X	X
- transport	X	X	X	X	X
- residential	X	X	X	X	X
- energy supply	X	X	X	X	X
- other	X	X	X	X	X
<b>Non-Energy Sources</b>					
- agriculture	X	X	X	X	X
- forestry	X	X	X	X	X
- waste management	X	X	X	X	X
- other	X	X	X	X	X
- sink enhancement	X	X	X	X	X
<b>Vulnerability Assessment</b>					
- agricultural sector	X	X	X	X	X
- forestry					
- coastal zone	NA	NA	NA	NA	NA
- water resources	X	X	X	X	X
- health impacts					
- natural ecosystems					
- other impacts					
<b>adaptation options (stage 1)</b>	X	X	X	X	X
<b>National Plans</b>					
- national plan (mitigation)	X	X	X	X	X
- national plan (adaptation)	X	X	X	X	X
- other elements?	X	X	X	X	X
<b>Formulation of National Communication</b>					
- inventory	X	X	X	X	X
- mitigation options	X	X	X	X	X
- vulnerability and adapt.	X	X	X	X	X
- information on research and observation	X	X	X	X	X
- information on education	X	X	X	X	X
- other relevant information	X	X	X	X	X

Key to Table

- X = Areas to be covered by the proposed project
- "\$\$\$" = Areas already covered by other projects or programs; Following  
acronyms are used:
  - ADB = Asian Development Bank
  - ALG = ALGAS Project
  - CCT = CC:TRAIN
  - GEF = Other Regional or Country Specific GEF "Enabling" Project
  - GTZ = German Agency for Technical Cooperation
  - OEC = OECD/IPCC Programme
  - UNE = UNEP-GEF Country Case Studies
  - UNR = UNEP-RISO Greenhouse Gas Abatement Costing Studies
- US = U.S. Country Studies Program
- "X(\$\$\$)" = Some preliminary activities have already been undertaken, but  
completing activities presented in the proposed project are  
needed to finalize the task
- 0 = Remaining ability gaps for which additional funding from GEF or  
other sources might still be requested
- "0(\$\$\$)" = Some preliminary activities have already been undertaken, but  
completing activities not undertaken by the proposed project  
might be needed to finalize the task
- NA = Non-applicable or nonsensical entry (e.g coastal vulnerability  
assessment for land-locked country)

## ANNEX 1

Description	m/ m	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6	Activity 7	TOTAL
11.00 International experts		10,000		15,000	15,000	30,000		15,000 <sup>1</sup>	85,000
15.00 Travel		10,000	10,000	10,000	5,000	10,000			45,000
17.00 Nationally Recruited	9/24	12,000	24,000	24,000	24,000	24,000			108,000
19.00 Personnel Component Total		32,000	34,000	49,000	44,000	64,000		15,000	238,000
34.00 Workshops							20,000		20,000
40.00 Equipment		5,000	10,000	5,000	5,000	5,000			30,000
50.00 Miscellaneous		3,000	10,000	2,000	2,000	6,000		5,000	28,000
59.00 Component Total		40,000	54,000	56,000	51,000	75,000	20,000	20,000	316,000
Support Costs									9,500
99.00 GRAND TOTAL		40,000	54,000	56,000	51,000	75,000	20,000	20,000	325,500

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<sup>1</sup>Monitoring & Evaluation

## Uzbekistan Country Study on Climate Change

### 1. Relevance to GEF and priority

Enabling activities are central to GEF's mandate to build capacity of eligible countries and help them to fulfil their commitments under Article 12 of the UNFCCC. In the case of Uzbekistan and other Central Asian Republics, recently independent from the Former Soviet Union, building capacity to define sustainable development pathways, including climate change issues, is doubly important. Uzbekistan was relatively early in ratifying the FCCC (June 1993) and at least an initial inventory of greenhouse gas emissions has been carried out (P.3 of brief, data not filled in). This demonstrates a predisposition of the Government of Uzbekistan to take climate change issues seriously.

### 2. Objectives

The description of Objectives (p.3-4) does not accurately reflect the activities listed in the Project Description (P.4-6). Specifically two major components of the project (impact assessment and adaptation strategies are mentioned (P.3 bottom) as annexes to the communication of the 1990 greenhouse gas inventory to the Conference of the Parties. These are separate activities and should be described briefly in a separate para, along the lines of the para on GHG mitigation strategy (top of P.4).

The Objectives should note the capacity building aspects of all four: preparing the inventory of GHG, developing a mitigation strategy, assessing the impact of climate change and proposing adaptation options.

P.4 line 3 should include "enhancing sinks" as well as "reducing GHG emissions" among mitigation options.

An alternative arrangement would be:

Objective 1

Activities 1.1, 1.2, etc.

Objective 2

Activities 2.1, 2.2, ...

etc.

### 3. The approach

The PROJECT DESCRIPTION (P.4-6) is clearly set forth. Some minor observations follow.

Activity 1. The project Steering Committee is likely to be a group of professionals from various government departments as well as other organisations who would meet periodically to "steer" the project. The Committee cannot be "one essential information link" between the project and elsewhere. Surely it will help establish links but information exchange should continue more

directly between the project Coordinator/Manager, the Local Experts (especially Activity 2), and the outside world.

Activity 2 is well formulated, recognising the potential of learning from experience in other countries. The US Country Study in Kazakhstan (mentioned at the bottom of P.7) might be particularly relevant and should be mentioned here.

Activity 2 might be formalised to include the creation of a Documentation Center to facilitate information dissemination to the public, as a repository for other project activities, as well as for the future, when the tasks are expected to be conducted on a continuing basis.

Activity 3 should mention links to the UNDP Aral Sea Project, here or (better) in the Background section (top of P.3).

Activity 4 includes, as it should, the need to "undertake specific studies to fill the data gaps". We will refer to this later, with respect to the Budget.

Activity 5 is very well formulated. No comments.

Activities 6 and 7 are also clear.

4. The Background Information section is excellent! It provides a quantitative summary of the energy sector and a clear description of environmental problems facing Uzbekistan.

5. The Budget

The equipment budget of \$10,000 for Activity 2 is reasonable, since it would include computers, peripherals, photocopy machine, etc. to support an information center. However, an equipment budget of \$10,000 for each of the Activities 2, 3, 4 and 5 appears to be too high.

Activity 1 should include a budget item for convening the steering committee, even if their participation is *ad honorem*. Moreover Activity 1 operational expenses (mail, photocopies, etc.) are likely to be considerably higher than the \$2,000 shown, especially over a two-year period. Perhaps a total of \$50,000 for 1(e) should be adequate.

Activity 2 Budget appears to be reasonable.

Activity 3. The equipment cost should be lower, perhaps \$5,000.

Activity 4 relates to the preparation of a GHG inventory. If there are data gaps (as is likely) additional studies will be needed, increasing project costs. Also allowance should be made to set up an infrastructure for this to be an ongoing activity beyond the project period. Perhaps a budget of \$36,000 for local experts, \$10,000 for travel, and \$4,000 for operational costs would be more reasonable, for an Activity total of \$75,000.

Activity 5. A large budget item has been listed for international consultants. There is a considerably body of literature in the area, including materials prepared by IPCC, CC:TRAIN, ALGAS, the US Country Studies Program, etc. Also Internet and WWW should improve access

to this body of knowledge and reduce costs. A level of \$15,000 might be more suitable for international consultants.

Activity 5.1 calls for organising a workshop whose expenses are not included here. An increased level of \$10,000 for operational costs should be adequate. The Activity Subtotal would then be \$81,000. (Incidentally the current listed subtotal of \$88,000 is not the sum of the components.)

Thus, in my opinion, a revised budget should be as follows:

Activity	1	47,000
	2	54,000
	3	68,000
	4	75,000
	5	81,000
	6	20,000
	7	15,000

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Project cost	360,000
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This project cost total is close to what is shown in the project brief. In both cases, the in-kind contribution (support staff, office space, etc) of the Uzbekistan government is not included. It might be worthwhile to include this, in part since it is likely to be substantial.

Thus, in my opinion, the funding level is adequate, though not well distributed.

#### 6. Innovation

There is no specific innovation expected from an enabling activity of this kind.

#### 7. Strengths and Weaknesses

There are no significant weaknesses. The brief does not adequately describe the institutional arrangements for undertaking the project. The Terms of Reference (for reviewers) of the Regional Directorate, however, states that "the project brief will not necessarily be specific in outlining institutional arrangements", for reasons given. Thus, this incompleteness is not a weakness of a well drafted brief to a project deserving support.

## **PROPOSAL FOR REVIEW**

<b>Project Title:</b>	<b>Zaire - Enabling Zaire to fulfill its Commitments to the United Nations Framework Convention on Climate Change (UNFCCC)</b>
<b>GEF Focal Area:</b>	Climate Change
<b>Country Eligibility:</b>	Convention Ratified 9 January, 1995
<b>Total Project Costs:</b>	US \$ 345,000
<b>GEF Financing:</b>	US \$ 345,000
<b>Country Contribution:</b>	In kind (US \$ 50,000)
<b>GEF Implementing Agency:</b>	UNDP
<b>Executing Agency:</b>	Ministry of Environment, Nature Conservation and Tourism, General Secretariat for Environment and Nature, Conservation and Tourism.
<b>Estimated Approval Date:</b>	January 1996
<b>Project Duration:</b>	2 years
<b>GEF Preparation Costs:</b>	None
<b>Government Endorsement:</b>	Received 20 June, 1995

## **BACKGROUND AND PROJECT CONTEXT**

1. With a land area of 2,267,000 km<sup>2</sup>, Zaire is the third largest country in Africa. Although comparable in size to Western Europe, its population of 41.3 million in 1994 was about one-fifth in population with an average population density of 18 persons per km<sup>2</sup>, ranging from a low of 10 persons in the South, North and the Zaire Basin to a high of 45 persons per km<sup>2</sup> in the Eastern Highlands.
2. Zaire has an estimated 12.5% of the world's remaining tropical rain forests. Only Brazil and Indonesia have more. According to the United Nations' estimate, 76.7% of the total land area is covered with forests and woodland but only 3.5% is arable land. However, the rate of deforestation has increased greatly and according to an estimate, the annual rate was 588,000 hectares between 1980-89. Seventy-five percent of the population is involved in subsistence farming and the diversity of the country's climate and soil allow the production of a wide range of food and cash crops.
3. Zaire is richly endowed with vast deposits of cobalt, copper, and diamonds, and its network of rivers are a national transport system as well as a huge potential source of hydro-electric power.
4. Wood fuel has an overwhelming importance in the national energy balance of Zaire by providing about 80% of the energy demands in form of firewood and charcoal. The production and supply of new and renewable energy sources still play a relatively minor role in the energy picture of Zaire. The low use is mainly due to capital and technical constraints and the overall policy environment.

## **RELATED ACTIVITIES UNDERTAKEN**

5. Zaire ratified the United Nations Framework Convention on Climate Change (UNFCCC) on January 9, 1995. Although the country has taken several measures to address various environmental problems, it has no national strategy for environment. A National Coordination Committee on Climate Change (NCCCC) was established in 1994 within the Interministerial Coordinating Committee for the Environment and Nature Conservation, to prepare and design a national strategy for environmental protection and a National Environmental Action Plan for continuous monitoring.
6. Despite its size and importance in Africa, Zaire was not selected as one of the countries in the GEF/UNEP's Country Case Studies nor in the United States Country Studies Program. Indeed, there are no multi or bilateral sponsored activities, specifically related to the issue of climate change in Zaire.
7. The arrival of about 2.0 million Rwandan refugees from July 13, 1994 created serious economic and environmental problems for Zaire. This rising concern for the refugees led the UNDP to field a mission to study the problems and attempts being made multi-laterally and bilaterally to implement a plan of action.



8. In May 1995, the Government of Zaire sent a proposal to the Secretariat of the United Nations Framework Convention for Climate Change in Geneva, applying for GEF funding to address the problems of climate change. The proposal was forwarded to UNDP's principal Technical Advisor on Climate Change, who in turn passed it on to the Regional Coordinator for Climate Change. The Regional Coordinator engaged in discussions with the Zairian Government and the UNDP field office and the result is this project proposal to enable Zaire to fulfill its commitments under the UNFCCC.

## **PROJECT OBJECTIVES**

9. The immediate objectives of this project are to prepare the first National Communication of Zaire to the Conference of the Parties in accordance with Article 12 of UNFCCC and to enhance indigenous capacity in the country to fulfil its commitments to the Convention on a continuous basis.

10. The project can also be seen as a useful exercise to enhance general awareness and knowledge of climate change related issues in Zaire thus enabling it to take these issues into account in planning processes and strategy formulation for different economical and technical sectors in general and to strengthen its role also in international scientific forums and negotiation processes related to climate change. A part of this task is to develop an institutional mechanism/framework to strengthen the dialogue, information change and cooperation among all the relevant stakeholders. This will include governmental, non-governmental, academic, private and "grassroots" sectors.

11. Last but not least, the project will help Zaire to identify and develop concrete projects targeted to reduce global greenhouse gas emissions or studying the climate change phenomena itself; projects which may also be eligible for further funding or co-funding by GEF or other multilateral or bilateral organizations.

## **PROJECT DESCRIPTION**

12. The following components and activities have been identified to respond to the objectives of the project and implement the project successfully:

- Identify a local Project Coordinator/Manager to work with the National Coordination Committee on Climate Change which will prepare a detailed work plan for the project, coordinate the tasks and ensure an effective implementation of the project. It is envisaged that the NCCCC will eventually be upgraded into a monitoring unit.
- Establish an Information Center in order to identify and create links to both national and international sources of information (such as the US Country Study Program and other bilateral programmes, UNEP, IPCC, CC:TRAIN, international research institutes dealing with climate change or mitigation of greenhouse gas emissions, ongoing national projects and programmes in recipient countries etc.) in order to undertake the specific tasks of the project; learn from experiences and ideas of similar kinds of projects elsewhere; and

avoid duplication of effort. One main goal of this activity is to find potential international partners to cooperate either on this project or on follow-up projects dealing with implementation of the identified mitigation measures. To the extent possible electronic networks (Internet + World Wide Web) are used to save travel costs and enhance the geographical coverage of available information.

In accordance with the objectives of the project, information needs such as those listed below could be identified:

- information on the climate change phenomena itself and its potential impacts (as understood now) to the global and local climates and biosystems;
- sources and sinks of greenhouse gases;
- methods of collecting the statistical data needed for the inventories and tools to manage the data;
- internationally available information about the methodologies and practices related to the preparation of greenhouse gas mitigation strategies as well as information on different technologies and practices in the fields of energy efficiency, renewable energy sources, carbon sequestration, reduction of methane emissions etc.; and
- potential international partners to provide services and/or funding for the implementation of the greenhouse gas mitigation strategy or pre-feasibility studies of related projects.

Specific attention will be paid to dissemination of and public access to the available information (as well as to the results of this project) in order to enhance public awareness and enable a wide participation and involvement of all the interested individuals and organizations both during and after the project.

- Undertake a national inventory of greenhouse gas emissions by sources and sinks in 1990 (or in the most feasible year) following the IPCC methodology and build indigenous capacity to update these inventories on a regular basis.
  - \* Identify existing data gaps, evaluate the reliability of the data and prepare a strategy or undertake specific studies to fill the data gaps or enhance reliability of the data up to the level needed in the inventory.
  - \* Establish a data collection and management system under cooperation of the relevant institutions (including, e.g., Ministry of Agriculture, Ministry of Energy, Ministry of Environment, State Department of Statistics) to provide the basic statistical data, detailed enough for the actual and following inventories, on a regular basis.

- \* Complete the inventory following the IPCC guidelines and methodology and put in place an institutional mechanism in order to periodically update the inventory in accordance with the agreements reached by the COP.
- Build capacity, develop tools and undertake studies to provide relevant information for formulation of a national greenhouse gas mitigation strategy.
  - \* Organize a workshop to present different methods and tools for mitigation analysis and clarify challenges and opportunities of such an analysis for the relevant institutions in Zaire; not only from the viewpoint of mitigation of greenhouse gases but also related to the general development policy and planning processes underway in the country.
  - \* Establish a research group consisting of representatives from the relevant institutions to undertake the mitigation analysis and/or provide essential background information for the analysis and train the group to use the selected tools. Relevant fields are energy production and end use in the industrial and residential sector, transport, agriculture, forestry and waste treatment.
  - \* Build capacity in the research institutes and NGOs working with alternative energy sources, energy efficiency, advanced agricultural practices or carbon sinks to make preliminary feasibility studies and cost analysis of different options (covering also the regulatory and legislative framework, tariff and fiscal policies, tax incentives etc. ) in order to provide the essential background information for the mitigation analysis and formulation of a national greenhouse gas mitigation strategy.
  - \* Undertake a mitigation analysis using the selected tools and the collected background information in order to construct a series of different climate change mitigation scenarios, evaluate their consistency with the general development goals of Zaire, and prepare a draft proposal to implement the most promising mitigation measures.
- Organize a workshop (with wide local participation and relevant international partners) to present the results of the project, together with results or status of other ongoing national projects relevant to the issue and to discuss the results with the objective of formulating a national greenhouse gas mitigation strategy.
- Using the outputs of this project as well as results of other ongoing projects, prepare the first communication of Zaire to the Conference of the Parties.

#### **RATIONALE FOR GEF SUPPORT**

13. According to Article 4, paragraph 1 and Article 12, paragraph 1 of the UNFCCC, all Parties shall communicate to the COP a national inventory of anthropogenic emissions by sources

and removal by sinks of all greenhouse gases and a general description of steps taken or envisaged by the party to implement the convention. The project responds to this objective by implementing an activity needed to enable Zaire to fulfil its commitments to implement the Convention. This activity is unlikely to be carried out without GEF funding.

14. The project is consistent with the enabling activity and capacity building objectives listed in INC Document (A/AC.237/90/Add.3), prepared jointly by the interim secretariat of the UNFCCC and the GEF Secretariat in order to facilitate coordinated and timely assistance to countries for the implementation of the Convention.

#### **SUSTAINABILITY AND PARTICIPATION**

15. The focus of the project is to enhance the indigenous capacity to undertake the required studies so that the government of Zaire can meet its obligations under the convention on a continuous basis. The Government of Zaire fully supports the objectives of the project, and will contribute US \$ 50,000 in kind to cover office space, and a part of the cost of the local staff. After the project has ended and the first communication for the Conference of the Parties has been finalized, the Government will take responsibility to regularly update the inventory and prepare further communications to the COP, in accordance with agreements reached by COP.

16. To ensure wide participation, training of people and coordination of ongoing projects related to climate change, the project will be coordinated through the already existing National Coordination Committee on Climate Change. The project will involve also directly the relevant academic institutions and NGOs to the work.

#### **LESSONS LEARNED AND RESPONSE TO THE TECHNICAL REVIEW**

17. In the course of technical reviews of enabling projects (see Annex 3), the importance of cooperation and networking of a broad range of experts has been noted and duly reflected in the present proposal. The project recognizes the importance of exchange of information and experience at the national level, as well as regionally and internationally.

18. Concerning the Reviewer's comments on the unclear institutional framework, a major task of the project, as already mentioned under the chapter "Project Objectives", is to develop an institutional mechanism/framework to strengthen the dialogue, information change and cooperation among all the relevant stakeholders. This will include governmental, non-governmental, academic, private and "grassroots" sectors thereby involving the key institutions. Partly this can be done through the already existing National Coordination Committee on Climate Change, partly by creating direct links to the relevant academic institutions and NGOs. These institutional mechanisms and linkages will be clarified during the further project preparation and they will be presented in the final project documentation.

## **PROJECT FINANCING, BUDGET AND INCREMENTAL COSTS**

19. As an enabling activity, this project would not take place without the UNFCCC. Therefore, the full costs of the project equal the incremental costs of the project. With the exception of the "in-kind" contribution of the Government of Zaire, GEF is being requested to fund the full amount of the project. The detailed project budget reflecting the different sub-tasks is presented in Annex 1.

## **ISSUES, ACTIONS AND RISKS**

20. The ultimate criteria of success will be how the results of the project will be incorporated in the broader development goals and work underway in Zaire and thus contribute to the ultimate objective of the convention to achieve the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This project attempts to contribute to this objective by enabling Zaire to fulfill its commitments under the convention as well as establishing an institutional framework for cooperation and involvement of all the relevant partners in the country in order to continue the work with climate change related issues.

21. Considering the immediate results of the project, the crucial element will be as well, a close collaboration between the different Ministries, NCCCC, research institutes and NGOs at institutional level as well as collaboration of the project personnel at the individual level with each other and with the project support staff paid by the Government. Another issue is the international collaboration, especially when preparing a work plan for and implementing the research oriented activities 3 and 4. During this process, common methodologies will be used and among others IPCC and UNEP will be consulted to ensure that the methods and details of the subjects are also relevant from the global point of view. The project will also use the results of ongoing or finalized projects like UNEP Country Case Studies on Climate Change Impacts and Adaptation Assessments, UNDP/GEF ALGAS (Asian Least-Cost Greenhouse Gas Abatement Strategies), CC:TRAIN and US Country Study Programme to avoid duplication of effort and ensure the effective implementation of the project.

## **INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

22. The Executing Agency of the project will be Government of Zaire, and UNDP will be the Implementing Agency. The National Coordination Committee on Climate Change (NCCCC) will be charged with overseeing and advising project execution and will also have decision making power over all aspects of the project. The project will also collaborate closely with all the other relevant ongoing projects in Zaire, both through the NCCCC and between the research teams in order to enable an effective information exchange between the projects and full utilization of their results in the formulation of a national greenhouse gas mitigation strategy.

23. Under the different sub-tasks study tours will be undertaken and working links with international partners will be established in order to ensure effective exchange of information and appropriate implementation of the project.

24. With these arrangements the project seeks to establish close links with other climate change related activities being carried out by other GEF implementing agencies or by other multilateral and bilateral organizations. It will do so practically as figured above and also by participating in the informal consultative mechanism, CC:FORUM, being set up by the UNFCCC Secretariat, to ensure that results and outputs of this project will be shared among all actors involved in climate change activities in order to enable such actors to mutually benefit from one another's activities for the present and for the future.

#### MONITORING AND EVALUATION

25. After the detailed work plan has been prepared, an external review on it will be undertaken. The purpose of the review is to identify in the very early stage of the project the eventual gaps, overlaps and other risks of successful implementation, as well as to identify potential partners and sources of information of which the project could benefit.

26. The NCCCC together with the executing agency will be responsible for monitoring the project on a continuous basis. In order to do this the Project Manager, with the help of the leaders of the research teams, will prepare regular reports on the progress of the project as whole and the different sub-tasks under it. In addition to this, an external midterm evaluation will be conducted about 12 months after the start of the project. The purpose of the evaluation is to review the overall success of the project and suggest modifications to the implementation of the project for the remaining part. It is vital that the recommendations from the evaluation are disseminated immediately, so that appropriate action can be undertaken without delay. A joint meeting of the evaluators, together with the Project Steering Committee has been designed for this purpose.

27. In addition the project will rely on the UNDP standard monitoring and evaluation practices.

CAPACITY TABLE FOR CLIMATE CHANGE ENABLING ACTIVITIES IN ZAIRE

Enabling Activity	Planning	Instit Strength	Training	Research	Education
<b>Background Information for National Communication</b>					
<b>Emission inventory</b>					
- CO2 from energy sources	X	X	X	X	X
- CO2 from land use changes	X	X	X	X	X
- CH4	X	X	X	X	X
- N2O	X	X	X	X	X
- other sources and gases	X	X	X	X	X
<b>Mitigation Options</b>					
<b>Energy related</b>					
- industry	X	X	X	X	X
- transport	X	X	X	X	X
- residential	X	X	X	X	X
- energy supply	X	X	X	X	X
- other	X	X	X	X	X
<b>Non-Energy Sources</b>					
- agriculture	X	X	X	X	X
- forestry	X	X	X	X	X
- waste management	X	X	X	X	X
- other	X	X	X	X	X
- sink enhancement	X	X	X	X	X
<b>Vulnerability Assessment</b>					
- agricultural sector	0	0	0	0	0
- forestry	0	0	0	0	0
- coastal zone	NA	NA	NA	NA	NA
- water resources	0	0	0	0	0
- health impacts	0	0	0	0	0
- natural ecosystems	0	0	0	0	0
- other impacts	0	0	0	0	0
<b>adaptation options (stage 1)</b>	0	0	0	0	0
<b>National Plans</b>					
- national plan (mitigation)	X	X	X	X	X
- national plan (adaptation)	0	0	0	0	0
- other elements?	X	X	X	X	X
<b>Formulation of National Communication</b>					
- inventory	X	X	X	X	X
- mitigation options	X	X	X	X	X
- vulnerability and adapt.	0	0	0	0	0
- information on research and observation	X	X	X	X	X
- information on education	X	X	X	X	X
- other relevant information	X	X	X	X	X

Key to Table

X	= Areas to be covered by the proposed project
'\$\$\$'	= Areas already covered by other projects or programs; Following acronyms are used: ADB = Asian Development Bank ALG = ALGAS Project CCT = CC:TRAIN GEF = Other Regional or Country Specific GEF "Enabling" Project GTZ = German Agency for Technical Cooperation OEC = OECD/IPCC Programme UNE = UNEP-GEF Country Case Studies UNR = UNEP-RISO Greenhouse Gas Abatement Costing Studies
US	= U.S. Country Studies Program
'X(\$\$)'	= Some preliminary activities have already been undertaken, but completing activities presented in the proposed project are needed to finalize the task
0	= Remaining ability gaps for which additional funding from GEF or other sources might still be requested
'0(\$\$)'	= Some preliminary activities have already been undertaken, but completing activities not undertaken by the proposed project might be needed to finalize the task
NA	= Non-applicable or nonsensical entry (e.g coastal vulnerability assessment for land-locked country)



## ANNEX 1

### (Budget)

**Activity 1: Identify a local Project Coordinator and prepare a detailed work plan.**

(a)	Project Coordinator	US \$ 50,000
(b)	International Consultants	US \$ 15,000
(c)	Equipments (computer, fax etc.)	US \$ 5,000
(d)	Travel	US \$ 10,000
(e)	Other Operational Expenses	US \$ 5,000

<b>Subtotal</b>	<b>US \$ 85,000</b>
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Activity 2: Establish an information center in order to create links to potential sources of information, enhance public awareness, collate, gather and disseminate information on climate change.

(a)	Local experts/external consultants	US \$ 25,000
(b)	Equipments (computers, copy machine etc.)	US \$ 10,000
(c)	Travel	US \$ 10,000
(d)	Operational costs (electronics networks, publications, etc.)	US \$ 15,000

<b>Subtotal</b>		<b>US \$ 60,000</b>
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**Activity 3: Undertake a national inventory of greenhouse gases.**

(a)	Local Experts	US \$ 35,000
(b)	International Consultants	US \$ 15,000
(c)	Travel	US \$ 10,000
(d)	Equipments	US \$ 7,000
(e)	Operational Costs	US \$ 3,000

<b>Subtotal</b>	<b>US \$ 70,000</b>
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**Activity 4: Build capacity and undertake studies to provide relevant information for the formulation of a national greenhouse gas mitigation strategy.**

(a)	Local Experts	US \$ 35,000
(b)	International Consultants	US \$ 20,000
(c)	Travel	US \$ 10,000
(d)	Equipments	US \$ 7,000
(e)	Operational Costs	US \$ 3,000

<b>Subtotal</b>	<b>US \$ 75,000</b>
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ANNEX 1 (Cont'd)

<u>Activity 5:</u>	<u>Organize a national workshop</u>	US \$ 20,000
<u>Activity 6:</u>	<u>Prepare the first communication to COP</u>	
(a)	Personnel (the Project Coordinator is responsible for the preparation)	\$0 (see activity 1)
(b)	Operational and reporting costs	US \$ 10,000
Monitoring and Evaluation		US \$ 15,000
Project Cost		US \$ 335,000
	Project Support Services (3%) (including Executing Agency Support Costs)	US \$ 10,000
<b><u>TOTAL PROJECT COST</u></b>		<b><u>US \$ 345,000</u></b>

## Annex 2

## (STAP COMMENTS)

**RELEVANCE TO GEF**

This project is intended to better enable the country of Zaire respond to its commitments under the UN Framework Convention on Climate Change (UNFCCC). I understand that in terms of UNFCCC, the industrial countries are required to provide assistance to developing countries for the tasks to be undertaken for compliance with UNFCCC. This proposal comprises such tasks, and is thus relevant for funding by GEF.

**OBJECTIVES**

The project objectives are valid in terms of what the government of Zaire should undertake for compliance with the terms of UNFCCC. The project goals lack clear criteria for assessment of success so that the performance of the project could be appraised.

**APPROACH**

The project approach is itemized correctly in terms of what general steps should be undertaken. However, the detailed institutional mechanisms and linkages that will turn these plans into reality are left unclear. The project approach leaves it open to the national coordinator (himself to be selected under the project) to determine how to ensure project continuity and continuity of personnel. Some identification of the institutional linkages (e.g., with existing University centers, research institutions) would be important to be cited in the proposal.

**BACKGROUND INFORMATION**

The background information is adequate for the proposed tasks.

**FUNDING LEVEL**

The overall funding request of \$412,000 is reasonable. However, a large fraction of the funds are attributed to travel (\$40,000), international consultants (\$40,000), and local consultants (\$95,000), and equipment (\$70,000). Relatively inadequate support is devoted to salaries. This leaves the design of the project open to the risk that the Center will have equipment and consultants, but little continuity.

**STRENGTHS/WEAKNESSES**

The weaknesses of the proposed effort have been described in the discussions in the sections above. I recommend that funding support for graduate students, or providing research support for an existing faculty or academic center at a University would be a way to address these weaknesses. The greatest strength of the proposal is that it make a stab at defining the tasks that the government of Zaire should undertake on their own.

## PROPOSAL FOR REVIEW

**Project Title:** Pacific Island Climate Change Assistance Project

**GEF Focal Area:** Climate Change

**Country Eligibility:** Countries and date of FCCC ratification: Cook Islands (20/4/93); Federated States of Micronesia (8/11/93); Fiji (25/2/93); Kiribati (7/2/95); Marshall Islands (8/10/92); Nauru (11/11/93); Samoa (29/11/94); Solomon Islands (28/12/94); Tuvalu (26/10/94); Vanuatu (25/3/93).

Deposited GEF instrument on: Cook Islands (5/6/94); Federated States of Micronesia (4/26/94); Fiji (5/10/94); Kiribati (5/10/94); Marshall Islands (4/15/94); Nauru (5/5/94); Samoa (3/28/94); Solomon Islands (4/16/94); Tuvalu (5/3/94); Vanuatu (5/19/94).

**Total Project Costs:** US \$ 2.44 million

**GEF Financing:** US \$ 2.44 million

**Country Contribution:** In kind

**GEF Implementing Agency:** UNDP

**Executing Agency:** South Pacific Regional Environmental Programme

**Estimated Approval Date:** January 1996

**Project Duration:** 3 years

**GEF Preparation Costs:** US \$ 20,000

**Government Endorsement:** Received 11 August, 1995

## **BACKGROUND**

### **Pacific Island Countries and Climate Change Issues**

1. This project proposal is concerned with climate change 'enabling activities' for the small developing island countries of the western Pacific region. These Pacific island countries exhibit a unique combination of geographical, biological, sociological and economic characteristics which can be found nowhere else in the world. Together, these islands contain a population of less than 3 million people, yet they occupy a vast area. Their combined Exclusive Economic Zones occupy 30 million square kilometres of the Pacific (three times the area of the USA), only 1.8% of which is land (see map, Annex A).

2. These Pacific island countries are, arguably, amongst those countries of the world most vulnerable to climate change and sea-level rise. They include hundreds of low-lying islands and atolls, many no more than several metres above sea level, with populations and economic activities concentrated in coastal zones. For many of these Pacific islands, critical resources, such as arable soil and potable groundwater, are scarce. Moreover, these countries are already subject to natural disasters from climate-related extreme events, such as cyclones, droughts and floods, which could be exacerbated by global warming and sea-level rise. Internationally, the enhanced vulnerability and special needs of small island developing states has been recognised by the Climate Convention (Article 4.8), Agenda 21 and the Barbados Declaration and Programme of Action.

3. A high priority has been afforded to addressing climate change and related sea-level rise issues by the heads of government of the Pacific region. This priority has been formally expressed in various South Pacific Forums. It is further reflected in the efforts of Pacific island countries, through the Alliance of Small Island States (AOSIS), to obtain further commitments under the Climate Convention for reductions in greenhouse gas emissions. The issues of climate and sea-level change and associated strategies, including integrated coastal zone management, feature prominently as national priority items for action in the National Environmental Management Strategies (NEMS) of the region. Except for two, all SID countries of the western Pacific have ratified the Framework Convention on Climate Change, signifying a high level of commitment to promoting international efforts to limit greenhouse gas emissions and to work collectively in adapting to the changes in climate and sea level that will occur despite mitigation efforts.

### **Background and Participatory Development of the Proposal**

4. The proposal was conceived during the seventh South Pacific Regional Environmental Programme (SPREP) meeting in October 1994, in Kiribati. At this intergovernmental meeting, governments gave direction to SPREP's Secretariat to develop a region-wide proposal, to be submitted to GEF, addressing climate change issues in the context of the Climate Convention. A working paper was subsequently drafted. A GEF working group, comprised of national and regional representatives, was constituted in February 1995 and met in Sydney to develop a draft proposal. This proposal was circulated to representatives of the concerned Pacific island governments during the Conference of the Parties (COP) at Berlin in March 1995 for their evaluation, comments and support. Based on these consultations, a revised draft was submitted to the UNDP regional office (in W. Samoa) and, subsequently, to the UNDP Regional Bureau for Asia and the Pacific in New York. On the basis of that draft, UNDP supported a mission jointly with UNITAR/CC:TRAIN to prepare a GEF Project Proposal under the climate change focal area.

5. During the evolution of the proposal, the scope of the work has narrowed from a broad set of general capacity building activities to a more focused **programme of enabling activities**,

entitled the **Pacific Island Climate Change Assistance Programme (PICCAP)**. PICCAP is concerned specifically with activities which, as a matter of priority, will enable the Pacific island countries to develop the capacity to meet their reporting obligations under the Climate Convention.

6. This project was reviewed and strongly supported as a priority for the region at the Regional GEF Training cum Scoping Workshop held in Nadi, Fiji, between 1 and 4 August 95. There were over 80 participants from Pacific Island governments, regional institutions, national, and international NGOs, GEF Implementing Agencies (UNEP, UNDP, World Bank), and development partners Australia, New Zealand, Canada and United States of America. Formal letters of endorsement from all participating SID governments are attached.

## **PROJECT DESCRIPTION AND OBJECTIVES**

7. The PICCAP participants are comprised of the following Pacific island countries which have ratified the Climate Convention: the Cook Islands, Republic of Fiji, Republic of Kiribati, Republic of the Marshall Islands, Federated States of Micronesia, Nauru, Solomon Islands, Tuvalu, Republic of Vanuatu and Western Samoa. Niue and Tonga were not included in the PICCAP proposal because they have not yet ratified the Climate Convention. Discussions with bilateral donors are currently ongoing with regard to utilizing non-GEF funding to allow Tonga and Niue to participate in the project. Because of its size and distinctively different environmental conditions, Papua New Guinea was also not included, on the clear expectation that a separate proposal will be submitted by that country.

8. The enabling activities of PICCAP will facilitate the implementation, in accordance with the Convention, of effective response measures by these Pacific island countries. **The immediate aim of PICCAP is to enable the Pacific island countries to meet their reporting obligations under the Framework Convention on Climate Change, leading to their National Communications as required under Article 12.** In this regard, six objectives were formulated for PICCAP, with appropriate outputs and required activities which directly relate to:

- generating the informational components that are relevant to the preparation of the National Communication (particularly Art. 4.1 and Art. 12), including **greenhouse gas inventories, mitigation options, vulnerability assessments, adaptation options, national implementation plans, and the National Communication itself;** and
- building the capacity of the Pacific island countries to produce and systematically update the required information through **planning and capacity building, including institutional strengthening, training, and public awareness.**

9. The key objectives, outputs and activities are summarised below.

**Objective 1 (INVENTORIES): To enable the Pacific island countries to fulfil their reporting obligations with regard to the development of inventories of greenhouse gas (GHG) sources and sinks.**

*Output 1.1:* Procedures for compiling comprehensive national and regional (GHG) inventories appropriate for use in the Pacific region.

Activity 1.1.1 Adapt the IPCC/OECD Greenhouse Gas Emissions Inventory Guidelines to the needs of the Pacific region.

Activity 1.1.2 Convene PICCAP Regional Workshop 1 to refine procedures and data needs

Activity 1.1.3 Adapt training materials and modules (CC:TRAIN)

Activity 1.1.4 Conduct training on National Staff and Technical Experts (CC:TRAIN)

*Output 1.2:* Comprehensive national and regional GHG inventories in accordance with IPCC/OECD Guidelines.

Activity 1.2.1 Assist national governments in the preparation of national GHG inventories

Activity 1.2.2 Undertake a regional synthesis of GHG inventories

**Objective 2 (MITIGATION): To enable the Pacific island countries to fulfil their reporting obligations with regard to the identification of options for mitigating climate change.**

*Output 2.1:* Regional and national mitigation options that are appropriate for Pacific island countries, particularly long-term measures which are cost-effective and environmentally sustainable

Activity 2.1.0 Evaluate the GHG inventories to identify potential areas for reduction of sources and enhancement of sinks

Activity 2.1.1 Define the range of possible mitigation options within the region

Activity 2.1.2 Identify and evaluate least-cost mitigation options for the Pacific island countries

**Objective 3 (VULNERABILITY): To enable the Pacific island countries to fulfil their reporting obligations with respect to their vulnerability to future climate change and sea level rise.**

*Output 3.1:* Procedures for assessing vulnerability appropriate for Pacific island countries.

Activity 3.1.1 Adapt regionally appropriate procedures for vulnerability assessment following the IPCC Technical Guidelines

Activity 3.1.2 Convene PICCAP Regional Workshop 2 to refine procedures and data needs

Activity 3.1.3 Adapt training materials and modules (CC:TRAIN)

Activity 3.1.4 Conduct training of national staff and technical experts (CC:TRAIN)

*Output 3.2:* Comprehensive sets of baseline data required as reference points for assessing future vulnerability and adaptation options.

Activity 3.2.1 Define the information requirements

Activity 3.2.2 Collect, evaluate and compile existing regional and national data

Activity 3.2.3 Identify data shortcomings

*Output 3.3:* Scenarios of future region-specific changes in climate and sea level and in environmental, social and economic conditions

Activity 3.3.1 Develop region-specific procedures for scenario development.

Activity 3.3.2 Prepare regional, sub-regional and national scenarios.

Activity 3.3.3 Document and transfer to national teams.

*Output 3.4:* Comprehensive assessments of vulnerability to climate and sea-level change.

Activity 3.4.1 Conduct national vulnerability assessments.

Activity 3.4.2 Prepare a regional assessment.

The special needs of the small island developing states and their enhanced vulnerability to

climate change has been recognized by the FCCC, the Agenda 21 and the Barbados Declaration for special attention. Taking into account the fragile ecosystems and some 30 million square kilometres of the Pacific Small Island States' combined EEZ, the PICCAP proposal provides special emphasis on the vulnerability assessment component, with attendant programme inputs.

**Objective 4 (ADAPTATION): To enable the Pacific island countries to fulfil their reporting obligations with respect to their options for adapting to climate change and sea-level rise.**

*Output 4.1:* Procedures for identifying and evaluating adaptation options.

- Activity 4.1.1 Adapt regionally appropriate procedures for identifying and evaluating adaptation options which are consistent with the IPCC Technical Guidelines.
- Activity 4.1.2 Refine procedures and data needs (part of PICCAP Regional Workshop 2).
- Activity 4.1.3 Adapt training materials and modules (CC:TRAIN)
- Activity 4.1.4 Conduct training (CC:TRAIN)

*Output 4.2* Regional and national options for adapting to climate change.

- Activity 4.2.1 Define the range of options applicable to the Pacific region.
- Activity 4.2.2 Evaluate and identify least-cost national adaptation options.

*Output 4.3* Regional and national options for coping with sea-level rise, including integrated coastal zone management (ICZM) as a strategy for effective adaptation.

- Activity 4.3.1 Define the range of options applicable to the Pacific region.
- Activity 4.3.2 Evaluate and identify least-cost national options, in the context of ICZM.

**Objective 5 (NATIONAL IMPLEMENTATION PLANS) : To enable Pacific island countries to fulfil their reporting obligations with regard to the development of national implementation plans.**

*Output 5.1:* Institutional framework and political support

- Activity 5.1.1 Establish country teams (CC:TRAIN)
- Activity 5.1.2 Convene national workshops to raise awareness and political support, and to develop guidance on national implementation plans.
- Activity 5.1.3 Convene PICCAP Regional Workshop 3 to review guidance material and identify common elements and information needs.
- Activity 5.1.4 Adapt training materials and modules (CC:TRAIN)
- Activity 5.1.5 Training of national teams (CC:TRAIN)

*Output 5.2:* Nationally-endorsed regional and national implementation plans.

- Activity 5.2.1 Prepare a regional implementation plan.
- Activity 5.2.2 Prepare national implementation plans, and exchange plans between countries.
- Activity 5.2.3 Convene national workshops for presentation to policy and decision makers.

**Objective 6 (NATIONAL COMMUNICATION): To enable Pacific island countries to fulfil their reporting obligations with respect to communicating information under Article 12 of the Climate Convention (National Communications).**

*Output 6.1:* Common regional reporting elements and guidelines.



- Activity 6.1.1 Convene PICCAP Regional Workshop 4 to elaborate the emerging guidelines and application procedures.
- Activity 6.1.2 Adapt training materials and modules (CC:TRAIN)
- Activity 6.1.3 Conduct training (CC:TRAIN)

*Output 6.2:* Politically-endorsed and supported National Communications.

- Activity 6.2.1 Prepare National Communications.
- Activity 6.2.2 Facilitate the exchange of National Communications between countries.
- Activity 6.2.3 Convene national workshops for presentation to policy and decision makers.

10. All six of the above objectives will not necessarily be carried out under PICCAP for all 10 eligible countries. For some countries and objectives, studies have already been completed or are in progress, notably under the U.S. Country Studies Programme, the Japanese studies and the CC: TRAIN Programme (see Annexes 1,2,4 and 5). **In order to avoid duplication and to achieve cost-effectiveness and comprehensive coverage, PICCAP will carry out the *additional* activities required in order meet the overall goal of bringing each country to National Communications (see Table 1 below).** For example, while all 10 countries require activities to be carried out relating to Objective 6 (National Communications), only 5 countries (Cook Islands, Nauru, Solomon Islands, Tuvalu, and Vanuatu) require GHG inventories, and 6 countries require assessments of vulnerability and adaptation options under PICCAP (Objectives 3 and 4)\*. These differences have been taken into account in estimating costs. PICCAP will coordinate directly with CC:Train and the U.S. Country Studies Program in the Pacific region to ensure complementarity and completeness of activities, and to achieve consistency and efficiency in the application of common mechanisms and modalities in meeting objectives.

11. In carrying out its objectives, PICCAP will make best use of existing methods (e.g. OECD/IPCC inventory methods, the IPCC Technical Guidelines for assessing climate change impacts and adaptation options). These methods will be adapted (and procedures devised for their application) to conform to the particular environmental, socio-economic and cultural characteristics of the region. PICCAP will also build upon the work of the GEF/Asia Least-Cost Greenhouse Gas Abatement Strategy (ALGAS) project, presently being executed by the Asian Development Bank. Specifically, PICCAP will benefit from training materials, modelling techniques, and analytical methods developed under the GEF Regional ALGAS project. Similarly, PICCAP will monitor the outputs of the on-going country and regional enabling activities and strategies and will utilise these outputs where appropriate. Finally, PICCAP will draw upon the particular experience of the enabling activities and projects supported by GEF in the Republic of Maldives and the Caribbean region.

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\* The Federated States of Micronesia considers the on-going U.S. Country Studies activities 3, 4, and 5 inadequate for "communication" and has specifically requested its inclusion in these activities under PICCAP.

Table 1: Existing country activities in relation to PICCAP objectives

	OB1: INVEN- TORIES	OB2: MITIGA- TION	OB3: VULNER- ABILITY	OB4: ADAP- TATION	OB5: NAT'L PLAN	OB6: NAT'L COMM
TRAINING	CC	NA	CC	CC	CC	CC
Cook Islands	PIC	PIC	PIC	PIC	PIC	PIC
Fiji	US	PIC	US/JP	US/JP	PIC	PIC
Kiribati	US	PIC	US	US	US	PIC
FSM *	US	PIC	US/PIC	US/PIC	US/PIC	PIC
Marshall Islands	US	PIC	US	US	PIC	PIC
Nauru	PIC	PIC	PIC	PIC	PIC	PIC
Western Samoa	US	US	US/JP	US/JP	PIC	PIC
Solomon Islands	PIC	PIC	PIC	PIC	PIC	PIC
Tuvalu	PIC	PIC	PIC	PIC	PIC	PIC
Vanuatu	PIC	PIC	PIC	PIC	PIC	PIC
REGIONAL SYNTHESIS	PIC	PIC	PIC	PIC	PIC	NA
PICCAP Countries per Objective	5	9	6	6	9	10

US U.S. Country Studies

JP Japanese studies

CC CC:TRAIN training activities

PIC To be included in PICCAP

\* The Federated States of Micronesia considers the on-going U.S. Country Studies activities 3, 4, and 5 inadequate for "communication" and has specifically requested its inclusion in these activities under PICCAP.

12. As small islands with greater than 90% of their populations inhabiting low-lying coasts, PICCAP will be concerned largely with climate and sea-level change in the coastal zone. For this reason, coastal impacts and integrated coastal zone management (ICZM) will be central in carrying out the objectives related to vulnerability assessment and adaptation options and the development of national implementation plans and National Communications.

13. PICCAP places emphasis, in the first instance, on enabling activities designed to help the Pacific island countries to implement the Climate Convention in the short term, especially with respect to their National Communications. Nonetheless, the activities under PICCAP have broader, long-term benefits:

- to provide important additional case study material related to the evaluation of the IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptation, leading to the eventual preparation of simplified procedures for country applications, as envisaged by UNEP.
- to identify the key long-term, sustainable, cost-effective mitigation options (e.g. energy efficiency solar pv, wind options) and adaptation measures (e.g. integrated coastal zone management) for the Pacific region which could be woven into development policies and strategies for environmental management, and which could provide the basis for proposals for implementation of the Climate Convention in the longer term (Stages II and III).
- to enhance the ability of Pacific island countries to implement the Convention in the longer term by increased regional knowledge and scientific understanding, by enlarged and regionally comprehensive databases, and by strengthened institutional frameworks and political processes as they relate to climate change issues.

## **INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

### **Implementing, Executing and Participating Agencies, Monitoring and Evaluation**

14. The responsibility for carrying out the various national activities will rest with the concerned Pacific island countries. Country Teams will be established during the initial stages of PICCAP (under Objective 5), with the focal point in each country being determined by the governments (see Annex E). It is expected that these focal points will correspond to that utilised by CC:TRAIN (as subsumed under PICCAP) and by the U.S. Country Study Programme, assuring consistency and coordination of regional activities. These Country Teams, the focal point agencies, and the nominated participating organisations and experts will be the prime beneficiaries of the national and regional workshops, training, institutional strengthening and other capability building activities of PICCAP.

15. The work of the country teams would be supported by a Regional Scientific Advisory Panel, drawn from experts and institutions from the region, to provide scientific oversight and guidance. A PICCAP Project Review Board will be set up to provide overall guidance and review of the work programme. The members will be senior representatives from each of the national counterpart agencies/country teams, UNDP, SPREP, and UNITAR/CC:Train. The Board would meet once a year to review work plans and also serve as the venue for monitoring and evaluating the work progress through the annual tripartite project reviews. In addition to normal UNDP monitoring and evaluation mechanisms any new GEF monitoring and evaluation criteria would be adhered to.

16. At the national level, the Country Teams will be responsible for identifying and coordinating the participating organisations (including NGOs) and national experts, and for

carrying out national GHG inventories (Activity 1.2.1), vulnerability assessments (Activity 3.4.1), evaluation of adaptation options (Activities 4.2.2, 4.3.2), national implementation plans (Activity 5.2.2) and National Communications (Activity 6.2.1), as well as national-level workshops and information dissemination (Activities 5.2.3, 6.2.2, 6.2.3).

17. There are a number of organisations (including national and regional NGOs) within the Pacific region that could potentially be involved in carrying out PICCAP objectives and in assisting the Country Teams in carrying out PICCAP technical work. South Pacific Applied Geosciences Commission (SOPAC) is a regional organization which assists with resource assessment, coastal management and hazard evaluation. The University of the South Pacific (USP) is a regional university serving 12 Pacific island states through three campuses, a network of centres and a satellite-based distance learning programme. Other universities include the University of Papua New Guinea (UPNG), the French University of the Pacific (FUP), the University of Guam, and the University of Technology (UoT). These organisations and others would be considered for undertaking *technical tasks* with regional applicability, including: the adaptation of GHG inventory guidelines (Activity 1.1.1) and regional inventory synthesis (Activity 1.2.2); identifying and evaluating mitigation options for the region (Activities 2.1.1, 2.1.2); and the development of regionally-specific procedures (Activity 3.1.1, 4.1.1), climate change scenarios (Activities 3.3.1, 3.3.2, 3.3.3) and baseline data (3.2.1, 3.2.2, 3.3.3) required for assessments of vulnerability and adaptation options.

18. The PICCAP will be executed by the South Pacific Regional Environmental Programme (SPREP), in close collaboration with the UNITAR/CC:TRAIN management team. The Climate Change Programme is the mandated programme within SPREP which acts as a clearinghouse and coordinating unit for the South Pacific region on climate change and sea level rise. Since 1990, SPREP has been the technical and scientific advisor to all Pacific governments in relation to the Intergovernmental Negotiating Committee for the Climate Convention, and serves as the regional GEF advisory agency. SPREP would be responsible for the *coordination and management* of PICCAP and for related activities concerned with regional syntheses of results (Activities 1.2.2, 3.4.2, 5.2.1) and for regional-level workshops (Activities 1.1.2, 3.1.2, 4.1.2, 5.1.3, 6.1.1). SPREP will coordinate its activities with the South Pacific Forum Secretariat.

#### **Integration of CC:TRAIN Pacific Activities into PICCAP**

19. **The Pacific activities of CC:TRAIN Phase 2 will be fully integrated into PICCAP.** CC:TRAIN Phase 2 was approved in May 1995 by the GEF Council for implementation in three regions, including Pacific island countries. CC:Train has developed an effective approach to facilitating, at the national level, policy responses to the relatively new and remote issue of global climate change. This "country team" approach involves the organization by national authorities of a multi-sectoral team of national experts to take on specific tasks with external assistance and guidance. This approach promotes local ownership of the project outputs, stimulates a constructive process for policy dialogue at local and national levels, and creates a focus for the programme's implementation. CC: Train will provide the following services as determined and adapted by the country team:

- Guidance and seed operational funds to organize the country teams;
- Financial and material resources to organize national awareness-raising workshops on the Climate Change Convention;
- Training, financial, and material resources to organize national policy dialogues;
- Financial and material resources to organize regional or subregional exchange of information and experience;
- Training, financial, and material resources to prepare a national implementation strategy

based on existing or ongoing country studies.

20. In countries where no climate change studies have taken place, CC:Train will train national experts on international methodologies and provide seed financial resources to further identify the information gaps, and develop preliminary data and analysis for use in preparing a first national implementation strategy.

21. When CC:TRAIN was approved, it was designed to assist countries to start preparation of national implementation strategies with minimal background technical information and to launch processes that strengthen institutions, primarily through training activities. However, the CC: TRAIN project falls well short in completing each objectives and overall goal in formulating its National Communication.

22. With the emergence to the PICCAP initiative, however, a unique opportunity arose for a cooperative, comprehensive enabling activity for the Pacific region which would allow the targeted Pacific island countries to fully meet their obligations for National Communication through an integrated set of focussed planning and capacity-building measures. Consequently, **it was determined that the proposed PICCAP and CC:TRAIN were fully complementary, so that it would be rational, cost-effective and consistent to integrate CC:TRAIN into the proposed PICCAP.** Under this arrangement, CC:TRAIN will execute its activities within the framework of PICCAP, being primarily responsible for specific institutional strengthening (Activities 5.1.1, 5.1.2) and training components (Activities 1.1.4, 1.1.5, 3.1.3, 3.1.4, 4.1.3, 4.1.4, 5.1.4, 5.1.5, 6.1.2, 6.1.3) which are integral to each of the PICCAP objectives.

## **RATIONALE FOR GEF FUNDING**

23. The PICCAP proposal has been developed in accordance with the guidance on policies, programme priorities and eligibility criteria to the operating entity or entities of the financial mechanism of the Climate Convention (Decision 11, first session of the Conference of the Parties to the UNFCCC), which gives priority to enabling activities and the preparation of National Communications. In conformity with Decision 11, the proposed PICCAP:

- is country-driven;
- conforms to national development priorities of each country, consistent with the Rio Declaration and Agenda 21;
- places emphasis on planning and endogenous capacity-building, including institutional strengthening, training, research and education;
- emphasises the improvement of national public awareness of climate change and response measures;
- includes only eligible Pacific island countries which are Parties to the Convention (see entries, p. 1 of this document for ratification dates);
- contains activities related to obligations under Article 12.1 and is therefore eligible for full cost funding.

## **PROJECT SUSTAINABILITY AND PARTICIPATION**

### **Sustainability**

24. The results of PICCAP are expected to be sustainable beyond the three years of the project, for the following key reasons:

- the high priority attached to climate change and sea-level rise issue by governments of the

Pacific island countries, including their commitments to implementation of the Climate Convention, will ensure continued active national involvement in the longer term.

- PICCAP's strong emphasis on national-level training, institutional strengthening, awareness building and database enhancement, as well as its fostering of regional interactions and approaches to effective response measures, will have long-lasting effects beyond the lifetime of PICCAP.
- the inclusion within the National Implementation Plans of programmes of longer-term climate change projects, to be implemented subsequent to PICCAP, will attract support through the FCCC financial mechanisms and bi-lateral agencies, as appropriate.
- At the regional level, SPREP has a mandate to continue the promotion, coordination and implementation of subsequent activities based on the outputs of PICCAP through its Climate Change Programme, in close collaboration with governments and regional organisations.

### **Consultative and Participatory Processes**

25. As indicated in the "Background" section the PICCAP proposal has been prepared through a consultative process with individuals and representatives of relevant stakeholders and potential project participants, including government ministries and departments, academic institutions, research organisations and non-governmental organisations over a one-year period. As a culmination of this consultative process, the PICCAP proposal was reviewed and endorsed by the following participants at the Regional GEF Training and Scoping Workshop, held in Nadi, Fiji during 1-4 August 1995:

***Pacific Island Developing Island Governments:*** Cook Islands, Fiji, FSM, Kiribati, Marshall Islands, Nauru, Niue, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, Western Samoa.

***Developed Countries:*** Australia, Canada, New Zealand, United States of America

***Regional Organisations:*** Forum Fisheries Agency, Forum Secretariat, South Pacific Applied Geosciences Commission (SOPAC), South Pacific Commission (SPC), University of the South Pacific (USP), ESCAP(POC), FAO

***Non-Governmental Organisations:*** South Pacific Action Committee for Human Ecology & Environment (SPACHEE), Pacific Concerns Resource Centre (PCRC), O le Siosiomaga Society, Foundation of the Peoples of the South Pacific (FSP), National Trust for Fiji, IUCN, Mauriua Society, WWF.

***GEF Implementing Agencies:*** UNDP, UNEP, World Bank

## **LESSONS LEARNED AND TECHNICAL REVIEW**

### **Lessons Learned from Enabling Project Reviews**

26. The lessons learned from reviews of other enabling projects highlight specific characteristics which are necessary to ensure successful implementation of PICCAP. In relation to projects that ultimately lead to National Communications under the FCCC, these characteristics include:

- emphasis on training, institutional strengthening and awareness-raising to build capacity

within and between countries

- emphasis on facilitating national and regional cooperation and collaboration
- well-developed national and regional networks of experts and organisations
- provisions for exchange of information at national and international levels
- well-focussed and targeted activities which are channelled to meeting reporting obligations under the FCCC

These characteristics have been duly noted and have guided the development of PICCAP.

### **Lessons Learned from Regional Studies**

27. The design and structure of PICCAP has evolved from lessons learnt from a number of climate-related projects carried out in the Pacific island region as well as elsewhere. As mentioned above (see Table 1), the most relevant projects are those being carried out under the **U.S. Country Studies Programme**, with which PICCAP will cooperate and build upon. The lessons learnt from these country studies pertain to the adaptation of methods and procedures for conducting inventories, assessing vulnerability assessments, and identifying and evaluating adaptation options in the unique situations found in the Pacific region (Outputs 1.1, 3.1 and 4.1). Importantly, these studies highlight the extent to which expertise and in-kind resources may be limited in many Pacific island countries. In addition, other relevant projects in the region include:

- **UNEP/SPREP Climate Change Preparatory Missions**, carried out for 9 countries in 1991-92. These preparatory missions identified the range of potential impacts of climate change on environmental and socio-economic systems in selected Pacific island countries.
- **Japanese Environment Agency/SPREP vulnerability assessments**, with an emphasis on sea-level rise methodologies, carried out for two countries in 1993/94. These studies pointed to the deficiencies of IPCC methodologies for sea-level rise impact assessments in relation to the specific needs of the Pacific region, with indications of where improvements can be made.

The project has additionally benefitted from and taken account of the STAP review (Annex 3) attached, and a review of the document by the managers of the U.S. Country Studies Programme and CC:TRAIN (Annexes 4 and 5).

### **PROJECT FINANCING AND BUDGET**

28. The PICCAP budget is shown in Table 2 below. Through a rational integration of CC:TRAIN into PICCAP (see section on Project Implementation above), and through building upon the U.S. Country Studies and other studies already existing in the region and elsewhere, the proposed project avoids duplication and is cost-effective. The total request from GEF for PICCAP is US\$2.44m.

29. In developing a budget for PICCAP, it is important to note that the costs associated with meetings and workshops is very high, due to the long distances between countries and the relatively high expense of air travel in the Pacific region. This applies not only to the regional level, but to the national level as well, due to the fact that many Pacific countries are comprised of many islands spread out over large areas. Furthermore, in comparison to many other regions, there is a relatively low baseline level of data and capacity which necessitates substantial

assistance, particularly at national level.

Table 2: PICCAP Budget (in thousand US\$)

PROJECT ACTIVITIES:	cc:train	PICCAP
OBJECTIVE 1: INVENTORIES	80	200
OBJECTIVE 2: MITIGATION	0	135
OBJECTIVE 3: VULNERABILITY	155	970
OBJECTIVE 4: ADAPTATION	120	400
OBJECTIVE 5: NAT'L. IMPLEM'N. PLAN	395	280
OBJECTIVE 6: NAT'L. COMMUNICATION	120	150
SCIEN.PANEL/ADVISORY BOARD	0	75
EVALUATION	17	50
PROJECT SUPPORT SERVICES (including executing agency costs)		180
<b>TOTAL</b>	<b>887</b>	<b>2,440</b>

## SCHEDULE AND DURATION

30. The duration of PICCAP is three years, with the objective and outputs scheduled in a manner to ensure a logical sequence of activities, as shown in the PICCAP Workplan (see Annex 6 for a more detailed workplan). For example, the inventories serve as a basis for assessing mitigation options, and the vulnerability assessment provides the basis for evaluation adaptation options, so the respective outputs have been timed accordingly. Similarly, all the background information for planning (inventories, mitigation options, vulnerability assessment, adaptation options) must be in hand by the end of project Year 2 in order to provide the basis for the development of National Implementation Plans, which, in turn, are required to formulate the National Communications during the latter half of Year 3. Objective 5 begins immediately in Year 1 in order to constitute the Country Teams that will be required to coordinate and carry out many of the national activities in the other Objectives. FCCC provides under Article 12.5 for LDCs to "make their initial communication at their discretion". Given the special circumstance of the SIDS, networking and co-ordination needed in PICCAP, SIDS expect similar flexibility to make their first national communication to the COP by 1998.

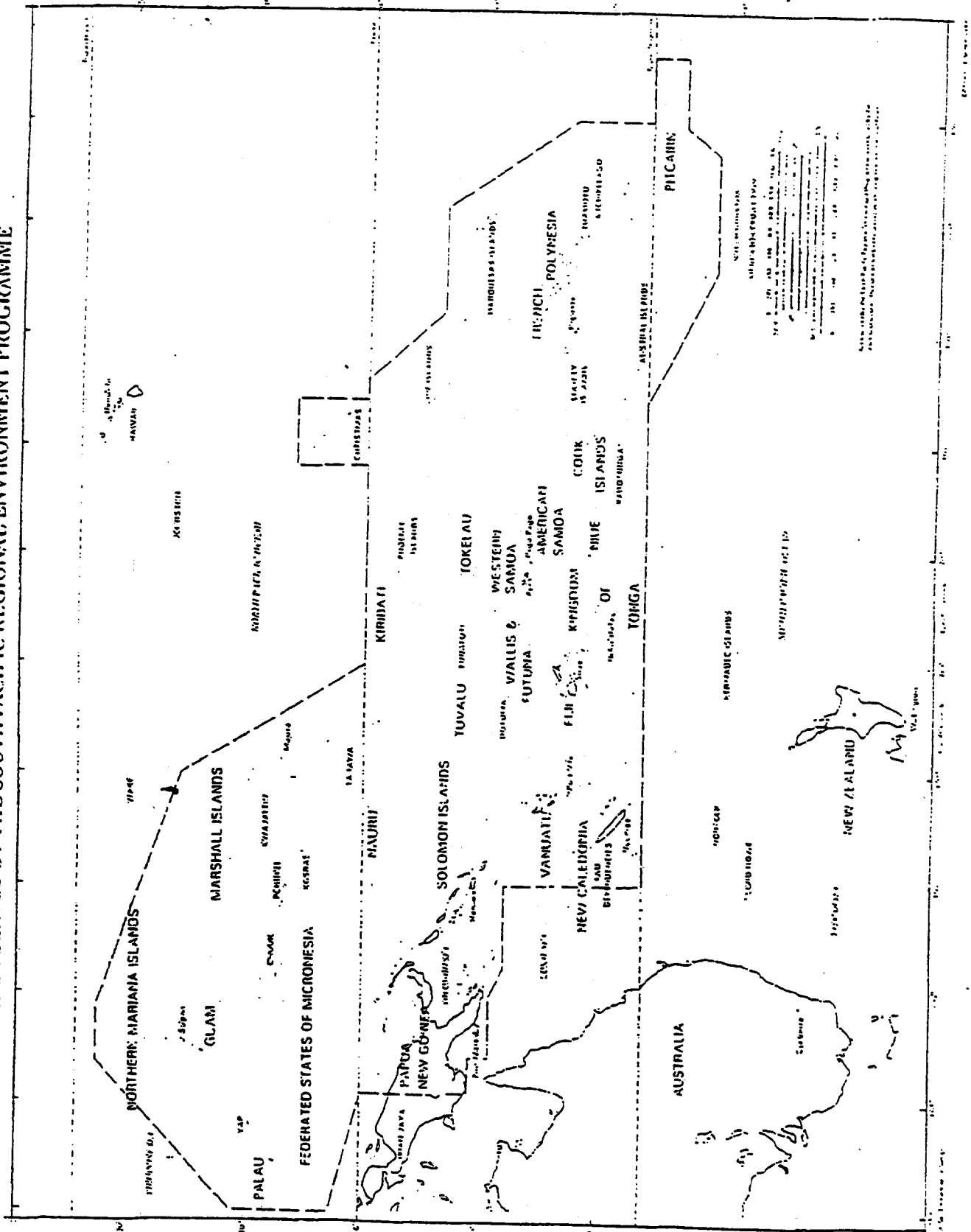
### Annexes

- A Map
- B (1-10) Government Endorsements
- C USCS Programme in the South Pacific
- D Japanese Government ICZM Programme for W. Samoa and Fiji
- E Country Focal Points
- F Stap Roster Review
- G (1&2) Letter of Support from US Country Studies Programme
- H PICCAP Workplan



ANNEX A

AREA SERVED BY THE SOUTH PACIFIC REGIONAL ENVIRONMENT PROGRAMME



**ANNEX - STAP Roster Review STAP ROSTER REVIEW****PACIFIC ISLAND CLIMATE CHANGE ASSISTANCE PROGRAMME (PICCAP)****I. OVERALL IMPRESSIONS**

PICCAP is an enabling activity for ten Pacific Island nations, whose immediate aim is to enable these nations to meet their reporting obligations under the United Nations Framework Convention on Climate Change (UNFCCC), which will lead to their National Communications as required under Article 12. The proposal emphasizes all the major items in a National Communication -- inventory, mitigation, vulnerability and adaptation, and a national implementation plan. The proposal recognizes ongoing work, and plans to build on the work which will be supported by CC:TRAIN, and is being supported by US Country Studies and the Japanese programs.

CC:TRAIN is primarily a training program with some assistance for holding national workshops. UNCS is providing support to five of the ten countries on inventory of GHG emissions and vulnerability and adaptation. Neither USCS nor the countries view the US support as adequate. It is not comprehensive in either area and does not cover mitigation, and the development of a national implementation plan, which would be necessary for a National Communication.

The proposal is well thought out and deserves GEF support.

**2. APPROPRIATENESS OF THE PROJECT APPROACH**

The project approach is appropriate and the steps delineated in each of the activity areas are complete and in the proper sequence. The approach steps note where CC:TRAIN participation is expected, and the proposal provides a helpful matrix which shows the ongoing (US, and Japanese support) and the proposed PICCAP support.

**3. OBJECTIVES OF THE PROJECT**

The principal project objective is to prepare the national communications called for the UNFCCC. The project focuses on all the major elements of a national communication and should result in a comprehensive national plan to implement the Convention.

**4. ACTIVITIES**

The activities noted in the brief are consistent with the stated objectives. These are clearly written and suitably documented.

**5. COUNTRIES**

**The proposal is for ten Pacific Island nations.**

**6. OMISSIONS IN BACKGROUND DISCUSSIONS**

**The background discussion and the information is relatively complete and no additional information is needed to evaluate the proposal.**

**7. INSTITUTIONAL ARRANGEMENTS**

**The proposed arrangements seem appropriate since all the major institutions working in**

**the relevant areas are involved.**

**8. FUNDING**

The overall funding levels are appropriate for a project for this nature, which will cover all the elements of the national communications to FCCC.

**9. INNOVATIVE FEATURES**

There is potential for considerable innovative work particularly since the activities include new assessment and studies which have not been done heretofore.

**10. DEVELOPMENT DIMENSIONS AND RATIONALE FOR GEF SUPPORT**

The project will lead to a national communication to the UNFCCC, which is called for in Article 12 of the FCCC, and is thus deserving of GEF support.

**11. QUESTIONS AND CLARIFICATIONS**

None

**12. ADDITIONAL COMMENTS**

None

**13. INCREMENTAL COSTS AND COST-EFFECTIVENESS**

As the proposal notes, the project is an enabling activity and its agreed full costs deserve to be supported.

August 28, 1995

**ANNEX - PICCAP WorkPlan**

## THE PICCAP WORKPLAN

[illegible]

## PICCAP WORKPLAN

Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
PROJECT ACTIVITIES:																																						
Objective 1: Greenhouse Gas inventories																																						
Output 1.1: Procedures and training																																						
Activity 1.1.1 Develop Procedures																																						
Activity 1.1.2 Elaborate procedures (WS)																																						
Activity 1.1.3 Develop training modules																																						
Activity 1.1.4 Training																																						
Output 1.2: Inventories																																						
Activity 1.2.1 National applications																																						
Activity 1.2.2 Regional synthesis																																						
Objective 2: Mitigation options																																						
Output 2.1: Options																																						
Activity 2.1.1 Identify Options																																						
Activity 2.1.2 Information transfer																																						
Objective 3: Vulnerability Assessment																																						
Output 3.1: Procedures and training																																						
Activity 3.1.1 Develop procedures																																						
Activity 3.1.2 Elaborate procedures (WS2)																																						
Activity 3.1.3 Develop training modules																																						
Activity 3.1.4 Training																																						
Output 3.2: Baseline data																																						
Activity 3.2.1 Define needs																																						
Activity 3.2.2 Collect and complete																																						
Activity 3.2.3 Identify shortcomings																																						
Output 3.3: Scenarios																																						
Activity 3.3.1 Develop procedures																																						
Activity 3.3.2 Prepare scenarios																																						
Activity 3.3.3 Document and transfer																																						
Output 3.4: Assessments																																						
Activity 3.4.1 National applications																																						
Activity 3.4.2 Regional synthesis																																						
Objective 4: Adaptation Options																																						
Output 4.1: Procedures and training																																						
Activity 4.1.1 Develop procedures																																						
Activity 4.1.2 Elaborate procedures (part of WS2)																																						
Activity 4.1.3 Develop training module																																						
Activity 4.1.4 Training																																						
Output 4.2: Options for climate change																																						
Activity 4.2.1 Identify range																																						
Activity 4.2.2 National evaluations																																						
Output 4.3: Options for sea-level rise, incl IGZM																																						
Activity 4.3.1 Identify range																																						
Activity 4.3.2 National evaluations																																						
Objective 5: National Implementation plan																																						
Output 5.1: Initial framework and political support																																						
Activity 5.1.1 Establish country teams																																						
Activity 5.1.2 Raise national awareness																																						
Activity 5.1.3 Develop regional guidance (WS3)																																						
Activity 5.1.4 Develop training module																																						
Activity 5.1.5 Train country teams																																						
Output 5.2: Regional and national implementation plans																																						
Activity 5.2.1 Prepare regional plan																																						
Activity 5.2.2 Prepare national plans																																						
Activity 5.2.3 Present national plan to policy-makers																																						
Objective 6: National Communication																																						
Output 6.1: Regional reporting elements and guidelines																																						
Activity 6.1.1 Regional reporting elements and guidelines																																						
Activity 6.1.2 Regional reporting elements and guidelines																																						
Activity 6.1.3 Train country teams																																						
Output 6.2: Endorsed national communication																																						
Activity 6.2.1 Exchange national communications																																						
Activity 6.2.2 Exchange national communications																																						
Activity 6.2.3 Present national communication, to policy makers																																						

Legend:

s: Objective duration and completion

x: Activity duration

t: Training related

n: National assessments

## PROPOSAL FOR REVIEW

<b>Project Title:</b>	<b>Indonesia: Renewable Energy Small Power (RESP) Project</b>
<b>GEF Focal Area:</b>	<b>Climate Change</b>
<b>Country Eligibility:</b>	<b>Convention Ratified August 23, 1994</b>
<b>Total Project Costs:</b>	<b>US \$ 168 million</b>
<b>GEF Financing:</b>	<b>US \$ 6 million</b>
<b>Country Contribution:</b>	<b>US \$ 62 million</b>
<b>Cofinancing/Parallel Financing:</b>	<b>IBRD US \$ 100 million</b>
<b>GEF Implementing Agency:</b>	<b>World Bank</b>
<b>Executing Agency:</b>	<b>PLN (national power utility); Directorate of Private Power</b>
<b>Estimated Approval Date:</b>	<b>November 1996</b>
<b>Project Duration:</b>	<b>4 years</b>
<b>GEF Preparation Costs:</b>	<b>No GEF PDF</b>
<b>Government Endorsement:</b>	<b>Received 7 July, 1995</b>

## **INDONESIA: Renewable Energy Small Power (RESP) Project**

### **SECTORAL CONTEXT**

1. Indonesia's basic goals and policies for the development of the energy sector are described in the Outlines of State Policy, March 1993. The policy highlights the importance of meeting Indonesia's rapidly growing energy needs in an efficient manner, including through conservation and diversification of primary energy resources, and minimizing the adverse environmental and social impacts of energy use. A key and continuing thrust of the Government's energy strategy is to slow down Indonesia's transition to net oil importer status by diversifying energy supply for domestic consumption towards alternative and economic indigenous resources that have a non-exportable surplus or are non-tradeable, such as renewable energy. In the power sub-sector, Indonesia recognizes that an adequate, reliable and reasonably priced electricity supply is essential for the country's continuing development. Rural electrification (RE) is a key and integral part of the Government's rural development strategy.
2. In Indonesia today, the cost of supplying electricity to rural households that have access to grid supply from the national power utility (PLN) is high. PLN owns and operates over 5,000 diesel plants scattered throughout Indonesia – about 2,000 MW of diesel generating capacity – as a primary means to supply power for rural electrification (RE). Apart from the high cost of sustaining diesel operations in remote areas, the cost is high because much of the diesel plant is under-utilized, with capacity factors averaging less than 30%. In addition, even in the case of the RE loads supplied by regional grids, diesel is the marginal fuel at most times of system operations.
3. Under the present policy of nationally uniform electricity tariffs, the total cost of PLN supply for many RE loads is well in excess of the tariffs to such consumers. PLN's "avoided costs" are estimated, on average, to be about Rp. 140/Kwh (about US ¢ 6.6/kWh) for the Java-Bali grid, about Rp. 196/kWh (US ¢ 9.3/kWh) for the seven regional grids outside Java, and as high as Rp. 250/kWh (US ¢ 11.7/kWh), for PLN's large number of diesel-based isolated units and mini-grids. In contrast, PLN's average revenue from the typical rural consumer is only Rp 137/kWh (US ¢ 6.45/kWh). Thus, diesel-based rural electrification implies a significant subsidy burden on PLN.
4. The Government attaches high priority to cost effective renewable-based energy supply as a means of ensuring high and environmentally sustainable rates of economic growth. Increased penetration of renewable based generation will have a significant and positive impact on the environment by reducing local pollutants such as SO<sub>2</sub> as well as pollutants of global concern such as emissions of green house gases (GHG). To the extent that this development displaces kerosene consumption and diesel generation, it reduces the negative environmental impacts of transport, waste disposal and burning of these fossil fuels.
5. Under these conditions, Indonesia's large base of renewable energy resources, such as mini-hydro and mini-geothermal power sites and biomass-based power generation (including cogeneration), offer economically attractive and environmentally superior alternatives for decentralized electricity generation. The renewable energy resources that have potential for development in Indonesia in the near-to mid-term are mini- hydro, biomass cogeneration, and mini-geothermal, with typical sizes of 1-5 MW. Preliminary information indicates that the potential biomass cogeneration projects – sugar and palm oil – would be concentrated in Java, Sumatera and Sulawesi, and that mini-hydro and mini-geothermal projects would be concentrated in Eastern Indonesia.

## Barriers to development of renewable energy power projects

6. For the **private sector**, the key barriers common to the development of these resources are: (i) accessibility to and high information costs about the resource as well as the technology; (ii) a weak policy context and regulatory framework which results in a playing field that is not level, especially the lack of fair and transparent rules for the pricing of power sales to PLN's grid, lack of specific regulations to control and oversee market access and entry and, weak pricing and contract enforcement mechanisms; (iii) high transaction costs, specially regarding financing for the private producers; (iv) large pre-investment costs, relative to conventional energy projects; and (v) lack of medium-to-long-term debt financing.

7. Some of these barriers are being eliminated as a result of the Bank's policy dialogue with the Government of Indonesia and PLN. Over the preceding few years, the GOI has engaged in significant energy pricing and market reforms. In particular, a published small power purchase tariff, linked to PLN's avoided cost, and standard contract are to be implemented under a covenanted agreement reached for the Second Rural Electrification project (IBRD Ln. 3845-IND). Linking the power purchase tariff to the economic benchmark established by PLN's avoided cost ensures that only cost effective renewable power projects will be developed, thereby promoting efficient market development. Ongoing Technical Assistance financed by the Bank is assisting the Government in developing a regulatory framework that will establish a level playing field for all market participants, coupled with more detailed rules, procedures and supporting regulations to enable efficient functioning of the small power market.

8. PLN's dominant status in the Indonesian power sector and its extensive experience in rural electrification guarantees that it will continue to be a major player in future rural electrification. However, the development of small scale renewable energy power projects remains outside the mainstream of PLN's operations. In particular, PLN's organizational structure lacks a single focal point of responsibility or accountability for the preparation of small renewables as an integral part of the supply system development program. Further, for small renewable energy projects, PLN uses an overly cumbersome, time consuming and costly process and approach to resource assessment and updating, site screening, powerplant design, procurement and installation, typical of that used for developing large scale hydro and geothermal projects. For example, under current practices, it is estimated that PLN's preparation costs alone for small renewable power projects are in many instances as high as \$300-500/kW, while the best practice costs are in the range of \$50-75/kW. By contrast, PLN's cost of preparation of diesel plants is negligible given that PLN's default option is to procure and install diesel generators.

## PROJECT OBJECTIVES

9. **Global objective** The global environmental objective of the RESP project is to mitigate emissions of CO<sub>2</sub> in Indonesia. Since diesel is the baseline fuel in PLN's rural electrification operations, the development of renewable energy sources for power generation would mitigate diesel consumption, and correspondingly, CO<sub>2</sub> emissions. It is anticipated that about 10.8 million tons of CO<sub>2</sub> emissions will be mitigated as a result of the RESP project (Annex 3).

10. The **national objectives** of the RESP project are to:

- (i) catalyze the rapid penetration of grid-based renewable energy projects in the private sector -- including cooperatives and NGOs -- in the PLN network, within the framework of a least cost rural electrification strategy;



- (ii) facilitate participation by the private sector in advancing renewable energy commercialization through the creation of a sustainable "market conforming" framework;
- (iii) promote environmentally sound energy resource development in Indonesia and to reduce the energy sector's dependence on fossil fuels.
- (iv) strengthen Indonesia's institutional capacity to sustain renewable energy development.

## PROJECT DESCRIPTION

### RESP Development Strategy

11. The project would facilitate development of private sector markets for small scale renewable energy power generation projects using resources such as mini-hydro, mini-geothermal and biomass-cogeneration, for sale of electricity to PLN. The proposed project would assist the market penetration of renewable energy technologies, largely by the private sector, that are "essentially commercial," but whose market penetration is delayed and constrained by factors such as high transaction costs, perceived commercial risks due to unfamiliarity with investment types, a lack of in-country experience, and the absence of appropriate term debt financing. Hence, the RESP project would "pioneer" the wide scale application of renewable energy technologies in Indonesia.

12. The project implementation strategy is to promote, in a targeted and phased manner, commercial markets for renewable energy. The longer term lending program vision is one of a series of linked projects, phased over a period of time; each seeking to build upon the lessons learnt from the predecessor project, while broadening the regional market and technology focus to new areas and newer technologies, and at the same time also seeking to further enhance the efficiency and reduce the costs of existing delivery and financing mechanisms.

13. The project consists of:

- (i) **Small Private Power (SPP) Component:** Renewable energy based small electricity generation projects -- biomass cogeneration, mini-hydro, mini-geothermal -- installed and operated by private entities, and selling their output to a regional PLN grid under the published Small Power Purchase Tariff (SPPT), and standardized power purchase contract. This component includes mini-hydro and mini-geothermal resource assessments and the dissemination of such resource information to prospective developers.
- (ii) **PLN Component:** Renewable energy based small power generation projects -- mini-hydro, mini-geothermal -- owned and operated by PLN. This component includes a strengthening PLN's institutional capacity to undertake small renewable power projects in a timely and cost-effective manner.

### Project design

14. The RESP project's strategy is to focus on a number of selected regions that have high market potential. Whereas in principle the project would support sub-projects in all regions, the primary thrust of the Bank's project preparation activity is on developing a pipeline of potential investment sub-projects

in geographic areas with good renewable resource potential and in proximity to demand centers/regional PLN grids that have high "avoided cost" of supply.

15. The RESP project will address the key barriers to the development of renewable energy power mentioned earlier (paras 6-8). For the Small Private Power component, the RESP project will address: (i) high information and transaction costs, (ii) high pre-investment costs, and (iii) lack of financing. An additional element of the project design for this component is the preliminary identification of about 15 to 20 power projects before the project starting date. For about five of these projects, the bulk of the pre-investment activities will have been completed by loan/grant effectiveness. For the remaining projects, preliminary screening to ensure that they have good prospects will have been completed during project preparation, but significant pre-investment activities will have been conducted after project start-up.

16. For PLN, the RESP project will address barriers to effective renewable energy development by: (i) supporting the development of a limited number of renewable energy projects, and (ii) strengthening PLN's institutional capacity for renewable energy development. The efficient development and execution of a number of small renewable energy projects will put the design, planning, implementation and operation of cost effective renewable energy power projects into the mainstream of PLN's overall RE system development program. Subject to further preparation work, the PLN component will consist of: (a) construction of a geothermal power plant rated at about 3 MW at Ulumbu, Flores, and possibly a 4 MW plant at Lahendong in North Sulawesi; and (b) about 10 to 15 mini-hydro plants (10 to 15 MW in aggregate), in Eastern Indonesia.

17. For private power, the RESP project will include the preparation and provision of technical resource information to the private sector for developing small power projects on a competitive bidding basis. For PLN, the RESP project's capacity building program will focus on institutional changes within PLN that are required to support mainstreaming of the design, planning, implementation and management of a sizeable and growing small power program for rural electrification, based on renewable energy. RESP-provided technical services will also include support for a strategic planning process (including preparation of tactical plans for each resource option) in order to facilitate decision-making by key players and appropriate allocation of limited financial resources.

## **ENVIRONMENT AND RESETTLEMENT**

18. The proposed project will consist of numerous, and very small sub-projects utilizing renewable energy technologies such as biomass cogeneration, mini-hydro, mini-geothermal that have relatively little adverse effects on the environment. While no individual sub-project is likely to result in significant environmental or resettlement problems, each project will be carefully examined during project preparation to avoid adverse environmental impacts. The proposed project's environmental impacts are classified as "B", and an Environmental Analysis (EA), as required by Bank guidelines, will be undertaken to identify local environmental and resettlement impacts of proposed project activities and to propose remedial actions. Further, existing industries or any other developer that will seek financing through this project will have to prove compliance of on-going operations with existing relevant national environmental regulations for all aspects of their operations. The monitoring and evaluation system to be supported by the project would monitor potential environmental impacts of small-scale renewable energy projects in order to take prompt corrective action, should adverse impacts be detected during implementation.

## **RATIONALE FOR BANK INVOLVEMENT**

19. The World Bank's Indonesia Country Assistance Strategy (CAS) (presented to the Bank's Board on February 27, 1995) includes a commitment to assist the Indonesian authorities in developing the country's renewable energy resources. The proposed project design and implementation strategy typify the defining characteristics of the transition that is underway in the assistance strategy for Indonesia: (i) achieving poverty reduction through increased funding for regional development, and a shift towards smaller and regionally oriented projects targeted at reducing urban-rural disparities in the quality of life; and (ii) striking an appropriate balance between public and private roles in energy distribution.

20. The Bank continues to actively support implementation of an efficient and sustainable Rural Electrification (RE) program, initiated in the Rural Electrification I project and now through the successor Rural Electrification II project; primarily by financing extension of the various regional grids, and supporting institutional capacity building. Renewable energy power generation options represent key elements of the overall least cost RE strategy in Indonesia and complement the least cost grid extension program for RE. The constraints to efficient delivery of rural electrification are related to broader power sector development issues as well as PLN reorganization, on which the Bank has established a close working relationship with the Government and PLN. The proposed project will provide a means to continue this dialogue and to support the implementation of a sustainable and environmentally sound RE development program, which also encourages private sector participation and the creation of commercial markets for alternative energy. The RESP project is also expected to continue the process of improving the policy, regulatory and institutional environment, all matters of high priority on the Bank's agenda.

## **RATIONALE FOR GEF FINANCING**

21. The RESP Project is eligible for GEF support under the 1995 interim guidance approved by the GEF Council, and is consistent with the renewable energy market penetration aims embraced by the draft GEF Operational Strategy. Project activities proposed for GEF funding aim to remove institutional and information barriers which prevent economically least-cost renewable electricity sources from being exploited. The RESP project is a priority item in the Indonesian Government's Energy Strategy, and RESP project activities provide the means for abating GHG at a cost below US\$ 1 per ton CO<sub>2</sub> (Annex 3).

22. Indonesia ratified the FCCC on August 23, 1994, so that it is eligible to receive GEF funds under this convention. In order to help fulfill its FCCC national communication commitments, Indonesia has initiated two greenhouse gas mitigation strategy studies. The Asia Least-Cost Greenhouse Abatement Strategy Project (ALGAS), funded by GEF/UNDP, examines Indonesia's GHG emission reduction options in an Asian regional context. Indonesia is also a participant in the second round of study activities financed under the US Country Studies Program. Although both studies are still at early stages of implementation, the relevance of grid-connected renewable energy systems as a greenhouse abatement option for Indonesia is clear. As least-cost alternatives, the zero or very low carbon renewable systems directly substitute for coal and oil fired generation at very low marginal abatement costs.

## **SUSTAINABILITY AND PARTICIPATION**

23. The primary stakeholders in the project are: private sector small power project developers, PLN, Directorate General of Electricity and Energy Development, the Planning Agency (BAPPENAS), and the Ministry of Finance. All stakeholders have been and continue to be involved to varying degrees in project preparation. A well-attended public launch meeting, co-sponsored by the Ministry of Energy and the

Chamber of Commerce was held in March 1995 to publicize and discuss the RESP project. A number of meetings have been held with the Sugar Council and the Palm Oil Association to stimulate the interest of their members in biomass cogeneration projects. As a result of these contacts, consultants financed by Bank-managed trust funds have already visited a number of potential participants. Discussions with PLN have been ongoing as part of the Bank's continuing dialogue, and specifically for the establishment of the published small power purchase agreement and tariff.

24. The RESP project will lead to a long term sustainable renewable energy small power sector. Within PLN, a shift to timely and cost effective preparation of small renewable projects will be a key step in achieving sustainability. Further, changes in PLN's management framework and organizational setup will bring renewable energy projects into the mainstream of PLN's activities. For the private sector, the demonstration effect of commercially viable private projects included in the RESP project will stimulate further private sector participation. In addition, sustainability will be made possible by introducing supporting rules, regulations and procedures in connection with the published small power purchase tariff and enforcing the same. Under the project, developments in the small power market will be monitored and, if necessary, the implementation rules and regulations supporting the published small power purchase tariff would be revised as appropriate. This supportive regulatory framework, coupled with resource assessments that would be made available to the private sector are expected to lead to financial viability in the medium term.

## **LESSONS LEARNED AND TECHNICAL REVIEW**

25. Given the Bank's limited involvement in renewable energy projects, there are no relevant Bank reports on past projects. Ongoing experience is limited to the IBRD/GEF-financed India Renewable Energy Development Project (Ln. 3544-IN/Cr. 2449-IN), in which the supported technology is wind power, and not the technologies supported by the RESP project.

26. Experience in other countries (Costa Rica, Guatemala, and Pakistan) indicates that private developers require initial support in the form of a financial incentive, and continued proactive participation in order to stimulate response in markets that have had no experience in the particular area of grid supply private power development with small scale renewable resources.

27. **Technical review** The project was reviewed in August 1995 by an independent external expert, selected from the STAP roster, who has practical experience with the development of renewable energy resources; his detailed comments are attached as Annex 2. His main comments were that the project: (i) is relevant and addresses the key issues, (ii) is cost-effective in reducing greenhouse gas emissions, (iii) is well-designed, (iv) makes a compelling case for GEF support, but (v) underestimates the challenge and frictional losses involved in implementation. To deal with anticipated implementation challenges and increase the likelihood of project success, he therefore recommended that technical support services be expanded to include support for an effective strategic planning process, including preparation of specific tactical plans for each resource option (eg, modular geothermal, hydro, and biomass). These recommendations have been incorporated in the revised project brief, and will be addressed in detail during final project preparation.

## **PROJECT FINANCING AND BUDGET**

28. The total cost of the project is \$168 million, of which the Small Private Power component is \$105 million and the PLN component is \$63 million. A preliminary financing plan, disaggregated by compon-

ent and source of financing -- IBRD, GEF, PLN, and private sector -- is contained in Annex 1. Investment in the Small Private Power component will be financed by a combination of IBRD and private funds at \$50 million each, while investments in the PLN component will be financed a combination of IBRD (\$50 million) and PLN (\$10 million) funds. The pre-investment, project support (including strategic planning), and resource assessment costs in the Small Private Power component will be financed by a combination of GEF (\$4 million) and private (\$1 million) funds, while PLN's capacity building will be financed by a combination of GEF (\$2 million) and PLN (\$1 million) funds.

29. **Onlending arrangements.** For the PLN component, IBRD credit will be provided under the standard on-lending arrangements already agreed to under the Second Rural Electrification Project wherein PLN also assumes the foreign exchange risk. For the Small Private Power component, IBRD credit would be onlent in rupiah through the Ministry of Finance or Bank Indonesia (BI) to state or private commercial banks, at market rates. These participating banks would not be pre-selected or individually appraised by the Bank. Rather the project developers would initiate loan applications at commercial banks of their own choice -- but who must be rated as financially healthy by BI -- to obtain rupiah loans at market rates, with terms typically ranging between 8 to 12 years. The commercial bank would be responsible for appraising the sub-loan applications, and would bear the commercial risk for the sub-loan.

## INCREMENTAL COSTS

### Small Private Power

30. **Baseline** At present, there is no private sector development of renewable energy resources in Indonesia, though the publicity related to the RESP project has elicited private sector interest. Frequent discussions with potential entrepreneurs have made it clear that they are unable or unwilling to undertake the required significant pre-investment activities without external financial and/or technical incentives and support, given the pioneering nature of small renewable energy power projects in Indonesia.

31. Potential private participants in small hydro and geothermal power projects face the difficulty that there does not exist any readily available database with technical information related to prospective sites. This lack of information is a well-known example of market failure in the information market, since the value of the information about a particular site is greater for society as a whole than for an individual private developer.

32. Thus, in the absence of the RESP project, there would be limited, if any, private sector renewable energy development, even where potential projects have excellent prospects for financial viability. When the standardized small power purchase tariff is enacted (expected to take place in the next few months), it is likely that private developers will begin to initiate small scale power projects, based on relatively standard technologies (such as diesel), over the project period. It is estimated for the purposes of the baseline that private developers would probably be willing to put in about \$1 million into the pre-investment costs of such power generation activities.

33. **GEF Alternative** With GEF assistance, it is expected that about 15-20 small-grid supply renewable based energy projects will be undertaken by private developers. Since information availability and perceived risk are the major barriers to RESP activities in Indonesia, the costs of the pre-investment activities and resource assessments required for sustainable development of this sector form the starting point for estimating incremental costs. It is estimated that the cost of engineering and environmental expertise

necessary to assist with pre-investment activities, to develop a strategic planning framework, and to collect information on potential sites would cost about \$5 million.

34. **Incremental Costs** The incremental costs of the proposed pre-investment and resource assessment activities are equal to the costs of the GEF Alternative less the counter-factual private sector expenditures. On this basis, given that the total cost of the activities is \$5 million, and the counter-factual private sector expenditure is \$1 million, the GEF incremental costs are \$4 million.

## PLN

35. **Baseline** While PLN does undertake some small renewable energy projects, its standard procedure is to install diesel-based generation. PLN's high project preparation costs, cumbersome processing procedures, and the lack of an appropriate focal point suggest that PLN is not organized or equipped to promote renewable energy development above a minimum level of activity. Under the baseline scenario, it is therefore assumed that PLN will undertake few small renewable energy projects in the absence of the RESP project. The institutional expenses that would be incurred in developing this additional generation capacity for rural electrification are estimated at about \$1 million over the RESP project period.

36. **GEF Alternative** With GEF assistance, it is expected that PLN will install between 10-15 mini-geothermal/mini-hydro plants. The incremental costs for this investment program are the costs of the institutional changes and capacity building required to mainstream renewable power projects within PLN. These activities, consisting of a diagnostic study, action plan, and implementation of action plan recommendations, are estimated to cost \$3 million. On this basis, a GEF grant of \$2 million is requested to cover the incremental costs of the institutional change and project support, with a PLN contribution of \$1 million, based on the counter-factual expenditures.

## ISSUES, ACTIONS AND RISKS

37. **Key policy reforms/related conditionalities sought** The following are among the principal agreements that would be sought from PLN during project appraisal: (i) periodic review, update, and revision as appropriate, of the published small power purchase tariff, the standard power purchase contract, and the relevant regulations, to redress any factors that are found to be significantly impeding the pace or scale of development of the renewable small power market; (ii) all sub-projects are to meet the agreed guidelines for environment and resettlement screening and mitigation; and (iii) taking into account the recommendations of a consultant study on the organizational, technical and other changes required to mainstream small renewables development within PLN on a cost-effective basis, PLN to develop and implement a time bound action plan satisfactory to the Bank to implement the said changes.

38. There are some risks associated with the private sector component of the project. First, there are, potentially, technical, implementation and operational risks associated with the renewable energy technologies utilized by the private sector. These risks will be minimized by limiting technology choices to those that have already been proven under actual operating experience in Indonesia or elsewhere. Further, the implementation and operational risks will be addressed by a Project Support Unit (established for this purpose) and initiation of a strategic planning process. Second, there are risks associated with lack of commercial bank, and private developer interest in financing projects utilizing the credit available under this project. This risk will be minimized by the identification and preparation of bankable investment projects prior to project start-up. No significant technical risks are foreseen with respect to the PLN

component of the project; potential problems in project implementation will be addressed by the Project Support Unit.

## **INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

### **Implementing and oversight agencies**

39. The Directorate of Private Power, located in the Directorate-General of Electricity and Energy Development, will be the implementing agency for the Small Private Power component, though the actual execution of individual power projects will be undertaken by independent private developers. Since the Directorate of Private Power has been established by the Government of Indonesia to be a focal point for private power producers, this Directorate is the appropriate local counterpart agency. PLN is the implementing agency for the PLN component of the RESP project.

40. Local oversight will be provided by the Rural Electrification Steering Committee, headed by the Director-General of Electricity and Energy Development (DGEED). A Working Group, composed of representatives of DGEED, the Planning Agency, Ministry of Finance, PLN, and the Chamber of Commerce may be set up to review the RESP project's progress and provide a forum for inter-agency discussion and coordination.

### **Monitoring and Evaluation**

41. The critical success factors for the Small Private Power component are: (i) timely and cost-effective completion of pre-investment activities, (ii) timely commissioning of the renewable energy projects, (iii) reliable operations at expected output levels, (iv) a harmonious relationship with PLN, including timely payments by PLN, and (v) the development of a publicly available database related to potential hydro and geothermal sites. The critical success factors for the PLN component are: (i) timely commissioning of the renewable energy power projects, (ii) reliable operations at expected output levels, (iii) changes in renewable power project preparation so that the cost and time are reduced, and (iv) the establishment of a focal point related to renewable power projects. Specific performance indicators and institutional responsibilities for managing the monitoring and evaluation system will be defined and agreed during project appraisal.

INDONESIA: RENEWABLE ENERGY SMALL POWER (RESP) PROJECT  
FINANCING PLAN  
(US\$ million)

Component

	IBRD	GEF	Private Sector	PLN/ GOI	TOTAL
<b>Small Private Power (SPP)</b>					
Direct Investment	50	0	50	0	100
Pre-investment costs, Project Support Unit (shared with PLN), Resource management and assessment	0	4	1	0	5
<b>Sub-Total</b>	50	4	51	0	105
<b>PLN</b>					
Investment	50	0	0	10	60
Capacity building and resource assessment, Project Support Unit (shared with Private Power)	<u>0</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>3</u>
<b>Sub-Total</b>	50	2	0	11	63
<b>Project Total</b>	<b>100</b>	<b>6</b>	<b>51</b>	<b>11</b>	<b>168</b>



## **Indonesia: Renewable Energy Small Power (RESP) Project**

### **Incremental Costs and Global Environmental Benefits**

#### **Broad Development Goals**

1. Indonesia's basic goals and policies for the development of the energy sector highlight the importance of meeting Indonesia's rapidly growing energy needs in an efficient manner, including through conservation and diversification of primary energy resources, and minimizing the adverse environmental and social impacts of energy use. A key and continuing thrust of the Government's energy strategy is to slow down Indonesia's transition to net oil importer status by diversifying energy supply for domestic consumption towards alternative and economic indigenous resources that have a non-exportable surplus or are non-tradeable, such as renewable energy. Rural electrification (RE) is a key and integral part of the Government's rural development strategy.

#### **Baseline**

2. In Indonesia today, the supply of electricity to rural households depends heavily on diesel-based generation. The national power utility (PLN) owns and operates over 5,000 diesel plants scattered throughout Indonesia -- about 2,000 MW of diesel generating capacity -- as a primary means to supply power for rural electrification. Further, in PLN's present rural electrification plans, the default option is to add diesel-based generation capacity. At present, PLN has high project preparation costs and cumbersome processing procedures for small renewable power projects, and PLN's organizational structure lacks a focal point for such projects. Further, in Indonesia, at present, there are no private small renewable energy power projects that sell their output to PLN.

3. In these circumstances, the baseline course of action is that PLN will continue to rely on diesel-based generation for rural electrification.

#### **Global Environmental Objective**

4. The baseline course of action will lead to significant emissions of greenhouse gases (CO<sub>2</sub>). Thus, the global environmental objective of the RESP project is the mitigation of GHG emissions.

#### **GEF Alternatives**

5. The renewable energy power projects developed under the RESP project represent the least-cost option. The private producers clearly have an incentive to minimize their costs, and these will be less than PLN's avoided costs, since the private producers will sell their output to PLN on a tariff based on PLN's avoided costs. From the global environmental perspective, the costs of GHG abatement are low since the private producers need GEF support only in the initial phases of developing their projects, and since they are able to bear part of these initial development costs.

6. PLN's small renewable power projects developed under the RESP project do not need GEF support. Thus, from the global environmental perspective, the only costs of GHG emission abatement are those related to capacity building and institutional change within PLN to mainstream small renewable energy power projects.

### System Boundary

7. The RESP project is expected to have programmatic benefits, in addition to the project benefits, by demonstrating the financial viability and least-cost nature of renewable energy small power projects both within and outside PLN. In other words, the RESP project will accelerate the penetration of renewable energy small power projects.

### Additional Domestic Benefits

8. There are no additional domestic benefits beyond progress towards least-cost provision of electricity to rural consumers.

### Costs

9. **Small Private Power component** The GEF incremental cost of this component arises from two types of activities: (i) support for the pre-investment activities of the private developers as well as guiding and coordinating the power projects through the preparation/development phase in the first two years of the RESP project, and (ii) resource assessment and management that would not be undertaken by any private individual developer.
10. Pre-investment activities The Indonesian project developers will have to hire engineering and environmental firms for pre-investment activities, as there is no precedent in Indonesia for the implementation of small grid supply renewable energy based projects. It is estimated that the pre-investment costs to the potential developers will be in the range \$ 100,000 to \$250,000, excluding internal staff time contributed by the developers. It is expected that about 15 projects would need support for pre-investment activities, for a total cost in the range of \$2.0 to \$3.0 million.
11. Support activities There is also a need for a small Project Support Unit (PSU) in Indonesia that will serve as the guide, manager, coordinator, and trainer for moving the renewable energy projects through the preparation/development/implementation process. A lean PSU staffed for the two years with one expatriate expert supported by limited short term expatriate experts is expected to have a budget of about \$1.5 million. As the PSU would be working closely with the Directorate of Private Power and PLN and additional resources will also be allocated to allow these entities to develop the inhouse capability to take over and maintain the PSU functions. After the RESP project is over, the PSU will be disbanded and its activities taken over by PLN and the Directorate of Private Power.
12. The total cost of the pre-investment and support activities is \$3.5 million. The counter-factual expenditure of the private developers is based not on renewable energy development but on the business activities that the developers would have otherwise undertaken; this amount is estimated to be \$1 million. On this basis, the GEF incremental costs are \$2.5 million.
13. Resource management and assessment Private developers of small hydro and geothermal resources face an inhibiting factor that impedes the timely evaluation and implementation of viable power projects: lack of information about potential sites. Over the years, PLN has assembled an inventory of hundreds of potential small hydro and geothermal project sites, but the level and quality of the inventory information assembled varies considerably, and it lacks the organizational structure needed for an efficient commercial assessment, integration, and prioritization process that is mandatory, if such inventory is to be disseminated to potential developers in a useful form. Under the RESP project, the available

information will be collected, collated and packaged so that it is usable by potential private developers. This database related to hydro and geothermal resources is expected to lead to a significant number of renewable energy small power projects.

14. The estimated cost of this database activity is \$1.5 million. Given that no private developer can undertake this or some similar activity, the GEF incremental cost is also \$1.5 million.

15. Subtotal Thus, the GEF incremental cost for the Small Private Power Component is \$4 million.

16. PLN For PLN, the specific activities undertaken would include a diagnostic study, the development of an action plan, and its implementation, which may include some elements of training. The detailed terms of reference for the diagnostic study will be developed during the course of further preparation work. In addition, PLN's implementation of small renewable energy projects would also be supported by the Project Support Unit. It is estimated that the total cost of these activities would be \$3 million. The counter-factual expenditure by PLN is assumed to be \$1 million. Thus, the GEF incremental cost is \$2 million.

17. Total The GEF incremental cost is \$4 million for the Small Private Power component and \$2 million for the PLN component, for a total of \$6 million.

#### **Global Environmental Benefits**

18. The overall avoided emissions are about 10.8 million tons of CO<sub>2</sub>, with a total GEF grant of \$5 million, leading to a GEF unit cost of about \$0.55/ton CO<sub>2</sub> (Tables 1-3). The estimates of the emissions avoided include both the emissions avoided from investments directly supported ("project effect") by the RESP project as well as the investments indirectly accelerated ("programmatic effect") as a result of the RESP project. In other words, the impact of the RESP project is measured as the difference between the market penetration of the renewable energy technologies with and without the RESP project.

19. For all of the renewable energy technologies, the estimation of total emissions avoided starts with an estimate of the unit emissions avoided factor (Table 4). Given the likely location of the generation facilities, it is assumed the renewable energy technologies will substitute for: hydro primarily for diesel-based regional grids, i.e., the larger provincial grids and diesel-based mini-grids, i.e., smaller provincial grids that supply relatively isolated communities; geothermal primarily for the regional grids; and biomass primarily for the regional grids and the Java-Bali grid. Based on these substitutions, the avoided emissions are calculated in terms of CO<sub>2</sub> tons/Gwh. The estimated values are: (i) hydro: 740 tons CO<sub>2</sub>/Gwh; (ii) geothermal: 760 tons CO<sub>2</sub>/Gwh; and (iii) biomass cogeneration: 700 tons CO<sub>2</sub>/GWh.

20. The unit avoided emissions factors are multiplied by the estimated penetration of the technology to arrive at the total emissions avoided. The estimated penetration is based on the projects directly supported by the GEF grants as well as the accelerated penetration induced by the GEF supported activities.

Table 1

# Indonesia Renewable Energy Small Power (RESP) Project

## Avoided CO<sub>2</sub> Emissions and Costs

GEF Supported Activities	Emissions Avoided Project and Programmatic ('000 tons CO <sub>2</sub> )	GEF Contribution US\$ million	Unit Cost US\$/ton
		TOTAL	
Small Private Power: Minihydro, Biomass Cogeneration Pre-investment studies, other support, resource assessment	7,610	4	\$0.53
PLN: Minihydro, mini/micro geothermal Institutional development	3,250	2	\$0.62
<b>TOTAL PROJECT</b>	<b>10,860</b>	<b>6</b>	<b>\$0.55</b>

Table 2

# Indonesia Renewable Energy Small Power (RESP) Project

## Small Private Power

GEF Costs		\$ million	4.00
Direct Project Benefits			
Project Capacity Implemented	MW		
Avoided CO2 Emissions	000 tons CO2	5	75
Life Time (undiscounted)		530	4,140
			80
			4,670
Programmatic Benefits - Accelerated Market Penetration			
Multiplier Effect - Increase as % of Project MW's		200%	200%
Timing Effect	MW Increase	10	150
Total Effect (very approx.)	years accelerated	5	5
	MW-years	50	750
	GWH	240	3,940
Avoided CO2 Emissions	000 tons CO2	180	2,760
Programmatic			2,940
Direct Project and Programmatic Benefits		710	6,900
			7,610
Avoided CO2 Unit Cost	\$/ton CO2		\$0.53

# Indonesia Renewable Energy Small Power (RESP) Project

8/31/95 File: M:\ops\mathur\resp\GEFCB.XLS Tab: GEF Ben-Cost

Table 4

# **Indonesia Renewable Energy Small Power (RESP) Project: AVOIDED CO<sub>2</sub> EMISSION BENEFITS - Unit Factors (a,b)**

		Hydro (mini)	Geothermal (mini/micro)	Biomass (c)
<b>A. Renewable Energy Technology Characteristics</b>				
Implemented Capacity	MW	1	1	1
Plant or Capacity Factor		0.55	0.70	0.60
Plant Life	year	30	30	15
Electricity Generation				
Annual Generation	GWH/year	5	6	5
Life Time Generation	GWH/life	145	184	79
<b>Renewable Energy CO<sub>2</sub> Emissions (b)</b>				
Unit Emission Factor	tons/GWH	0	50	0
Annual Emissions	000 tons/year	0	0	0
Life Time Emissions	000 tons	0	9	0
<b>B. Substitute Technologies</b>				
<b>Avoided Technologies and Unit Emission Factors</b>				
Java-Bali Grid	tons/GWH	600	600	600
Diesel-based Regional Grids	tons/GWH	700	700	700
Diesel-based Mini-Grids	tons/GWH	850	850	850
<b>Mix of Substitute Technologies</b>				
Java-Bali Grid		15%	0%	30%
Diesel-based Regional Grids		50%	25%	50%
Diesel-based Mini-Grids		35%	75%	20%
<b>Substitute Technology CO<sub>2</sub> Emissions - weighted average of substitute mix</b>				
Unit Emission Factor (wgt ave)	tons/GWH	740	810	700
<b>C. Avoided CO<sub>2</sub> Emissions (difference between renewable and substitute technologies)</b>				
Net Avoided Emissions Factor	tons/GWH	740	760	700
<b>Avoided CO<sub>2</sub> Emission Quantities - 000 tons net</b>				
Annual	per unit capacity	3.6	4.7	3.7
Life Time		107	140	55

(a) See Attachment 1 for background information on renewable and substitute technology factors.

(b) Only direct CO<sub>2</sub> emissions are included in this analysis. The global warming potentials of other gases and of CO<sub>2</sub> and other gases embedded in the manufacture, transport, etc. of the technologies are not included. Consequently, in most cases, these limitations lead to a conservative estimate of the avoided emissions from renewables. One exception is the geothermal emission factor which does include more than direct CO<sub>2</sub> emissions.

(c) The biomass emissions factor of 0 assumes that the resource is produced on a sustainable basis. Furthermore, it does not include consideration of incomplete combustion issues that could lead to non-CO<sub>2</sub> emissions with global warming potential.

August 29, 1995

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Subject: Review of Global Warming Proposal (Indonesia: RESP Project)

My response to the assignment

o Comments on proposals and materials reviewed.

- i) The project is not only relevant to global warming mitigation, but addresses the most problematic issue, i.e. the need to develop energy infrastructure in emerging economies without penalizing these economies economically and/or imbedding in these economies an addiction to greenhouse gas producing technology.
- ii) The project meets the stated criteria for cost-effectiveness in reducing greenhouse gas emissions. As a globally applicable template, its value will dwarf its cost, if it succeeds in clearly demonstrating the economic and other advantages of renewable based distributed generation.
- iii) Project design at the level presented flawlessly incorporates relevant experience.
- iv) There is no apparent basis to question the project's feasibility. The project's goal, however, is as ambitious as it is important, i.e. to create an energy supply and delivery infrastructure and market that does not currently exist, one that is complex and demanding of talent and capital and presents a threat to vested institutional and corporate interests. If the project concept has a flaw, it is the potential to underestimate the challenge and frictional losses involved in implementation. The project invests in making critical information and organizational capability available. This is necessary, but good information on feasible and attractive options does not, per se, guarantee wise choices.

o Case for the grant. The case is clearly made. The global strategic importance of the project makes it compelling.

o Scientific and technical merits. The concept has as its major strength the involvement of PLN, private sector parties and national planning agencies. Its weakness is that its rewards will not be immediate, and it will be a candidate for benign neglect in the context of larger and more immediate problems and opportunities facing the major players. The following specific actions could address the weaknesses and challenges mentioned above:

1. The philosophy of project execution must be one of healthy pessimism, i.e. to take nothing for granted, to address the hard problems first, leaving the easy problems for later. Most projects of this type fail because the people assigned to them do what they are trained or qualified to do rather than deal with the unique and unprecedented problems whose solution is critical to success.

2. Without a fairly detailed strategic plan, it will be difficult to differentiate between practical show-stoppers and conceptual optimization issues. An effective



**strategic planning process** will force decisions that result in buy-in by key players and appropriate allocation of limited resources.

3. Although modular geothermal, hydro and biomass power plants have comparable macro-economic and operational parameters, they involve fundamentally different resources converted by fundamentally different technologies. Within the strategic planning framework recommended here, **preparation of specific tactical plans for each resource option would be advisable if not imperative.**

**Notes.** The following notes identify issues that should be addressed by overall strategic or resource-specific tactical plans or plans for specific distributed renewable generation projects.

1. Utility planning and operational context. Distributed renewable generation is more a natural tool of the transmission and distribution system operator than the central generation system operator. Within a vertically integrated utility, the unit responsible for centralized generation typically cannot appropriately adapt its planning processes and operational methods to distributed generation, whereas the operating units that typically deal with smaller scale projects and customer needs are better able to evaluate and execute.

2. Drivers of basic economics.

- Capital for project development and execution. Always underestimated.
- Fuel. Costs of prospecting, validation, contracting, delivery, and resource maintenance are often ignored or underestimated.
- O&M. Savings achievable through standardization, e.g. training, spares, shorter overhaul period, can be significant.

3. Private investment criteria.

- Low or no technology risk
- Low or no fuel risk
- Fast capital recovery

4. Planning issues. Optimum economics are achieved at the system level, not at the level of the generating plant, i.e. distributed renewables must be designed and operated to complement existing diesel generators and vice versa. Marginal cost pricing as described in the proposal typically undervalues capital intensive renewable resources. Only adoption of real time cost of service pricing at the retail level will result in a truly level playing field.

5. Institutional issues. The existence of publicly owned utilities favors renewable resource development, because such entities are well adapted to execute infrastructure investments. Market frameworks for private power favor fuel based options, because they drive fuel markets to greater short term efficiency at the expense of infrastructure investments. Capital intensive renewable generation is more heavily taxed in some countries, e.g. the US, than fuel based generation.

6. Technology issues. Typically, 1-5MW is sub-optimal modularity for thermal generation, except where delivery capacity of grid is limited. Limiting choices to technologies already proven in Indonesia may be overly restrictive. Overall program should be structured to encourage in-depth study of relevant project experience outside of Indonesia.

## **PROPOSAL FOR REVIEW**

<b>Project Title:</b>	<b>Indonesia: Solar Home System (SHS) Project</b>
<b>GEF Focal Area:</b>	<b>Climate Change</b>
<b>Country Eligibility:</b>	<b>Convention Ratified August 23, 1994</b>
<b>Total Project Costs:</b>	<b>US \$ 75 million</b>
<b>GEF Financing:</b>	<b>US \$ 24.3 million</b>
<b>Government and Private Sector Counterpart Financing:</b>	<b>US \$ 27.5 million</b>
<b>Cofinancing/Parallel Financing:</b>	<b>IBRD US \$ 20 - 25 million</b>
<b>GEF Implementing Agency:</b>	<b>World Bank</b>
<b>Executing Agency:</b>	<b>Agency for the Assessment and Application of Technology (BPPT), and Government of Indonesia's multi-agency Rural Electrification Steering Committee</b>
<b>Estimated Approval Date:</b>	<b>September 1996</b>
<b>Project Duration:</b>	<b>5 years</b>
<b>GEF Preparation Costs:</b>	<b>No GEF PDF</b>
<b>Government Endorsement:</b>	<b>Received 7 July, 1995</b>

## SECTORAL CONTEXT

1. **Background** In Indonesia today, out of an the estimated population of 186 million, over 110 million – about 24 million households – remain literally and figuratively speaking "in the dark", without access to electricity, and many with little or no hope of getting such access in the foreseeable future. The vast majority of this population segment (nearly 80%) reside in rural areas. For meeting their very basic needs, lighting, these rural households have little choice today but to make do with vastly inferior and yet typically more expensive and polluting energy sources other than electricity, such as candles, flashlights, and most commonly kerosene fuelled wick lamps, hurricane lanterns and petromax lamps. By depriving rural households of any real choice in efficient and sustainable energy forms, the welfare and quality of life of the rural population is greatly diminished; since they have diminished access – quality and quantity – to many highly valued end-use services, and are often forced to pay more than necessary for inferior services.
2. In Indonesia, the cost of supplying electricity to rural households that have access to grid supply from the national power utility (PLN) is high. PLN owns and operates over 5,000 diesel plants scattered throughout Indonesia – about 2,000 MW of diesel generating capacity – as a primary means to supply power for rural electrification (RE). Apart from the high cost of sustaining diesel operations in remote areas, the cost is high because much of the diesel plant is under-utilized, with capacity factors averaging less than 30%. In addition, even in the case of the RE loads supplied by regional grids, diesel is the marginal fuel at most times of system operations.
3. Under the present policy of nationally uniform electricity tariffs, the total cost of PLN supply for many RE loads is well in excess of the tariffs to such consumers. PLN's "avoided costs" are estimated, on average, to be about Rp. 140/Kwh (about US\$ 6.6/kWh) for the Java-Bali grid, about Rp. 196/kWh (US\$ 9.3/kWh) for the seven regional grids outside Java, and as high as Rp. 250/kWh (US\$ 11.7/kWh), for PLN's large number of diesel-based isolated units and mini-grids. In contrast, PLN's average revenue from the typical rural consumer is only Rp 137/kWh (US\$ 6.45/kWh). Thus, diesel-based rural electrification implies a significant subsidy burden on PLN.
4. The Government of Indonesia (GOI) has recently begun to assess the suitability of various supply options for meeting the energy needs of the remaining unelectrified villages and households in a least-cost and economic sequence. One element of this assessment is the recently completed Rural Electrification (RE) Master Plan, which analyzed only grid-based electricity supply. One of the main implications of the RE Master Plan is that there are about ten million households – consisting of the isolated rural households for whom it will never be economic to provide grid-based supply, and of the households for whom the least cost supply option is grid extension, but who will not receive grid-based supply during the project duration and even beyond. These households comprise the economic potential for decentralized supply options that are cheaper and environmentally superior to the conventional alternative of diesel-based mini-grids.
5. **Renewable Energy** The Government attaches high priority to cost effective renewable-based energy supply as a means of ensuring high and environmentally sustainable rates of economic growth. Increased penetration of renewable based generation will have a significant and positive impact on the environment by reducing local pollutants such as SO<sub>2</sub> as well as pollutants of global concern such as emissions of green house gases (GHG). To the extent that this development displaces kerosene consumption and diesel generation, it reduces the negative environmental impacts of transport, waste disposal and burning of these fossil fuels.

6. Beginning in 1987, the Government of Indonesia (GOI) has sponsored a series of pilot solar **photo-voltaic (PV)** demonstration programs. The most recent initiative – "Banpres" (Presidential Aid) – is directly linked to the President of Indonesia. The combined total of these demonstration efforts has resulted in the installation of about 16,000 PV units in rural households. These Government programs have helped to demonstrate the potential of solar PV technology for meeting some of the electricity end-use needs that many rural households perceive to be most important. An evaluation of this experience indicates that customers are generally satisfied with the performance of their solar home system (SHS) and there is no evidence of systemic problems or high premature failure rates for critical components such as batteries, panels, and controllers.

7. These early and various Government-agency sponsored programs were primarily geared to technology demonstration; as such, they did not focus on cost recovery or building a base for future product or market development, nor did they offer a means to mainstream private sector delivery and sustainability. Specifically, in Indonesia, the Government/public agency led model is best characterized as a procurement system, not as a commercial market, with the SHS units typically distributed in small lots to homes widely dispersed all over Indonesia. Such a distribution mechanism has proved to be incompatible with the development of cost effective and sustainable private dealer chains, given the limited scale and geographic fragmentation.

8. It is the GOI's goal to ensure that modern forms of energy become accessible to all rural households in a phased, least-cost manner. In recognition of the role that solar PV can play in meeting the energy needs of rural households, the Government of Indonesia has formulated the outlines of a plan to install solar PV systems with a total capacity of 50 MW<sub>p</sub>. However, there still remains a need to develop a detailed solar PV strategy and its implementation plan.

9. The GOI recognizes that a number of different delivery and financing approaches are required in Indonesia, based on the incomes, energy requirements, and geographic location of the target population. Broadly speaking, the Government's solar PV strategy for rural electrification has two prongs: (i) Government-based programs targeted at the higher-cost remote areas and for the poorer segments of the population, and (ii) commercially-based private sector led programs for the relatively closer-in and more affluent segments of the population.

10. For example, as part of the first prong, the Government, in association with AusAID, is currently formulating a plan to install about 36,000 solar PV systems in the remote islands of Indonesia. It is recognized that a commercial approach is not appropriate for the target population; though the details of the payment schemes have not yet been finalized, it is likely that there will be a small downpayment, a long repayment period of 7-10 years, low monthly payments, and interest rate subsidies. At the same time, recognizing the heavy and recurrent subsidy burden inevitably associated with such public agency programs, the Government is also keen to promote alternate delivery and financing approaches that are commercially sustainable, private sector based, and that offer the prospect of achieving high levels of penetration at a much faster pace than is feasible with the Government-based approach. In short, the GOI recognizes that Government-based programs will be complementary to the commercially-based programs.

11. **Barriers to Solar PV Market Development** An indirect benefit of the Government programs has been the emergence of a nascent SHS market. However, the present market conditions can be characterized as a "high price low volume" equilibrium, while an expansion of the market requires a move to a self-sustaining "low price high volume" equilibrium. Three inter-locking factors together form a barrier to increased SHS sales:

- (i) **Lack of established high-volume supplier-dealer chains.** At present, there are only a limited number of supplier-dealer chains, and they operate at low volumes in limited geographical regions within and outside Java. Most of the potential customers are not being offered an opportunity to buy a SHS;
- (ii) **High prices.** At present, the annual volume of SHS direct household sales is low, and the prices are high: at the same time, the dealers are unable to reduce their prices, given the small scale of their operations;
- (iii) **Lack of credit.** At present, the bulk of the potential customers, both within and outside Java, are unable to secure the credit they need to buy the SHS. Even if banks were to extend credit for SHS, under current Indonesian banking practices, they would expect repayment over 1-2 years maximum, which would be an insufficient amortization period for the majority of potential customers.

12. What this means in practical terms is that the barriers blocking rapid, sustainable expansion of SHS in rural Indonesia are not amenable to simple, single-problem solutions. Rather, a multi-pronged strategy is required. For instance, by itself, without a reduction in the selling price, making credit available and stretching out the maturity/term of such credit will not eliminate the barriers that presently restrict market development. Without price reductions, affordable levels of downpayment and monthly installments would require installment terms of 6 to 8+ years duration, given current interest rates. However, the maximum loan duration feasible under a sustainable private sector approach, given conditions would be in the 3 to 4 year range. Amortizing the cost of an SHS over 3 to 4 years, without a price reduction, would result in monthly payments that exceed the capacity of most target households.

13. In light of this, for a sustainable delivery approach led by the private sector, it would be necessary to design an installment payment mechanism that addresses rural households' cash constraints and the banking system's upper limit of a 3 to 4 year amortization period. An analysis of the data from market surveys indicates that for target rural households, an affordable down payment would range from \$80-125, and that monthly installment payments should be close to potential customers' present monthly expenditures on energy (about \$8-10). For these consumer cash flow limits to be compatible with the 3 - 4 year amortization period, it would be necessary to bring down the final price to the household by a "first cost buy down".

## SHS DEVELOPMENT STRATEGY

14. **Pilot effort** The SHS project is a pilot effort to catalyze private sector-based markets for SHS, where they are consistent with a least cost rural electrification strategy. The project focuses on a few selected target markets that have high potential for quick penetration. The proposed project scale (para 19), has been determined taking into account several key factors, including: (i) the desirability to establish competitive pressures on the dealers -- actual or by comparison -- which requires that at least two SHS dealers operate in each market; (ii) the minimum scale needed for each dealer in order to capture supply and service chain economies in operations, delivery and after-sales service; and (iii) make it sufficiently profitable for each participating dealer to lower prices and aggressively expand operations, so that the market as whole can move to a higher volume-lower price equilibrium.

15. **Long term view** In the long term, the SHS project is seen as one of a series of linked projects, phased over a period of time: each seeking to build upon the lessons learnt from the predecessor project.

while broadening the regional market and technology focus to new areas, and at the same time also seeking to further enhance the efficiency and reduce the costs of existing delivery and financing mechanisms. The cost reductions achieved and efficient delivery mechanisms developed under the first SHS project would form the foundations of all successor projects.

## PROJECT OBJECTIVES

16. **Global objective** The global environmental objective of the SHS project is to mitigate emissions of CO<sub>2</sub> in Indonesia. At present, a significant portion of Indonesia's rural population satisfy their energy needs by fossil fuels in various ways, such as kerosene for lighting or diesel-based power generation, which lead to the emission of CO<sub>2</sub>. The penetration of SHS would reduce CO<sub>2</sub> emissions by displacing the use of the fossil fuels. It is anticipated that about 2 million tons of CO<sub>2</sub> emissions will be mitigated as a result of the SHS project (Annex 4).

17. In addition to this global objective, the SHS project's goals are to:

- (i) catalyze the rapid penetration of solar PV systems within the framework of a least cost rural electrification strategy;
- (ii) facilitate participation by the private sector — including cooperatives and NGOs — in advancing renewable energy commercialization through the creation of a sustainable "market conforming" framework;
- (iii) promote environmentally sound energy resource development in Indonesia and to reduce the energy sector's dependence on fossil fuels; and
- (iv) strengthen Indonesia's institutional capacity to sustain solar PV development.

## PROJECT DESCRIPTION

18. The SHS project consists of two major components: (i) investment (including project implementation support), which forms the bulk of the project, and (ii) capacity building. The project will also support detailed monitoring and evaluation activities during project implementation.

19. The **investment component** consists of the sale and installation of about 200,000 (10 Mwp) SHS units. It is expected that purchasers of PV units will include households, commercial establishments (such as shops), and local communities (for community buildings such as meeting halls, etc.). The geographical scope of the SHS project will not exceed four selected regional markets — West Java, Lampung, South Sulawesi, and North Sumatera<sup>1</sup> — where, under the least cost grid reticulation plan for rural electrification (the "RE Master Plan"), grid supply by the national power utility (PLN) is not expected over the next decade, or where it will be uneconomic for PLN to provide such service. The sale and

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<sup>1</sup>/ Recently completed detailed field surveys to assess the demand for SHS in these provinces, with the specific purpose of assessing the extent of the market that can be served in the near-term by private dealers at commercial terms, show that there is a large market for commercial SHS sales in North Sumatera, South Sulawesi, West Java, and Lampung.

installation of these SHS units will be executed by private dealers, who will take the responsibility for procurement, sales, installation and maintenance of SHS.

20. **Capacity building component** The SHS project would: (i) assist GOI's Rural Electrification Steering Committee to develop a strategy and corresponding action plan for meeting the modern energy needs of the segments of the rural population for which solar PV systems represent the least-cost strategy; and (ii) strengthen the institutional capacity of the Indonesian Agency for the Assessment and Application of Technology (BPPT) in supporting solar PV projects. The Government of Indonesia has given BPPT a strong charter and mandate to increase penetration of solar PV systems in Indonesia, on a large scale and quickly. The assistance provided by the SHS project would be in areas, such as qualification testing facilities, technical design services, and best practices identification, that would strengthen BPPT's ability to assist the private sector in designing and delivering high quality solar PV products. Together, these two aspects of capacity building would facilitate the design and establishment of a longer term program for solar PV penetration in Indonesia that is consistent with a least cost and sustainable rural electrification strategy.

21. The SHS project would address the barriers to SHS market development by providing the dealers an integrated package of support, comprising three elements:

- (i) **Term credit at market rates** Loans from commercial banks to supplier-dealers for up to about five years at commercial market rates of interest. Supplier-dealers would apply for the loan to a commercial bank which meets Bank of Indonesia guidelines. In deciding whether to make loans to the supplier-dealers, the commercial banks would apply their standard loan appraisal procedures. The commercial bank loans would be refinanced through Government of Indonesia on-lending arrangements under an IBRD credit.
- (ii) **First cost buydown** First cost buydown in the range of \$75-90 per SHS sold and installed on Java, and \$ 100-125 off Java. The amount of the first cost buydown has been calculated to bring the final price to households to a level at which the unpaid balance to the dealer can be amortized over no more than 3 to 4 years, with monthly payments that are affordable. The buydown would be provided to dealers only after the SHS sales have taken place and been verified, in order to reward actual sales performance and to ensure that scarce GEF grant funds are not immobilized with poor performing dealers. The first cost buydown would be financed by GEF grant funds.
- (iii) **Support facilities** Promotional, business development and technical support to reduce information constraints, encourage competition and facilitate supplier-dealers in their development of bankable investment proposals. This support would be financed by GEF grant funds.

22. This package of support to the dealers will provide two significant benefits to the customers who purchase SHS units. First, the dealers will be an effective channel linking commercial banks and rural customers, who will gain access to credit at market rates without having to undertake formal credit application and approval steps. Those customers interested in purchasing a system on an installment plan basis will make a down payment -- typically in the range of \$80-100 -- and thereafter will make monthly payments to the dealer, typically for durations of 3-4 years. Second, the bulk of the GEF grant would flow to the consumers in the form of lower prices, as the dealers shift from a "high price low volume" equilibrium to a "low price high volume" equilibrium.

23. **Consumer protection** The SHS consumers will be protected in a number of ways. Apart from ensuring that the SHS units meet rigorous technical standards, the dealers will also be required to offer a no-questions-asked money-back option, valid for a short period of time after the initial sale. Second, the dealers will also be required to provide industry-standard warranties on all systems that they install. Further, during the course of the project implementation, the project support unit (PSU) will provide potential SHS customers information about the technical, financial, and operational aspects of the SHS. While the SHS project will not set prices, consumers will be provided with expected price ranges, including details about downpayments, monthly payments, etc. The PSU will provide all actual SHS customers with the means to communicate with it; on its own initiative, the PSU will contact a number of actual customers, on a random sample basis, to determine the extent of their satisfaction with SHS, and to resolve any problems. It is expected that some of these contacts will be undertaken by local community organizations and NGOs (see para 27).

24. **Technical specifications** It is expected that each SHS would consist of one or more photovoltaic (PV) modules with an output of at least 50 Wp nominal, a car-type 12 volt DC lead-acid battery, and related electronic and electrical components and mounting hardware. All SHS units supported by the project will have to meet rigorous technical specifications, which have already been developed by BPPT in cooperation with solar PV dealers, and have been widely circulated. The technical performance of the Indonesian non-panel (Balance-of-Systems) components is already high; for example, the locally made batteries available in Indonesia have an average life in this application of about three years, which is longer than that reported in many other developing countries. Further, there are some indications that the very initiation of the SHS project will itself lead to improvements in the technical components; one of the established battery manufacturers in Indonesia has stated that they would be interested in setting up a production line for specialized deep-discharge batteries particularly suitable for solar PV applications, once they can foresee demand on the scale implied by the SHS project.

## IMPLEMENTATION ARRANGEMENTS

25. The sale and installation of SHS units will be undertaken by independent private dealers. In order to reduce the risk of low participation rates and poor implementation performance, intensive efforts have been made during project preparation (and will continue to be made) to pre-identify by the time of appraisal six to ten dealers who are interested and capable of participating in the project. Initial proposals to participate in the SHS project have already been received from seven dealers. It is possible, that one or two dealers may be added after project appraisal, in the event that some good new dealers with sound business plans surface later, or some of the pre-identified dealers are unable to continue their participation in the project.

26. **Selection criteria** In order to be considered for participation in the SHS project, dealers must meet a set of minimum criteria: (i) the company must be Indonesia based; (ii) its current operations must include SHS sales or the marketing of other products in rural areas; and (iii) its past performance and current operations must demonstrate adequate technical, financial and business capability. In addition to these basic criteria, in order to be selected for participation in the SHS project, an enterprise would have to meet the following conditions:

- (i) **Additionality** The enterprise must demonstrate that it would increase SHS sales in the selected area well beyond an estimated "baseline level" which would be achieved without the project's support. It is anticipated that the availability of project support would encourage supplier dealers to mount ambitious market development efforts.



- (ii) **Technical standards** The enterprise must prove that the SHS it would sell would meet the detailed technical specifications.
- (iii) **Financial viability** The enterprise has to develop a business plan which would demonstrate the investment's profitability and include adequate arrangements for hire-purchase based SHS purchases by households, and technical support to ensure high quality of the system and after sales service.
- (iv) **Commercial acceptability** The enterprise's credit application must be acceptable to a commercial bank participating in the program. As the World Bank's credit would be channeled through a commercial bank, which would bear the commercial risk, the commercial bank's approval of the loan would be necessary.

27. **Disbursement** GEF funds would be disbursed to participating dealers only after confirmation that the sales and installations had been made and all the conditions met. The confirmation process would be based upon independent field based verifications of the sales, installations and compliance with the technical and other conditions. It is expected each dealer's initial sales and installations would be verified; subsequent confirmations would be on a routine basis subject to *ex post* verifications conducted on randomly selected samples of installed units. The *ex post* verifications would be undertaken by NGO teams, who would be trained for this purpose.

## ENVIRONMENT AND RESETTLEMENT

28. The solar PV technology to be disseminated through the SHS project has no emissions of gases such as CO<sub>2</sub> or SO<sub>2</sub>, and is environmentally superior to the available alternative forms of energy, which are based on fossil fuels. Since the SHS systems will be installed on existing structures (homes, shops, community buildings, etc.), the SHS project is not expected to pose any resettlement problems. The SHS project is classified as a "B" project, and an environmental analysis is being prepared.

## RATIONALE FOR BANK INVOLVEMENT

29. The World Bank is committed to supporting renewable energy development in Indonesia, as stated in the Indonesia Country Assistance Strategy (CAS) that was presented to the Bank's Board in February 1995. The proposed project design and implementation strategy typify the defining characteristics of the transition that is underway in the assistance strategy for Indonesia: (i) achieving poverty reduction through increased funding for regional development, and a shift towards smaller and regionally oriented projects targeted at reducing urban-rural disparities in the quality of life; and (ii) striking the appropriate balance between public and private roles in energy distribution.

30. The Bank continues to actively support implementation of an efficient and sustainable Rural Electrification (RE) program, initiated in the Rural Electrification I project and now through the successor Rural Electrification II project; primarily by financing extension of the various regional grids, and related institutional capacity building. Solar home systems are one of the key elements of the overall least cost RE strategy in Indonesia, and they complement the least cost grid extension program for RE. The SHS project will provide a means to continue the Bank's dialogue with the Government of Indonesia and to influence the implementation of a sustainable and environmentally sound RE development program, while encouraging private sector participation and the creation of commercial markets for alternative energy,

and continue the process of improving the policy and institutional environment. all matters of high priority on the Bank's agenda.

## **RATIONALE FOR GEF FINANCING**

31. The SHS project is eligible for GEF support and is consistent with the renewable energy market penetration aims embraced by the draft GEF Operational Strategy. The SHS project is expected to help lower the unit costs of solar PV technologies in Indonesia, given the downward sloping technology cost learning curve. In addition, the SHS project is expected to set a new lower global benchmark price for SHS, thereby stimulating further penetration and global environmental benefits from abatement of GHG emissions in other countries as well.

32. Indonesia has ratified the FCCC on August 23, 1994, so that it is eligible to receive GEF funds under this convention. In order to help fulfill its FCCC national commitments, Indonesia has initiated two greenhouse gas mitigation strategy studies. The Asia Least-Cost Greenhouse Abatement Strategy (ALGAS) project, financed by UNDP/GEF, examines Indonesia's GHG emission reduction options in an Asia regional context. Indonesia is also a participant in the second round of study activities financed under the U.S. Country Studies Program. Although both studies are still in early stages of preparation, the relevance of photovoltaics as a greenhouse emissions abatement option for Indonesia is clear. The country is characterized by a large, growing and dispersed rural population, a substantial fraction of whom are not electrified but who presently consume fossil fuel-based energy for lighting and radio and TV services. As a zero greenhouse gas emitting technology, the Solar Home Systems can meet these basic energy demands while substituting for higher polluting kerosene, diesel and grid-based options.

33. The project has high priority in Indonesia, given that the access of rural Indonesian households to modern forms of energy less than commensurate with Indonesia's overall level of economic development. The Government of Indonesia has a long history of commitment to the SHS project. Initially, in 1993, the Government submitted a proposal entitled "Integration of Renewable Energy Systems Within a Least-cost Rural Electrification Strategy," which formally conveyed the Government's request for IBRD financing, including a GEF grant component, for increasing the penetration of renewable energy systems. More recently, a letter from the Vice Chairman of the Indonesian Planning Agency (BAPPENAS) to the Bank has reaffirmed the high priority the Government accords to rapidly increasing the contribution of cost effective renewable resources in meeting the growing energy end-use needs in Indonesia, especially in rural areas; and in light of such priority, the importance of the proposed Bank/GEF-financed SHS project (Annex 2).

## **PARTICIPATION AND SUSTAINABILITY**

34. **Participation** Within the Government of Indonesia, the primary stakeholders in the SHS project are: the Agency for the Assessment and Application of Technology (BPPT), the Directorate-General of Electricity and Energy Development (DGEED), the Planning Agency (BAPPENAS), and the Ministries of Finance and Cooperatives. These agencies have been and continue to be involved to varying degrees in project preparation. In particular, BPPT has played a very active role, and has been involved in activities such as conducting market surveys, developing technical specifications, publicizing the SHS project within Indonesia, and providing office facilities for project preparation work. The SHS project would strengthen BPPT's institutional capabilities.

35. Within the private sector, the primary stakeholders include the Indonesian Solar Energy Association and individual solar PV systems dealers and suppliers. A number of presentations related to the SHS project have been made to the Solar Energy Association as well as to individual dealers, and their comments have been incorporated into project design and the technical specifications.

36. Site visits and discussions have been held with a limited number of households that have already installed SHS, whether as part of a Government program or buying it privately. In addition, about 1,000 households were contacted as part of the market surveys. These contacts have confirmed that there is a potential market for SHS in selected parts of rural Indonesian households, which ensures that lack of demand will not impede sustainability.

37. **Sustainability** The project's strategy of focusing on a number of selected regions that have high market potential is expected to lead to cost reductions as suppliers begin to capture economies of scale, particularly in establishing sales-and-service chains and in assembly of balance-of-system components. It is expected that the dealers will pass on the bulk of the first cost buydown to their customers, so that SHS prices at the project starting date (Fall 1996) would be lower than the current (Fall 1995) prices. Additional price reductions are expected to occur as a result of unit cost reductions, particularly in the markets where there has been very limited penetration of SHS and current prices are high. In the post-project phase, when the GEF first cost buydown would end, based on reductions in unit costs, it is expected that the dealers will be able to maintain prices that are essentially similar, in real terms, to the prices prevailing at the beginning of the project, without sacrificing profitability. Furthermore, in the project regions/markets, it is expected that other key barriers to market development, besides price, such as weak SHS dealers, unavailability of term credit from financial markets, limited customer awareness, would all have been lowered substantially or even eliminated. Thus, it is expected that the dealers will be commercially viable in the selected markets at the end of the project, and those markets will be sustainable in the post-project phase without GEF intervention.

## LESSONS LEARNED AND TECHNICAL REVIEW

38. Given the Bank's limited involvement in solar PV projects, there are no relevant Bank reports on past projects. Ongoing experience is limited to the IBRD/GEF-supported solar PV component of the India Renewable Energy Development Project (Ln. 3544-IN/Cr. 2449-IN). One key lesson learned from the India project is that timely project implementation is facilitated by: (i) pipeline development, i.e., pre-identification and preparation of sub-projects, and (ii) early development and dissemination of technical specifications. Further, the participating dealers can operate more efficiently if they have easy access to commercial banks, and the processing procedures for the disbursement of funds are simple and straightforward. These lessons have been incorporated in the project design.

39. To complement the limited in-house experience with PV projects, the experience of solar PV projects in other countries, particularly the Dominican Republic and Mexico (as suggested by the GEF independent technical reviewer), has also been reviewed with a view of improving the design of the SHS project. This review shows that in the Dominican Republic, a commercial approach has been successful in delivering SHS to rural households, but the overall scale has been restricted by the limited availability of credit, both to the SHS suppliers as well as the households. In Mexico, nearly 90% of the households are served by grid supply, and the SHS are being supplied on a subsidy basis to the remaining households for whom grid supply is uneconomic, and most of whom cannot afford to pay for the systems. Experience in other countries also points to the ability of the private sector to deliver SHS to rural households, the need for credit, and the benefits of some government involvement. For example, the

Kenyan private sector has successfully made cash sales of about 25,000 SHS on a purely commercial basis, but after a few years, in the absence of credit, the sales have slowed significantly, and further, in the absence of technical standards or other forms of support from government agencies, it is reported that about 25% of the systems are no longer functioning. This experience supports the design of the SHS project, which focuses on the private sector, addresses the barriers faced by the private sector, but includes government involvement to ensure adequate technical standards and support.

40. **Technical review** The project was reviewed in June 1995 by an independent external expert selected from the STAP roster, who is knowledgeable on global markets for solar PV systems. His comments are supportive of the project design and implementation strategy which he also notes will set the stage for larger programs worldwide (see Annex 3). His main comments were that: (i) the SHS project should build on the experience of other countries, (ii) the scale of 120,000 SHS units may be too small, and (iii) the guidelines on what characterizes success should be established early on. These comments have been incorporated in the revised project brief.

## PROJECT FINANCING AND BUDGET

41. **Total Cost and Financing Plan** The total cost of the project is about \$ 75 million, of which the investment component is about \$ 73 million (including project implementation support), the capacity building component amounts to about \$2.5 million, and monitoring and evaluation activities amount to about \$0.3 million. A preliminary financing plan, disaggregated by component and source of financing - IBRD, GEF, GOI and private sector -- is presented in Annex 1. The total GEF grant requested is \$24.3 million, which corresponds to the proposed project's incremental costs.

42. **Phasing** Whereas a commitment for the total GEF grant amount of \$ 24.3 million would be made now, in view of the innovative nature of this project and the proposed commercial scale, it is proposed that project implementation be phased, in order to afford national stakeholders and the GEF family of Implementing Agencies an opportunity to assess the success of the implementation mechanism. The first phase would consist of the sale and installation of 120,000 SHS units in the targeted rural markets over the project duration. This is the minimum economic scale estimated to be sufficient to provide private dealers with the incentives to commit themselves to extend their rural PV delivery network, and to take the risks associated with developing the infrastructure to install and maintain SHS units on a large scale, assume commercial debt obligations vis-a-vis a commercial bank, and extend installment credit to dispersed rural clients. Project support costs, capacity building activities, and monitoring and evaluation would also be included in the first phase of the project. The cost of the proposed first phase is estimated at \$47 million, of which \$15.75 million would be GEF grant funding.

43. An independent technical review panel would assess project performance against an agreed set of indicators and report back to the GEF Chief Executive Officer with its recommendation(s) about releasing the second phase of the GEF grant support (see para 56). This review would be timed such that private sector confidence and project implementation continuity would not be jeopardized, in the case of satisfactory performance. The second phase of the GEF grant funding would support the sale and installation of the balance of the planned SHS target for the project, or 80,000 SHS units. Continuation of project support and monitoring activities would also be included in the proposed second phase. The cost of the proposed second phase is estimated at \$38 million, of which \$8.55 million would be GEF grant funding.

## INCREMENTAL COSTS

44. **Baseline** At present, most of the target households for SHS units use a combination of kerosene for lighting and diesel-based battery charging for other activities such as powering a black-and-white TV. Based on survey data and secondary information about prices, the monthly economic expenditures of the target households on kerosene and battery charging are about \$9.30 on Java and \$10 off-Java. These expenditure patterns reflect the fact that in Indonesia; (i) kerosene consumption levels in Indonesia are higher than in many other countries, and (ii) off-Java, the kerosene and battery costs are higher and their consumption level lower than on Java. Correspondingly, the present value of the target rural household's baseline expenditures on kerosene and battery charging (for 15 years at a discount rate of 10%) is \$867 on Java and \$930 off-Java.

45. **GEF Alternative** In terms of lighting, the SHS unit would provide more light and a better quality of light than kerosene, without the emissions; in terms of battery power supply, the SHS unit would eliminate the loss of service arising from the need to leave the battery at the service shop for overnight charging. However, on a lifecycle cost basis, under present conditions, the SHS are more expensive than the baseline arrangements, except in the limited regions on Java where some dealers have managed to establish an initial presence. In other words, the costs of SHS units are high in areas of Java where the dealer chains have not yet been established ("new Java areas"), and the costs off-Java are higher than this. At the same time, given the developments that have already taken place in Indonesia, the costs in the new Java areas and the off-Java areas are well below the costs reported in a number of other countries.

46. Based on the prevailing prices, the monthly economic cost of a SHS unit in the new Java areas is \$10.10, which implies a present value of \$940 for 15 years at a 10% discount rate. For off-Java, the SHS monthly economic cost is \$11.38, with a present value of \$1,059.

47. When the present value of the GEF alternative is compared with the baseline expenditures of the typical target household, the **incremental costs** are estimated to be about \$73 per SHS unit in the new Java areas and about \$129 per SHS unit off-Java.<sup>2</sup> For total project sales of 200,000, split about equally between the new Java areas and off-Java, the total incremental cost for the SHS units is about \$20 million.

48. A small Project Support Unit (PSU) will be established to provide customers and dealers with the technical, financial and operational information. It is expected that potential customers will use this information, in part, to make informed decisions about the suitability of SHS. The PSU will also be responsible for monitoring project implementation performance. The total cost of these activities are expected to be \$4 million. In the baseline scenario, BPPT/GOI would have undertaken some of these activities, at an estimated cost of \$1.5 million. Hence, the GEF incremental cost is \$2.5 million.

49. The capacity building component includes institutional strengthening of BPPT, as well as a SHS Strategy and Implementation Study. The total costs of these activities are estimated to be \$2 million. However, in the baseline scenario, it is expected that BPPT/GOI would have undertaken some similar activities, whose cost is estimated to be \$0.5 million. Hence, the GEF incremental cost is \$1.5 million.

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<sup>2/</sup> The incremental costs are negative for the limited regions of Java where solar PV is already the least-cost option.

50. The costs of the SHS project monitoring and evaluation activities by the national working group, including the first phase review by the independent panel of experts (para 56), are estimated at \$0.3 million. As these activities would not have been undertaken in the baseline scenario, these expenditures are part of the GEF incremental cost.

51. Together, the overall GEF incremental cost is \$24.3 million.

## ISSUES, ACTIONS AND RISKS

52. **Key policy reforms sought and related conditionalities** Taking into account the findings and recommendations of SHS Strategy Study to be undertaken as part of the capacity building component, the Government of Indonesia will develop a national strategy and corresponding action plan, acceptable to the Bank, related to the future role of SHS in rural electrification on a commercial and non-commercial basis. Discussion on this matter will be initiated with GOI and the various departments/ministries concerned during pre-appraisal.

53. **Risks** There are several risks associated with the project. First, there are technical, implementation and operational risks associated with the solar PV technology utilized by the private sector. In order to minimize this risk, minimum performance standards and specifications for key components of the systems have been established in association with BPPT and the potential participants in the project, to help ensure that customers experience high quality service standards. Second, there is the risk that consumer demand does not materialize at the anticipated scale. This risk has been minimized by concentrating on a few regional markets, well researched by undertaking corresponding market and institutional assessments, by designing the GEF buydown to make the systems affordable, and the project support unit undertaking market awareness and product promotion activities during project implementation. Third, there are risks that the selected dealers will be unable to achieve the level of sales envisaged in the project. These risks related to supply response, are being minimized by selecting the dealers carefully and assisting them in formulating realistic business plans.

54. Finally, there is the project preparation risk that commercial banks will not be willing to take the risk of lending to the SHS dealers. This risk is being minimized by ascertaining that a number of commercial banks are interested, by assisting the dealers in the preparation of bankable plans and by increasing the comfort level of banks by familiarizing them with information about the technology, its performance and market potential.

## MONITORING AND EVALUATION

55. During the five year implementation period, local oversight will be provided by the Rural Electrification Steering Committee, headed by the Director-General of Electricity and Energy Development (DGEED). A Working Group, composed of representatives of BPPT, DGEED, the Planning Agency (BAPPENAS), the Ministries of Cooperatives and Finance, and the national power utility (PLN) will be set up to review the SHS project's progress and provide a forum for inter-agency discussion and coordination. Specific performance indicators that the working group will monitor will be agreed during appraisal, and will possibly include system reliability, customer complaints and loan repayment rates. Critical success factors for the project are that: (i) market demand materializes at anticipated levels, (ii)

the project results in satisfied customers that experience high quality service standards, and (iii) end users payback their loans on time.

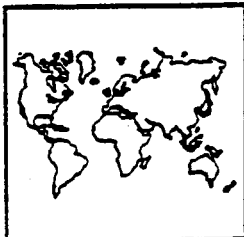
56. In addition to this national monitoring mechanism, given the pilot nature of the SHS project and its innovative approach to developing a private sector PV market, an independent technical panel (composed of internationally recognized experts in the field and representatives of the GEF Implementing Agencies) will conduct a review of first phase project performance with the stakeholders, in order to assess whether the proposed project modality is functioning effectively, identify adjustments that could be made to improve performance (if any), and recommend to the GEF Chief Executive Officer whether the project's second phase should proceed as planned. The exact scope of the review, its timing, and the performance criteria to be assessed, will be agreed with the Indonesian stakeholders during final preparation and appraisal. It will be critical for private sector confidence and project success that the trigger for initiating and completing this first phase review be selected in such a way that implementation continuity not be jeopardized.

**Table 1 INDONESIA: SOLAR HOME SYSTEMS (SHS) PROJECT  
FINANCING PLAN  
(US\$ million)**

Component	IBRD	GEF			Private Sector (customer down payments, dealer equity, reinvested profits)	BPPT/GOI	TOTAL
		Phase 1	Phase 2	Total			
Investment							
- Sale and installation of SHS	20 to 25	12.0	8.0	20.0	25	0	65 to 70
- Project Support Services	0	2.0	0.5	2.5	1	0.5	4
Capacity Building	0	1.5	0	1.5	0	1	2.5
- BPPT strengthening							
- SHS Strategy & Implementation Plan							
Monitoring and Evaluation		0.25	0.05	0.30	0	0	0
<b>Project Total</b>	<b>20 to 25</b>	<b>15.75</b>	<b>8.55</b>	<b>24.30</b>	<b>26</b>	<b>1.5</b>	<b>72 to 77</b>

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June 13, 1995

Canadian Photovoltaic  
Industries Association

European Photovoltaic  
Industries Association

Manufacturers Association  
of Israel

New Energy Foundation:  
Solar System Development  
Association (Japan)

Solar Energy Industries  
Association (USA)

Solar Energy Industries  
Association of Australia

TO: Surinder Malik  
Acting Chief  
Industry and Energy Division  
Country Department III  
East Asia & Pacific Region

RE: Review of GEF Indonesia Renewable Energy Project

Attached are the comments sheets specifically related to the major attachments per your request. This cover memo serves as an overview and findings:

First, over 70 percent of photovoltaics now produced is exported for developing world applications and over 175,000 villages worldwide are being electrified with solar applications.

Second, the approaches as outlined in the GEF proposal are for the most part being accomplished in other parts of the world quite successfully, including Mexico, the Dominican Republic, India and Southern Africa.

Third, the success of the (RED) project focusses primarily on in-country private sector, financing instruments, and how both drive successful installations and maintenance activities for the life of the renewable energy installations. There are no show stoppers here, just good diligence in project implementation.

Finally, overall the project results are achievable and significant renewable energy utilization and emissions reductions can be attained. I believe it to be a good project with focus, and which will set the stage for larger programs worldwide.

Please advise me if you need further elaboration on any of the comment sheets I have enclosed or please feel free to contact me at any time. Thank you.

These comments were prepared on the RED project, which was later separated into the SHS project and the Renewable Energy Small Power (RESP) project.

The stress for the private sector is essential to make the program sustainable.

Some confusions exists regarding the utilization of the different renewables. For instance, small modular biomass may have as much benefit as any other renewables in the Indonesian context and therefore worthy of equal support. Biomass is referred to as a cogeneration technology and could be a distributed modular technology.

Build on other successful programs in solar rural electrification worldwide. The Enersol program in the Dominican Republic has been ongoing for seven years in an ever-profitable manner. Here, a small revolving loan fund helps drive the market for individuals and small business solar users.

The Mexico program has used a cadre of in-country businesses partnered with companies (primarily manufacturers but also system assemblers) from the United States, Japan and Europe to drive village electrification systems primarily for solar but also small wind and microhydro.

A financing approach that concentrates on the key market barrier -- lowering high upfront capital costs so the technology is affordable -- possibly amortizing loan so that monthly payments would fall below monthly fuel costs of conventional energy technologies. Financing needs to go beyond 36 months probably to 48 months.

Environmental safeguards are very necessary for municipal solid waste (MSW) unless it is a uniform waste stream devoid of chemicals and heavy metals (ie batteries), but I have been advised MSW has been eliminated from the project.

Loans using existing market rates make no sense, in that the activity would probably be accomplished already if the traditional loan infrastructure would support decentralized projects. Some kind of interest rate buydown would be required, but the need could be obviated IF loan terms were amortized four years or longer.

Regional focus activities did not include the need for ongoing support in resource assessment (to best understand the best resource availability and under what conditions), technical assistance (to overcome certain technical hurdles in decisionmaking by lenders or use be endusers). An ongoing capability supported by GEF in these areas will provide longterm stability to the program, drive short term momentum, and insure overall program

success.

Financial intermediation is approached correctly in that three banks in each of the three regions would be useful. The credit programs should be designed in such a way that the endusers' ease of access to loans is assured; the less centralized the credit program, the more effective it will be. The RED project's delivery channel is dealer financing, under which the private dealers will borrow from commercial banks and pass on credit to individual households. This channel is satisfactory, because the dealers will approach each individual household, and the dealers have a clear incentive to provide households with credit since the households cannot buy the systems without the credit. Further, the dealers should be encouraged to plough back repayments from the initial set of loans as credit to other households, so that an increasing number of households can be served.

The initial scale of the program should function primarily on increasing the economies-of-scale of manufacturing and deployment. These economies-of-scale in production and use will fundamentally lower cost and create a sustainable energy infrastructure for future replication.

The program must also establish the "metrics" of success early on, so as to have guidelines on what characterizes success. Is it the number of systems, is it an aggregation approach to financing, is it longevity of systems and market sustainability or is it a combination of all of these points?

The stand alone systems and utility inter-tied programs should be run in parallel and if there are ways to make them nurture each other, such schemes should be brought up now (since none appear in the text). Both design assistance and maintenance escrows are valid for both programs. In addition, approaches to shift funds from one program to the other, if one gets stalled, might be in order. This was alluded to but should be set out clearly as incentives for the program implementors to keep momentum or face loss of support.

Support of generic information lines or NGO groups that can dispense generalized "rule of thumb" information leaving to the indigenous industry the specialized technology/user information. This activity should be extremely limited to insure maximum support for product in the field.

The role of GEF funds is critical, and appear to me to be best oriented towards addressing key barriers to SHS sales, such as high initial cost, ensuring that the installed systems continue to function over time, and non-promotional activities (lender technical assistance, utility design assistance, etc.) as ways to build infrastructure or capacity building assistance.

GEF may be able to costshare these kinds of activities with other multilateral, bilateral, and philanthropic organizations and agencies.

The 120,000 solar home systems may not be large enough test to significantly lower costs. This partially depends on how many different companies are involved, and to whether GEF wants to encourage standardized designed and compatible components (leads, coloring etc) to insure maximum access to parts and maintainability.

In general, the benefits associated with the renewable technologies have been conservatively estimated. Some of the benefits as shown in the charts for solar PV, small power and the PLN plan, do not take into consideration the speed in which these technologies can be deployed. The real benefit is immediate emissions reductions. Also plant life for all of the renewables is below what is actually seen in the field. While I support conservation estimates, these are still under the general rules of thumb.

Also health benefits, particularly in regard to displacement of residential kerosene use is not included. Respiratory and eye problems associated with in-building combustion is very high. These health savings need to be included even it is token on the charts.

Another failing of the charts regarding comparative emissions reductions from conventional power plants related clearly to the fact that all experience "down times". It appears none of this data is included so the numbers are inordinately high. This effects the comparative economics with renewables since conventional energy output is artificially high - particularly in relation to the developing world experience.

## **Indonesia: Solar Home Systems (SHS) Project**

### **Incremental Costs and Global Environmental Benefits**

#### **Broad Development Goals**

1. Indonesia's basic goals and policies for the development of the energy sector highlight the importance of meeting Indonesia's rapidly growing energy needs in an efficient manner, including through conservation and diversification of primary energy resources, and minimizing the adverse environmental and social impacts of energy use. A key and continuing thrust of the Government's energy strategy is to slow down Indonesia's transition to net oil importer status by diversifying energy supply for domestic consumption towards alternative and economic indigenous resources that have a non-exportable surplus or are non-tradeable, such as renewable energy. Rural electrification (RE) is a key and integral part of the Government's rural development strategy.

#### **Baseline**

2. In Indonesia today, a significant number of isolated rural households use kerosene lamps for lighting and automobile batteries -- charged at diesel-based generating stations -- for other energy needs, such as watching (black-and-white) TV sets. While these households have the potential resources to pay for grid-based electricity supply, this supply is not available to them now, nor is it likely to be available to them in the medium term. Further, most of these households are not able to buy Solar Home Systems, either because SHS are simply not offered to them for sale, or because of other factors such as high prices, lack of credit, and lack of familiarity. Thus, the baseline course of action is that these households will continue to rely on fossil fuels for their energy needs.

#### **Global Environmental Objective**

3. The baseline course of action will lead to significant emissions of greenhouse gases (CO<sub>2</sub>). Thus, the global environmental objective of the SHS project is the mitigation of GHG emissions.

#### **GEF Alternative**

4. Under the SHS project, the GEF alternative to the baseline scenario is the installation and sales of 200,000 SHS units in selected markets in Indonesia over a period of five years. The GEF Alternative would also include program support (such as dissemination of technical, financial, and operational information to customers and dealers) and capacity building activities that would contribute to the removal of market and institutional barriers to the adoption of SHS. There are no CO<sub>2</sub> emissions for the SHS units, so that there will be a total replacement of the fossil fuel use that would have taken place under the baseline scenario. It is estimated that the SHS project will lead to an abatement of about 2 million tons of CO<sub>2</sub>, at a GEF cost of about \$11/ton CO<sub>2</sub> (Table 7).

#### **Additional Domestic Benefits**

5. Apart from progress towards least-cost provision of electricity to rural consumers, the SHS will reduce the exposure of household members to the smoke and pollution associated with kerosene lighting systems.

## Costs

6. At present, most of the target households for SHS units use a combination of kerosene for lighting and diesel-based battery charging for other activities such as powering a black-and-white TV. Based on survey data and secondary information about prices, the monthly economic expenditures of the target households on kerosene and battery charging are \$9.32 on Java and \$9.99 off-Java (Tables 3 and 6). These expenditure patterns reflect the fact that in Indonesia: (i) kerosene consumption levels in Indonesia are higher than in many other countries, and (ii) off-Java, the kerosene and battery costs are higher. The costs of kerosene and battery charging are lower on Java than off-Java, primarily due to transportation and logistical differences, and their consumption level lower than on Java. Correspondingly, the present value of the target household's baseline expenditures on kerosene and battery charging (for 15 years at a discount rate of 10%) is \$867 on Java and \$930 off-Java.

7. The GEF incremental costs arise from: (i) the additional costs, over the baseline expenditures, of the SHS units in the market areas to be developed under the SHS project, including the need to increase potential customer familiarity with SHS, to assist dealers, and to maintain links with actual customers under the SHS project, (ii) institutional capacity strengthening, and (iii) monitoring and evaluation.

8. For the parts of Java where SHS dealers are not yet established ("the new Java areas") the initial cost of an SHS unit is estimated to be Rp 1.4 million (\$636), based on the costs of Government procurement programs. For off-Java, the SHS costs are estimated to be Rp 1.65 million (\$750), based on the prices of scattered cash sales in Lampung and Sulawesi. These estimates of costs compare favorably with the prices of similar SHS in many other countries.

9. Based on the prevailing prices, the monthly economic cost of a SHS unit in the new Java areas is \$10.10, which implies a present value of \$940 for 15 years at a 10% discount rate. For off-Java, the SHS monthly economic cost is \$11.38, with a present value of \$1,059 (Tables 2 and 5).

10. When the present value of the GEF alternative is compared with the baseline expenditures of the typical target household, the **incremental costs** are estimated to be about \$73 per SHS unit in the new Java areas (Table 1) and about \$129 per SHS unit off-Java (Table 4).<sup>1</sup> For total project sales of 200,000, split about equally between the new Java areas and off-Java, the total incremental cost for the SHS units is about \$20 million.

11. A small Project Support Unit (PSU) will be established to provide customers and dealers with the technical, financial and operational information. It is expected that potential customers will use this information, in part, to make informed decisions about the suitability of SHS. The total cost of these activities are expected to be \$4 million. In the baseline scenario, it is estimated that BPPT/GOI would have undertaken some of these activities, at an estimated cost of \$1.5 million. Hence, the GEF incremental cost is \$2.5 million.

12. The capacity building component includes institutional strengthening of BPPT, as well as a SHS Strategy and Implementation Study. The total costs of these activities are estimated to be \$2 million.

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<sup>1</sup> The incremental costs are negative for the limited regions of Java where solar PV is already the least-cost option.

However, in the baseline scenario, it is expected that BPPT/GOI would have undertaken some similar activities, whose cost is estimated to be \$0.5 million. Hence, the GEF incremental cost is \$1.5 million.

13. The costs of the SHS project monitoring and evaluation activities by the national working group, including the first phase review by the independent panel of experts, are estimated at \$0.3 million. As these activities would not have been undertaken in the baseline scenario, these expenditures are part of the GEF incremental cost.

14. Together, the overall GEF incremental cost is \$24.3 million.

#### **Global Environmental Benefits**

15. The overall avoided emissions are about 2.1 million tons of CO<sub>2</sub>, with a total GEF grant of \$24 million, leading to a GEF unit cost of about \$11/ton CO<sub>2</sub> (Table 7). The estimates of the emissions avoided include both the emissions avoided as a result of the SHS units directly installed under the SHS project ("project effect") as well as the acceleration of SHS market penetration in Indonesia ("programmatic effect") as a result of the SHS project.

16. The estimation of total emissions avoided starts with an estimate of the unit emissions avoided factor (Table 8). The unit avoided emissions factors are multiplied by the estimated penetration of the technology to arrive at the total emissions avoided.

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# INDONESIA: SOLAR HOME SYSTEMS (SHS) PROJECT

## Java: New Areas 1/ Solar and Kerosene/Battery Household Costs

Discount Ra	10.00%	Exchange Rate	2,200
<b>Baseline: Kerosene /Battery Charging</b>			
Levelized Monthly Cost			
Lighting		\$3.47	
Battery Charge		\$5.85	
Total			\$9.32
Net Present Value			\$867.19
<b>Solar Home Systems</b>			
Levelized Monthly Cost			
Net Present Value			\$10.10 \$940.25
<b>Incremental Cost: Per SHS</b>			
			\$73.06

1/: New areas refers to places where SHS are not being sold at present



Table 2

# INDONESIA: SOLAR HOME SYSTEMS (SHS) PROJECT

## Java: New Areas <sup>1/</sup>

	Discount Rate	10.00% Exchange Rate				2,200		
	Cost and Life Assumptions					Life Cycle Costs		
	Cost	Life		Unit	Number	Cost		
Initial Cost	Rupiah	US \$	Years	Months				
Replacement	1,400,000	636	15	180	636	1 636.36		
Panels								
Battery		325	15	180	0.00	1 0.00		
Regulators		60	3	36	120.16	1 120.16		
Generator		50	7	84	37.30	1 37.30		
Support Structure		95	10	120	35.09	1 35.09		
Other Hardware		20	10	120	7.39	1 7.39		
Lamp 4 Watt		20	10	120	7.39	1 7.39		
Lamp 6 Watt		15	5	60	14.66	3 43.97		
Present Value -- Replacement		15	5	60	14.66	2 29.32		
Present Value Without O&M						280.62		
Levelized Monthly						916.99		
O&M -- Water, etc.						\$9.85		
Present Value O&M						\$0.25		
Solar Monthly						\$23.26		
<div>Note: The initial cost is the full cost of purchase and it is not discounted.</div>								
						\$10.10		

<sup>1/</sup>: New areas refers to places where SHS are not being sold at present

# INDONESIA: SOLAR HOME SYSTEMS (SHS) PROJECT

## Java: New Areas 1/

### Kerosene and Battery Levelized Costs

Discount rate	Exchange Rate		
<b>Lighting</b>			
Kerosene Monthly Use (liters)	15	(observed in Indonesia; more than in other countries)	
Kerosene Cost \$/liter	0.17		
<b>Monthly Kerosene Cost</b>			<b>\$2.55</b>
<b>Battery</b>			
Petromax Cost \$	\$20.00		
Petromax Life	5 years		
Petromax Levelized Cost	\$0.42		
Mantle Monthly	\$0.08		
<b>Petromax Monthly</b>			<b>\$0.50</b>
<b>Wick lantern</b>			
Wick lantern Cost	\$4.00		
Wick Lantern Life	3 years		
Number of Wick Lanterns	2		
Wick Lantern Levelized Cost	\$0.26		
Wicks used monthly	\$0.16		
<b>Wick Lantern Monthly</b>			<b>\$0.42</b>
<b>Total Lighting Monthly</b>			<b>\$3.47</b>
<b>Battery Costs</b>			
Charges Per Year	48		
Cost per charge	1	(observed cost in Indonesia; similar in Sri Lanka, India)	
<b>Monthly Charging Cost</b>			<b>\$4.00</b>
Battery Cost	\$40.00	(smaller than solar battery)	
Lifetime	2 years	(lower than solar - deep discharges)	
<b>Battery levelized Cost</b>			<b>\$1.85</b>
<b>Total Battery Monthly</b>			<b>\$5.85</b>
<b>TOTAL MONTHLY</b>			<b>\$ 9.32</b>

1/: New areas refers to places where SHS are not being sold at present

**INDONESIA: SOLAR HOME SYSTEMS (SHS) PROJECT**  
**Off-Java**  
**Solar and Kerosene/Battery Household Costs**

Discount Rate	10.00%	Exchange Rate	2,200
<b>Baseline: Kerosene /Battery Charging</b>			
Levelized Monthly Cost			
Lighting		\$3.56	
Battery Charge		\$6.43	
Total			\$9.99
Net Present Value			\$929.85
<b>Solar Home Systems</b>			
Levelized Monthly Cost			
		\$11.38	
Net Present Value			\$1,058.78
<b>Incremental Cost: Per SHS</b>			
			\$128.93

Table 5

# INDONESIA: SOLAR HOME SYSTEMS (SHS) PROJECT

## Off-Java

Discount Rate	10.00% Exchange Rate	2,200
Cost and Life Assumptions		
Cost	Life	Life Cycle Costs
Rupiah	Years	Unit
Initial Cost	15	750
Replacement		1
Panels	15	0.00
Battery	3	120.16
Regulators	7	37.30
Generator	10	35.09
Support Structure	10	7.39
Other Hardware	10	7.39
Lamp 4 Watt	5	15.64
Lamp 6 Watt	5	15.64
Present Value -- Replacement		285.51
Present Value Without O&M		1,035.51
Levelized Monthly		\$11.13
O&M -- Water, etc.		\$0.25
Present Value O&M		\$23.26
Solar Monthly		\$11.38

Note: The initial cost is the full cost of purchase, and it is not discounted.

The other costs are replacement costs over 15 years.

# INDONESIA: SOLAR HOME SYSTEMS (SHS) PROJECT

## Off-Java

### Kerosene and Battery Levelized Costs

Discount rate 10.00%

<b>Lighting</b>			
Kerosene Monthly Use (liters)	12		(observed in Indonesia; more than in other countries; less than Java)
Kerosene Cost \$/liter	0.22		(more expensive than Java)
<b>Monthly Kerosene Cost</b>		<b>\$2.64</b>	
<hr/>			
Petromax Cost \$	\$20.00		
Petromax Life	5 years		
Petromax Levelized Cost	\$0.42		
Mantle Monthly	\$0.08		
<b>Petromax Monthly</b>		<b>\$0.50</b>	
<hr/>			
Wick lantern Cost	\$4.00		
Wick Lantern Life	3 years		
Number of Wick Lanterns	2		
Wick Lantern Levelized Cost	\$0.26		
Wicks used monthly	\$0.16		
<b>Wick Lantern Monthly</b>		<b>\$0.42</b>	
<hr/>			
<b>Total Lighting Monthly</b>		<b>\$3.56</b>	
<hr/>			
<b>Battery Costs</b>			
Charges Per Year	44		(less than in Java)
Cost per charge	1.25		(observed cost in Indonesia; more than in Java)
<b>Monthly Charging Cost</b>		<b>\$4.58</b>	
<hr/>			
Battery Cost	\$40.00		(smaller than solar battery)
Lifetime	2 years		(lower than solar - deep discharges)
<b>Battery levelized Cost</b>		<b>\$1.85</b>	
<hr/>			
<b>Total Battery Monthly</b>		<b>\$6.43</b>	
<hr/>			
<b>TOTAL MONTHLY</b>		<b>\$ 9.99</b>	

Table 7

## Indonesia: Solar Home Systems (SHS) Project Global Environmental Costs and Benefits

### GEF Supported Activities: Incremental Costs

SHS Units Sold	200,000	
Hardware incremental costs		\$ million
Project Support Unit		\$ million
Capacity building		\$ million
		<u>1.50</u>
Total GEF Costs		\$ million
		24.00

### GEF Supported Activities: Benefits

Direct Project Benefits		
Unit SHS capacity	50 Wp	
Project Capacity Implemented	10 MWp	
Unit Annual Avoided CO2 Emissions	8.45 '000 tons/MWp	
Unit Lifetime 15 years undiscounted Avoided CO2 Emissions	126.8 '000 tons/MWp	
Total Lifetime 15 years undiscounted Avoided CO2 Emissions		'000 ton
		1,268

### Programmatic Benefits - Accelerated Market Penetration

Multiplier Effect - MWp Increase as % of Project MWp's	200%	
Implied MW p Increase	20 MWp	
Timing Effect	5 years accelerated	
Total Effect (approx.)	100 MWp-years	
Total Lifetime 15 years undiscounted Avoided CO2 Emissions		'000 ton
		845

### Total Project and Programmatic Benefits

'000 ton 2,113

### Unit Incremental Costs: Avoided CO<sub>2</sub>

\$/ton CO<sub>2</sub> 11.36

Table 8

# **Indonesia Solar Home Systems (SHS) Project:** **AVOIDED CO<sub>2</sub> EMISSION BENEFITS - Unit Factors** <sup>(a,b)</sup>

			SHS (d)
<b>A. Solar Home Systems Technology Characteristics</b>			
Implemented Capacity	MW <sub>p</sub>		1
Plant or Capacity Factor <sup>(c)</sup>			0.13
Plant Life	years		15
Electricity Generation			
Annual Generation	GWH/year		1.2
Life Time Generation	GWH/life		17.6
Unit CO <sub>2</sub> Emission Factor	tons/GWH		0
Annual Emissions	000 tons/year		0
Life Time Emissions	000 tons		0
<b>B. Substitute Technologies</b>			
Avoided Technologies and Unit Emission Factors			
Kerosene Lighting	tons/GWH		10,000
Diesel-based Battery Charging	tons/GWH		1,100
Mix of Substitute Technologies <sup>(d)</sup>			
Kerosene Lighting			70%
Diesel-based Battery Charging			20%
Substitute Technology CO <sub>2</sub> Emissions - weighted average of substitute mix			
Unit Emission Factor (wgt ave)	tons/GWH		7,220
<b>C. Avoided CO<sub>2</sub> Emissions</b> (difference between SHS and substitute technologies)			
Net Avoided Emissions Factor	tons/GWH		7,220
Avoided CO <sub>2</sub> Emission Quantities - 000 tons net			
Annual	per MW <sub>p</sub>		8.45
Life Time			126.8

(a) See Attachment 1 for background information on renewable and substitute technology factors.

(b) Only direct CO<sub>2</sub> emissions are included in this analysis. The global warming potentials of other gases and of CO<sub>2</sub> and other gases embedded in the manufacture, transport, etc. of the technologies are not included.

(c) The SHS capacity factor of 0.13 is based on a 50 Watt system that supplies, on average, 170 Watt-hours daily for household use.

(d) Solar home systems (SHS) do not only substitute for existing energy uses. In some cases, SHS also provide additional energy services (or meet previously unmet demand), such as increased television viewing and lighting quality. Therefore, when calculating the avoided emissions for SHS, it is assumed that there are avoided emissions only for the part of the SHS energy that substitutes for current energy use. The kerosene lighting emission factor already includes the adjustment for existing versus new demands.

## PROPOSAL FOR REVIEW

<b>Project Title:</b>	<b>Romania: Capacity Building for GHG Emission Reduction through Energy Efficiency</b>
<b>GEF Focal Area:</b>	Climate Change
<b>Country Eligibility:</b>	Convention Ratified June 1994
<b>Total Project Costs:</b>	US \$ 6,478,000
<b>GEF Financing:</b>	US \$ 2,268,000
<b>Country Contribution:</b>	US \$ 1,160,000 US \$ 200,000 (RENEL)
<b>Cofinancing/Parallel Financing:</b>	US \$ 1,850,000 (EU PHARE Programme) US \$ 1,000,000 (Fonds Francais pour l'Environnement Mondial)
<b>GEF Implementing Agency:</b>	UNDP
<b>Executing Agency:</b>	Ministry of Industries & Romanian Energy & Romanian Energy Conservation Agency (ARCE)
<b>Estimated Approval Date:</b>	February 1996
<b>Project Duration:</b>	5 years
<b>GEF Preparation Costs:</b>	PRIF (RER/94/G41) US \$ 25,000



## **BACKGROUND:**

1. In 1991, CO<sub>2</sub> emissions amounted to 123 Mt. Per capita emissions were almost 10t in 1989, but they have fallen to 6t in 1993 due to the sharp decrease in industrial production. However, GHG emissions in Romania remain high compared to the level of economic activity with 2,120t of CO<sub>2</sub> per US\$M of GDP, compared for example to 665t in the European Union. The same year, Total Primary Energy Supply (TPES) was 48 mtoe, ranking Romania third in terms of consumption in Eastern Europe, behind Poland and the Czech Republic. The Romanian economy is indeed very energy intensive: its energy ratio is 1.7 toe/1,000 US\$ in 1991, as compared to 0.38 in OECD countries. This high energy intensity is a combined effect of two factors:

- the structure of the economy with a large energy-intensive industrial sector; and
- the inefficient utilisation of energy in all economic sectors.

2. The industrial sector in particular is characterised by a high share of energy-intensive industries. In 1991, it contributed to 46.7% of the national GDP and accounted for 51.4% in the country final energy consumption (energy sector not included). Final energy consumption in the industrial sector was 17.1 mtoe in that year. Chemicals, iron and steel and machinery together accounting for 50%. The energy sector and combustion of fuels in industry are in fact the main sources of GHG (CO<sub>2</sub>) emission, with 44% and 37% of the country's emissions, respectively.

3. Environmental policy is the responsibility of the Ministry of Water, Forests and Environmental Protection (MoE). The MoE has three departments dealing with the above subjects. With its research institute it operates 233 monitoring stations for air pollution throughout the country. The Department also has 40 district agencies in charge of inspection, issuing permits, analysis, monitoring and data collection. The Ministry of Health operates 86 air pollution monitoring sites in cooperation with the MoE. The district agencies require significant investment in control and monitoring equipment to cover the 41 counties of Romania, each of which includes between 2,000 and 5,000 point sources of pollution. Further work on the implementation of the FCCC will increase the cooperation between these various national institutions.

## **CONTEXT:**

4. The Framework Convention on Climate Change was signed by the Government of Romania at the Rio Summit where the Minister of Environment announced that Romania expected that CO<sub>2</sub> emissions would, in the year 2000, be below those of 1989. Romania ratified the FCCC in June 1994 (Law No.24) and a "First National Communications Concerning the National Process of Applying the Provisions of the Framework Convention on Climatic Change" was submitted to the Secretariat of the Convention in January 1995. In accordance with the

global problem of climate change, the Ministry of Waters, Forests and Environmental Protection is integrating the strategy on climate change into the general strategy of environmental protection in Romania. The Government of Romania has implemented several strategic steps to support the Framework Convention. These are:

- adoption of regulations on air pollution emissions for each sector of the economy;
- the establishment of the National Commission for Climate Change;
- the establishment of a greenhouse gas inventory in accordance with methodologies set out by IPCC and adopted by INC of UNFCCC, for different sectors of the economy;
- preparation of a national monitoring system for air pollution (including GHG);
- identification of the sectors in Romania most vulnerable to climate change;
- mitigation options for each sector;
- public information with a view to broadening and strengthening the public acceptance of climate change strategy;
- the National Environmental Research programme will contain aspects for Global Air pollution and Climate Change;
- promotion of cooperation with other countries to improve the Convention; and
- negotiations on the development of specific targets for GHG emission reduction.

In the context of a very energy-intensive economy needing to comply with its international commitments, the Government of Romania made the decision to promote energy efficiency policies.

## **PROJECT OBJECTIVES:**

5. Experience shows that even if there is a potential for energy efficiency improvements which are financially viable, and even if credit lines are available, a considerable share of this potential is not realized because information, policy measures, local expertise are lacking. These barriers are particularly important in small and medium sized industries, and among commercial and residential energy users. This project is designed to help overcome these barriers. It will assist Romania in reducing the long-term growth of GHG emissions from district heating, power generation plants and from consumption of fossil fuel sources in other sectors. The overall objective of this project is developing self-sustaining national capability for the continuous improvement of energy efficiency. This objective is in line with the national strategy proposed by the Government for the reduction of GHG emissions. It is also consistent with Government policies to improve energy efficiency, sustain economic development and the move towards a market-oriented economy. The overall objective will be achieved through various activities which can be classified in two themes:

- (i) Improving capacity to implement local energy strategies and programmes leading to continuous improvement in energy efficiency; and
- (ii) Demonstrating and replicating specific energy saving technologies, with the emphasis firmly on ensuring their dissemination.

6. The first involves increasing the capacity to design and implement rational energy management strategies at municipal and industrial levels. This will effect savings in energy, and hence reduction in GHG emissions, through the implementation of modern management information systems and no-cost and low-cost measures. In addition, it will increase the flow of cost-effective projects and facilitate the financial evaluation of these projects so that they can be packaged for investment from financial institutions.

7. The second theme involves demonstrating a number of energy saving technologies, namely; improved combustion efficiency, energy efficient municipal lighting, improved building insulation, reducing electricity demand in buildings, industrial heat recovery and electric motor controls. The emphasis in this theme will be on rapid demonstration of results and closely targeted replication with project managers charged with responsibility for finding replication sites, preparing financial cases for outside lenders, and project management of implementation.

8. In order to focus the project tightly on quantifiable energy savings and hence reduction in GHG emission, the two themes will be implemented simultaneously within a selected geographical area to be designated an Energy Action Area. In this way all components of the project will be able to feed off each other and become synergistic. The objective will be to ensure maximum involvement and participation from all groups within the selected area.

#### **PROJECT DESCRIPTION:**

9. The project consists of nine components of three different types, which were discussed and agreed upon with relevant authorities in Romania and funding partners:

- a) Five components involving demonstration and transfer of technologies (components 4, 5, 6, 7, and 8).
- b) Three components focusing on training and information disseminations (components 1, 2 and 3).
- c) The last component (component 9) involves the organization of an overall Management and Coordination Unit. This coordination unit will function in joint team. Central coordination is necessary in order to integrate successfully the distinct elements of this project and to ensure coherent and timely completion of various elements.

10. Five alternative sites have been identified from which the first pilot Energy Action Area will be selected. Final selection of the site will take place during a meeting organized in September 1995 with national authorities and funding partners. Summary information with comments about each site is given in Annex 5. The establishment of a first Energy Action Area will take 18 months. After that, the project will focus on replicating this programme in other areas and aim to have established at least 20 Energy Action Areas within the five year programme. This is an ambitious but achievable target, as much emphasis will be placed during the pilot Area project on training local Agencies, so that they can take over the management of

the programme in other areas.

11. The following section discusses each component of the proposed project. The discussion centres on the objectives of the component, a description of the activity, a discussion of the transactions barriers preventing the component from being implemented in the absence of the project, the anticipated outcome of the component, and finally, the local partners who will be involved in the component.

**11(a). Component 1                      Improving energy management capacity (for selected small and medium enterprises) Total cost: US\$ 420 000; Proposed GEF funding: US\$ 320 000**

*Objectives:*

- To implement energy management information systems in industry and the public sector;
- To implement no- and low-cost savings opportunities;
- To train enterprise, ARCE and consultancy staff in energy management information systems; energy saving techniques; and financial evaluation; and
- To identify investment opportunities and prepare financial evaluations for project funding from banks.

*Description:* A major constraint on improving energy efficiency in Romania is the lack of experience in establishing management information systems and using such systems to identify and implement no-cost and low-cost measures. This component of the project aims to:

- Increase know-how and understanding of energy management information systems, energy saving techniques and financial evaluation;
- Implement energy management information systems, beginning with the largest enterprises and cascading out to smaller enterprises; and
- Use management information systems and consultancy to identify higher cost opportunities and prepare them for financing by outside agencies and local banks.

The approach used will be:

- to provide high level awareness training for senior managers in enterprises (one-day seminars) to create demand for energy management and provide operational level training in energy management information systems, energy conservation techniques and financial evaluation and provide training for the local ARCE office in these areas;
- to provide training for local consultants and consulting groups in these areas;
- to use local and international technical experts to implement energy management information systems in enterprises and assist in implementation of no- and low-cost measures; and
- to assist in preparing cost-effective programmes and projects.

As in all cases throughout this project, priority in the first phase will be given to those small and medium energy users with the largest potential energy savings, provided that these energy users demonstrate potential economic and fiscal solvency.

*Transaction Barriers:* Small and medium sized enterprises have little or no information about energy management systems and little ability, therefore, to make rational energy use plans and decisions. They also have little familiarity with the process of preparing loan applications for energy efficient investments. This component will overcome this hurdle by assisting as many of the firms in the Energy Action Area in establishing management information systems and providing information to assist them in carrying out no and low-cost energy investments. It will also help them to prepare more expensive, but cost-effective, investments for financing. Through implementing this component in the first and subsequent action areas, a useful network of information and investment support will be created to assist these small and medium firms that frequently do not receive adequate attention. It is clear from experience to date that such activities would not take place without the assistance of this project.

*Expected Outcome:*

- Energy management systems will be established in at least 15 of the enterprises in the first Energy Action Area;
- All no- and low-cost energy saving opportunities will be implemented in at least those 15 firms involved in the MIS Programme in the first Energy Action Area;
- Those large-scale energy saving opportunities which are identified in the large firms in the first Energy Action Area will be analyzed and subsequently presented for financing.

*Local partners:* ARCE, TIDCEM, local consultants

**11(b). Component 2 :        Development of Local Energy Strategy**  
**(Total costs: US\$ 350 000; proposed GEF funding US\$ None**

*Objectives:*

- To develop local capability amongst local decision makers, particularly in local government, to develop energy strategies and take energy related decisions;
- To develop local capability to produce sectoral energy utilisation studies with assessment of energy efficiency and GHG emissions, potential savings and abatement of GHG emissions through energy conservation and renewable energy strategies; and
- To extend the activities of the Energy Cities Network.

*Description:* This action is mainly concerned with local training on energy demand analysis, integrated resource planning and forecasting methods, as well as defining local energy strategies on both the demand and supply sides and energy-related decision making. As such, it builds directly upon the work already started by TIDCEM and the ORASE-ENERGIE energy cities network. Because it should have significant local benefits and is necessary for rational energy development, no GEF resources are requested under this task.

*Transaction Barriers:* Local decision makers (at the municipal level) typically have little or no understanding of integrated energy concerns and decision making. As a result, many of the decisions are uninformed by a perspective which views energy supply and demand as part of an integrated whole. This component seeks to train local-level decision makers in these perspectives and tools, making a systematic approach to energy decisions within the Energy Action Areas out of previously piecemeal efforts.

*Outcome:*

- The regional or local authorities will have the capability to define energy utilisation efficiency, make reliable energy forecasting models, and use those models to make decisions aimed at reduction of GHG emissions; and
- These activities will be replicated in the subsequent Energy Action Areas.

*Local partners:* TIDCEM, ARCE, ORASE-ENERGIE and local consultants.

**11(c). Component 3 : General information dissemination**  
**(Total costs: US\$ 400 000; proposed GEF funding US\$ 400 000)**

*Objectives:*

- To develop clear, accessible, concise and practical information for specific target audiences;
- To develop information based upon project demonstrations for use in replicating project activities; and
- To use existing information channels to disseminate information, particularly for those activities of interest for the project.

*Description:* The Programme Coordination Unit will work with ARCE, the Ecologist Youth or Romania, TIDCEM and local NGOs to develop this component. They will disseminate information on energy usage, the need for energy efficiency and what actions can be taken to manage energy effectively to various target audiences. The information will be made relevant to the local Energy Action Area and support its development. The targets include municipal councils, large industrial consumers, small and medium consumers, the general public, trade unions, associations and school children.

The overall objective of this component will be to involve all groups of society within the Area and to build upon existing information dissemination systems. There is a need to develop information which includes an assessment of the experiences of the demonstration efforts funded as part of this programme, so that target beneficiaries in subsequent Action Areas can benefit from the experiences of these demonstrations. This activity will also include awareness raising, training, and public events. Targeting children will help to change young people's perceptions of the energy problems facing Romania, which can in itself contribute to change in the long term. This component will build upon proposals made by Non-Governmental Organizations

within Romania and will include:

- Publishing information packages, including energy booklets;
- Energy competitions for different age groups;
- Energy exhibitions aimed at industrialists, engineers, school children and the public;
- Contributions to school curriculum; and
- Use of local mass media.

This component will build upon pilot projects initiated by the European Union's PHARE Energy programme (the development programme for Central and Eastern Europe). After the successful completion of this component in the pilot Energy Action Area, a project officer will be appointed to assist dissemination of the project ideas to other municipalities as well as to make better use of the information gained through this project.

*Transactions Barriers:* There are very few good Romanian examples of improving the efficiency of energy service delivery as well too little an awareness of how energy needs can be met through improved management, better technology, and approaching energy from a service-delivery perspective. There is also little information and awareness about the potential for enhanced energy efficiency. As much of this project focuses on energy use in industrial applications, this component first will seek to provide useful information about the demonstrations carried out as part of this project. The audience in this first case will be other industrial end-users in both this Energy Action Area and other Energy Action Areas. In addition, there will be public awareness elements attempting to inform consumers, educators, students and the general public about using increased energy efficiency to improve the quality of life and reduce GHG emissions.

*Outcome:*

- Involvement of the main local groups in the Energy Action Area;
- Development of appropriate information to expansion of Energy Action Area programme; and
- Use of all existing information channels to provide energy information.

*Local partners:* ARCE, The Ecologist Youth of Romania, TIDCEM

**11(d). Component 4 :       Combustion efficiency service**  
**(Total costs: US\$ 260,000; proposed GEF funding: US\$ 60,000).**

*Objectives:*

- To provide technical assistance in analyzing the efficiency of combustion systems employed by enterprises in the Energy Action Area;
- To provide a combustion efficiency service to other Energy Action Areas (medium term);
- To provide a combustion efficiency service to top 200 fuel users (excluding power

stations) in the country (long term).

*Description:* The experience of ARCE local branches and international consultants carrying out energy audits has shown that average combustion efficiencies in Romania are very low, typically 65% to 70%, as opposed to 80% plus achieved in advanced economies. This inefficiency is a major contributor to the emission of carbon dioxide, as well as other pollutants such as sulphur dioxide. This component will establish a team charged with the objective of providing a combustion efficiency service for the enterprises in the Energy Action Area. This will service local ARCE staff as well as local consultants. The combustion efficiency service will deliver technical assistance to local enterprises supporting those enterprises in their effort to analyze the efficiency of on-site combustion systems and to make cost effective improvements. The service will be offered to enterprises in the area (initially at no costs), starting with the largest and the most economically viable entities. It will offer the following:

- combustion efficiency spot checks;
- adjustments of burners to provide optimum combustion;
- regular checks (weekly, monthly depending on size of burners);
- training for enterprise staff in larger enterprises;
- identify opportunities for investment such as automation of combustion controls; and
- provide demonstration investment in efficient combustion equipment such as burner automation.

An improvement in average combustion efficiency of 5 to 10 percentage points would make a major contribution to energy efficiency and would simultaneously reduce GHG emission. This should easily be achievable using combustion analysis equipment and regular monitoring. Additional gains will be made by automation of combustion.

The team trained in the pilot Energy Action Area will become the core of the national unit that will aim to provide the service to the top 200 fuel burning sites (excluding power stations) in the country. This core team should operate in the following manner: it should set standards for combustion efficiency testing, provide training and accredit consultants to carry out testing. At first, the service will be supported by GEF funds, but there will be an explicit objective of becoming self-supporting within two years. The benefits from regular combustion testing far outweigh the cost; therefore enterprises should pay for the service. Early in the lifetime of this activity, efforts will be made to ensure that this project component becomes fiscally sustainable through charging clients for the service produced. In this way, and through accreditation, rather than direct service provision, this activity will promote the growth of the market for energy efficiency services and products.

*Transaction Barriers:* To date, this activity has not been carried out for three reasons. First, there has not been a cadre of trained individuals familiar with modern combustion optimization techniques. Second, the equipment required for carrying out these optimizations is not available locally and will require some demonstration. Third, until recently, energy prices were subsidized so heavily that incentives for undertaking this type of investment were limited. With



the reversion to non-subsidized energy prices, this latter obstacle has been removed. This component is designed to obtain the requisite equipment and train a cadre of professionals to utilize it to keep boilers in the Energy Action Area constantly tuned-up. There will also be demonstrations of automated controls, automated oxygen trim, multi-stage burners, and condensing low NOx burners. After the start-up of the combustion efficiency service, this agency should be financially independent, as client companies will be required to pay for the services provided.

*Outcome:*

- Improved combustion in all enterprises in the Energy Action Area (short term);
- Improved combustion efficiency in other Energy Action Areas (medium term);
- Improved combustion in top 200 fuel users in Romania (long term);
- Identified and evaluated investment opportunities in improved combustion equipment and automation; and
- Demonstration of a number of techniques for improved combustion efficiency.

*Local partners:* ARCE, local consultants, ICEMENERG.

**11(e). Component 5: Heat recovery in industry**  
**(Total costs: US\$ 680,000; proposed GEF funding: US\$ 280,000)**

*Objectives:*

- To demonstrate key heat recovery techniques;
- To disseminate information; and
- To prepare 50 similar projects for investment by others.

*Description:* This component addresses the large potential for heat recovery in industry. Heat recovery is a generic term that covers numerous technologies such as boiler flue heat recovery, process heat recovery through various types of heat exchangers, boiler blow-down heat recovery, ceramic recuperative burners, heat-pipe boiler economisers, building ventilation heat recovery, spray recuperators, and waste-heat boilers. Ceramic recuperative burners served as the subject of a large government programme between 1986 and 1989 aimed at saving 0.5 billion cm<sup>3</sup> of natural gas. However, many of these installations are not performing at anything like the optimum level. An opportunity exists to examine these previous installations, rehabilitate non-functional installations and demonstrate and disseminate other heat recovery applications. The selection for particular technologies within this component will be driven by the results of energy management audits which will identify the major opportunities. Then the programme would:

- Select demonstration projects;
- Install pre-investment monitoring;
- Implement the projects;
- Carry out post investment monitoring;
- Disseminate the results in a manner aimed at getting maximum replication.

*Transaction Barriers:* Although many studies have shown a large potential for cost-effective heat recovery systems in industry, few investments in these technologies have been forthcoming. Non-price barriers to market penetration have slowed the deployment of these systems. These non-market barriers, particularly institutional obstacles, risk and information gaps, have slowed the deployment of these systems. In addition, the controlled energy prices, prevalent until recently, may have removed many incentives for these investments. Thus, non-market pricing policies may have contributed to the failure of earlier efforts in this area. The information barriers will be overcome by training and information dissemination. The risk and institutional objections to these investments will be surmounted through carefully monitored demonstrations, and metered billing will ensure that the incentives to use energy efficiently are present and that the investments do save energy.

*Outcome:*

- Implementation of key heat recovery techniques in the first Energy Action Areas; and
- Implementation of 50 similar projects in other Energy Action Areas.

*Local partners:* ARCE, local consultants, ICEMENERG

**11(f). Component 6: Electric motor controls (Total costs: US\$ 850 000;  
Proposed GEF US\$ 150 000)**

*Objectives:*

- To identify industrial and municipal consumers within the first Energy Action Area with large electric motors;
- To provide technical assistance for rehabilitation of between 5 and 8 enterprises as a demonstration project;
- To demonstrate the cost-benefit of installing Variable Speed Drives (VSD) motor controls;
- To implement motor controllers in all viable sites within the first Energy Action Area;
- To implement motor controllers at all viable sites within the subsequent Energy Action Areas.

*Description:* Modern, variable speed electric motor load controllers can significantly improve the efficiency of large electric motors in industrial applications. These devices are technically feasible and cost-effective at today's energy prices in many applications. The application of motor controllers such as Variable Speed Drives can reduce the energy used by electric motors for pumps, fans, compressors and machinery by up to 50% by electronically adjusting power input to the required load. If implemented industry wide, this project alone could reduce the total electricity end-use by 5%. In OECD countries, motor controllers are now standard on large installations and beginning to spread into smaller motors. Expected paybacks are between 2 and 4 years. The Ministry of Industry is already promoting the use of VSDs across industry. This programme will enhance what is now a piece-meal approach. This component will assist 5-8 of the largest users of electric motor or water pump users to retrofit existing plants with variable

speed drives in order to demonstrate and gain experience with these devices.

*Transaction Barriers:* At present, variable speed controllers for electric motors are unfamiliar to Romanian industry. While they may appear to be good ideas on paper, the industrial engineering staff has little knowledge or experience with these controllers. This component will focus first on demonstrating that these devices work and are profitable in the first Energy Action Area before implementing a larger programme to disseminate them throughout other Energy Action Areas. A critical element to these efforts will be the training of staff in which types of controllers will work in which applications, and then how they can be financed effectively.

*Outcome:*

- All viable opportunities for motor controllers in Energy Action Area implemented; and
- Accelerated uptake of VSD technology nationwide.

*Local partners:* ARCE, ICEMENERG

**11(g). Component 7:       Efficient municipal lighting (Total costs: US\$ 650 000; proposed GEF funding: US\$ 100 000)**

*Objectives:*

- To demonstrate the use of energy efficient municipal lighting;
- To replicate the technology in 50 other sites within 5 years;
- To contribute towards creating a market for locally produced energy efficient lighting; and
- To disseminate the results to all municipalities.

*Description:* This component aims to demonstrate the application of modern energy-efficient lighting in the municipal lighting sector. A number of municipalities, including Hunedoara County, Mare Mures County and Targu Mures County have expressed an interest in investing in energy-efficient lighting during the refurbishment of existing schemes but additional costs are a constraint. This component will select one of the schemes already identified in the first Energy Action Area and provide additional funding from within this project so as to allow the use of energy-efficient lamps and lighting controls. Following the implementation stage, a project officer will be appointed to disseminate information and project manage further installations in other areas, and design financial schemes to enable municipalities to finance these initiatives. Such projects are likely to be attractive to lenders because the savings are very predictable. The component will also examine ways in which the uptake of energy efficient lighting can be accelerated, e.g. with shared savings contracts and revolving funds.

*Transaction Barriers:* There are two types of transaction barriers preventing widespread use of

more efficient municipal lighting. The first has to do with the lack of familiarity with the alternative lighting options, which have never been demonstrated in Romania. The second has to do with the difficulties which municipalities face in financing those lighting investments. This component will immediately help overcome this first obstacle in the Energy Action Area by demonstrating the more efficient lighting element. To overcome the larger barrier to implementation, that of the inability of municipalities to finance these investments, project analysts will focus attention on different financing alternatives for municipalities, whether through specific lines of credit, national or internationally-seeded revolving funds, or the issuing of municipal bonds. Thus, both obstacles to the widespread implementation of this option will be overcome through this project component.

*Outcome:*

- One demonstration project in pilot Energy Action Area; and
- 50 similar schemes formulated and presented to lenders for financing (longer term).

*Local partners:* RENEL, ARCE, ICEMENERG

**11(h). Component 8: District heating systems and buildings insulation**  
**Total costs: US\$ 1,530,000; proposed GEF funding: US\$ 130 000**

*Objectives:*

- To demonstrate an original approach for the thermal rehabilitation of a district heating network and the end-user dwelling;
- To improve the comfort and the living conditions of the end-user customers of the heating network;
- To replicate the approach in other Energy Action Areas; and
- Prepare and distribute a training manual on district heating management to all municipalities targeting mayors and local counsellors.

*Description:* A large proportion of the energy losses in Romania are concerned with the provision of heat to buildings and industry from district heating networks operated by RADETs, local district heating companies owned by the local authorities. Some of the heat delivered by the networks comes from power stations, some from industry and some from Heat Only Boilers. In all cases the systems are very inefficient because of:

- Large transmission and distribution losses caused by long distances involved and poor or absent insulation of pipe work;
- Old and inefficient boilers and heat exchangers;
- Corrosion and fouling due to lack of water treatment;

- Water losses from primary and secondary loops;
- Poor thermal structure of buildings leading to high end-user consumption;
- Problems with fuel supply, particularly with gas pressure in winter; and
- Lack of modern control systems and management techniques.

As well as high energy use, this leads to lack of comfort for the end-users and the need to spend a high proportion of income on purchasing heat. Many of the district heating networks cannot provide heat or domestic hot water constantly throughout the winter and supply is often limited to ten or twelve hours a day. This leads to very low temperatures (as low as -10°C) inside dwellings at times of extreme ambient conditions.

The project will demonstrate an integrated approach to reducing energy losses in district heating schemes. The selected approach will improve both the system efficiency and the end-user efficiency through better insulation and controlling ventilation, as well as training of residents. The emphasis will be on lower cost solutions that will be more accessible to other RADETS and communities. A number of institutional issues, such as the inability of RADETS to invest in privately owned apartments, will also need to be addressed.

*Transaction Barriers:* The transaction barriers in the case of improving district heating can be seen as a lack of familiarity with newer, more efficient approaches to the supply of heat to district networks, risk associated with these technologies never having been demonstrated locally, and a difficulty of RADET's to finance such innovative investments. By focusing on demonstrating the new techniques, this component will provide a basis for widespread local demonstration which can serve as the basis for training. Project analysts will then begin to address the financing bottle necks in help RADETS obtain adequate financing to replicate the demonstration investments.

*Outcome:*

- A demonstration project within the first Energy Action Area with clearly monitored results; and
- A programme to disseminate the project results and assist other RADETS to design and implement similar projects.

*Local partners:* TIDCEM, other NGOs, RADETS, ARCE, municipalities of the ORASE-ENERGIE network, local consultants.

**11(i). Component 9: Project Management and Coordination**  
**Total costs: US\$ 985,000; Proposed GEF funding: US\$ 585,000)**

The successful implementation will require strengthening of ARCE with the recruitment of staff dedicated to this project. A chief project manager will be recruited internationally. Initially, the Chief Project Manager will work with experts experienced in managing large, integrated energy

management programmes and associated activities. Individual components of the project will have their own project officers whose responsibilities will include day-to-day management of the implementation of their component, and subsequent replication. Emphasis in the first year will be on training local staff so that foreign involvement may be reduced over the duration of the project. It is proposed that a chief project manager will be appointed. He will draw up Terms of Reference for international and local staff to manage each component of the overall workplan. Each component shall have a project manager and team leader reporting to the chief project manager. Management consultants, with extensive experience of managing large energy projects with the emphasis on quantifiable results will be appointed to draw up a detailed programme for each component, and then manage the implementation of that programme. Within each component, the project manager shall be expected to achieve explicit targets for the replication of projects. Each component's international consultancy team shall also be expected to train local consultants (as well as ARCE and other staff) in order to build a self-sustaining capacity to run the project. The Chief Project Manager will focus his efforts in obtaining concrete replicable results. The component managers will be hired on performance-based contracts in order to achieve this goal.

In addition, the project management team will include a financial/economic analyst whose prime responsibility will be to focus on the "bankability" of the follow-on investment projects (the position is funded in the budget for 2 years). It is vital that the chief project managers work to motivate the end-users to invest. This may be done in a number of ways; fiscal means, subsidised or free equipment for a period e.g. low energy lamps, publicity, awards, league tables of performance, and legal and regulatory requirements e.g. minimum standards of efficiency. It is essential that the overall project managers work with ARCE and other institutions (e.g. research institutes, RENEL, ROMGAZ as well as the EU PHARE energy PMU), to put in place an appropriate framework of incentives to ensure project success.

UNOPS will be responsible for the selection of foreign assistance in collaboration with ARCE. Office space for project activities will be contributed by the Ministry of Industries (MoI) through ARCE and its Regional Branches.

Much of the project management at a local level will be carried out by existing Romanian organisations such as the local Energy Service Companies (ESCOs) and TIDCEM. TIDCEM will have overall responsibility for all training issues. The co-operating agency will be UNOPS (Office for Project Services).

## **INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

12. The Romanian Agency for Energy Conservation (ARCE) will be the executing agency for the project with responsibility for project management, under the auspices of the Ministry of Industries. Funding partners will meet in a Financing Sub-Group where they will be informed of project progress by the Ministry of Industries and will make overall project management decisions.

13. A National Steering Group will be established to oversee the whole project and will include representatives from institutions such as the Ministry of Industry, State Secretariat for Economic Reform, General Directorate for Energy, Petroleum and Gas, Romanian Energy, Conservation Agency, Ministry of Finance, Ministry of Public Works and Territory, Planning, Ministry of Environment, Water and Forestry, RENEL, ROMGAZ, State, Ownership Fund, Association of Industrial Energy Consumers, TIDCEM, UNDP, European Union, the French GEF, the European Bank for Reconstruction and Development and the World Bank.

14. In the future, each Energy Action Area will also have a local Steering Group to ensure local management and involvement. This will likely be made up of representatives from the municipality involved, local industry, trade unions, NGOs, the local ARCE Branch and TIDCEM. (See Component 9 above for details.)

## **CONSULTATIVE AND PARTICIPATORY PROCESSES**

15. In 1993, a UNDDSMS Adviser produced a first study on Energy Efficiency in Romania and gave advice on the areas in which opportunities for energy conservation could be found. As a continuation of this evaluation, in May 1994, at the request of MoI, the same expert produced advice for the formulation of a project to be submitted to the GEF and prepared a draft project brief in collaboration with ARCE. In July 1994, \$400,000 were granted to UNDP by the GEF Executive Council as a Project Preparation Facility (pilot phase) for the preparation of an energy efficiency strategy. This funding facility was partially used for Romania in order to further develop this project. A first mission took place in March 1995. It was followed by regular discussions between the UNDP, the national authorities, various stakeholders (NGOs) and potential funders.

### *NGOs consultation:*

16. The International Institute for Energy Conservation (Eastern Europe office in London) The Ecologist Youth of Romania (Bucharest), the Climate Action Network Central and Eastern Europe (Zagreb), the European Association for the Conservation of Energy (London) and the International Institute for Energy Conservation (London) were consulted on the first version of this project and will be involved in the future, in particular in component 3 under Information Dissemination.

## **LESSONS LEARNED AND TECHNICAL REVIEWS**

17. In October 1994, the Ministry of Industry forwarded its approval of the concept paper based on the draft project brief. This version is a revised and re-worked version of the original draft. During its preparation, consultation meetings have been held with ARCE, RENEL, the Ministry of the Environment, ICEMENERG, TIDCEM, the World Bank, EBRD, the EU/PHARE unit in Bucharest, the Caisse Française de Développement/Fonds Français pour

l'Environnement Mondial and several NGOs. Their views are fully reflected in this new proposal as well as the comments made by the STAP Technical Reviewers in December 1994 and in July 1995.

## **MONITORING AND EVALUATION:**

18. A system of tri-partite reviews will take place according to UNDP rules to which a technical expert will be added. In addition, the first Energy Action Area will be fully evaluated after 18 months by an Independent Group of Technical Experts. The recommendations made by the experts will be communicated immediately and project activities will be adjusted accordingly. A budget line of US\$ 75,000 has been added to the project to compensate for these costs.

## **SUSTAINABILITY OF PROJECT BENEFITS:**

### *Financial sustainability:*

19. Some components of the project will become self-supporting, namely the combustion analysis service and the building of energy management capacity. Energy prices in Romania have been raised to market levels (see Section 12) and so there is considerable financial advantage in organisations implementing energy management and energy conservation investment programmes. The project aims to significantly improve the capacity of Romanian organisations to undertake sustainable energy efficiency programmes, as well as to make a significant direct impact on energy efficiency and hence reduction of GHG emissions. Finally, the most significant of the recent developments for the success of this GEF project is the creation of an Energy Efficiency Tax on (heat and electricity) by the Ministry of Industry. It is expected to provide US\$ 7 million per year for infrastructure investment in energy project, out of which 5% will be available to finance energy efficiency investments. An Ordinance has now been passed which will establish this funding facility in August 1995. This will provide an important additional source of finance for viable energy efficiency projects identified and evaluated through the GEF project activities.

### *Funding Partners Activities:*

20. Bilateral and multilateral donor activities in the field of energy efficiency started in Romania in 1990. Bilateral co-operation with France started in 1990. Discussions between the Bucharest Polytechnic University and the Romanian MoI, together with their counterparts in France, ADEME and Ecole des Mines, led to the creation of ARCE in 1991. USAID started work in Romania in 1991 under its emergency energy saving programme which was applied to several countries in Eastern and Central Europe. The PHARE programme of the European Union has established an Energy Project management Unit within the MoI. This has funded an energy efficiency strategy which made recommendations regarding institutional, regulatory and financing issues as well as a number of energy saving projects in the industrial and building sectors. Another important PHARE project on twinning is foreseen to be implemented during 1995 with the objective of strengthening co-operation between a) executives and officials of the



administration b) energy agencies in the EU and c) energy service companies. The GEF project proposals were discussed with the PHARE Energy PMU at all stages of formulation and close links have been maintained. The PHARE programme has agreed to contribute to 6 components of the overall project, namely components 1, 2, 6, 7, 8 and 9.

21. The European Bank of Reconstruction and Development (EBRD) has carried out a study on the feasibility of creating a financing scheme specially dedicated to financing energy efficiency projects in industry. EBRD is also undertaking work in the district heating sector. Discussions were held with EBRD during the formulation of this GEF project proposal. It is expected that the GEF project will act as catalyst to create a stream of bankable projects that will be of interest to EBRD and other financial institutions.

22. The World Bank is preparing a major programme for the Rehabilitation and Modernisation of the Power Sector. This includes improvements of energy efficiency through the improvement of fuel utilisation in power plants. The GEF project will focus on end use efficiency outside the power plants and so the GEF project is seen as complementary by the Romanian authorities.

23. Following agreement between the Ministry of Finance and the European Investment Bank, a credit line has been established for projects aimed at increasing the competitiveness of Romanian industry. Energy efficiency projects are eligible for support under this credit line. The GEF project will catalyse a stream of projects for possible support under this scheme.

24. Other bilateral co-operation programmes have been undertaken e.g. the Japanese Agency JICA has provided assistance in energy efficiency in the main iron and steel complex, SIDEX.

#### *Incentive and Regulatory System:*

25. Romania was the first Central and Eastern European country to designate a specialised institution dedicated to energy conservation. The Romanian Energy Conservation Agency (ARCE) was created in April 1991, under the umbrella of the MoI, with the objective of assisting consumers in their efforts to reduce energy consumption and improve energy efficiency. The main advantage of ARCE is its regional structure with 16 branches.

26. A Law on Energy Efficiency is in the process of passing through parliament. Its principal objective is to give a legal framework to a national energy conservation policy and the strategy produced by ARCE. The Law addresses the following issues: the establishment of an energy efficiency fund, the definition of the duties and responsibilities of the various ministries, consumers and energy industries. Some provisions under this Law will be beneficial to the development of this project such as the institutionalisation of energy efficiency at the national level through the creation of a National Energy Efficiency Council and the strengthening of ARCE in terms of independence, flexibility and expertise;

#### *Stakeholder commitments:*

27. A Training Information and Dissemination Centre on Energy Management (TIDCEM) has been established with funding from UNDP and foreign utilities. This Centre is based within the Bucharest Polytechnic University. It is designed to improve the capacity of decision-makers at different levels, making them more sensitive to energy conservation, efficiency and environmental protection. The Project is co-operating closely with the UNESCO Chair in Energy Efficiency and Environment at the Bucharest Polytechnic University. The GEF project is supported by TIDCEM and will use TIDCEM for many training and information activities. This Centre is financed through UNDP with Dutch and recent French co-financing (Project ROM/94/002).

28. The newly created Energy City network: ORASE-ENERGIE will serve as a very important tool for the dissemination in Romania of the approach and project results. More than 40 municipalities have already agreed to take part in this network in which the main objective is to exchange information and experience. Dissemination to other Eastern and Central European countries will be possible through the regional programmes of PHARE and through the Energy Efficiency 2000 programme of the United Nations ECE. Each component of the project is detailed in the following section.

#### **RATIONALE FOR GEF SUPPORT**

29. This project is fully consistent with two sections of the "Guidance for Programming GEF Resources in 1995 adopted by the GEF Council in November 1995. Section 16 on Technology Transfer has particular relevance to the components 4, 5, 6, 7 and 8. Components 1, 2 and 3 are particularly relevant for section 20 on Energy Conservation and Energy Efficiency.

30. The GEF contribution requested is \$US 2,268,000. The project funds are primarily devoted to the enhancement of the Governmental effort in favour of energy efficiency with particular emphasis on capacity building to overcome techno-economic and managerial barriers and creating self-supporting activities. The project will create greater energy efficiency and facilitate measurable reductions of GHG emissions. The project is a national priority within the context of restructuring and privatisation of the industrial sector. The institutional and technological assistance provided by the project will be an important step toward creating an attractive climate for future investments in the Romanian economy. The project itself will lead to investment in energy efficiency projects by other institutions.

31. A similar investment for global benefits cannot be justified in the current economic context by the Government of Romania. Through the GEF funding, combined with the Governmental and other donors involvement, Romania will benefit from lower energy intensity, improved environment - including bringing a substantial contribution to the implementation of the FCCC -and a more productive and competitive industrial sector. The proposed project also meets the following development criteria, in addition to falling within the global environmental protection priority area. The GEF project:

- contributes to human welfare through sustainable development
- is innovative and internationally replicable
- is financially sustainable after initial GEF support with involvement of local financial institutions, international financial institutions and other donors
- gives a new dynamic and environmental dimension to the on-going Romanian schemes
- develops institutional capability and trains personnel
- has a firm scientific and technical basis
- fits within the context of existing national and regional programmes
- involves local participation and collaboration
- includes studies that will lead to a better understanding of energy use patterns in Romania
- will have quantifiable result within the project timetable

## INCREMENTAL COSTS

32. In the absence of GEF support, ARCE's programme would continue much as it has over the past three years. ARCE would not support the kind of capacity building activity outlined above in the absence of GEF funding. The wide spread dissemination of practical energy efficiency information would diffuse Romania energy users at a much slower rate without these activities. However, ARCE would continue to operate and energy savings could be assumed to occur, albeit at a slower rate than over the past three years when the most productive efficiency investments were made. These activities are assigned no quantitative figures, and are briefly described here. But, the transition to these "horizontal" activities, which are considered critical to the commercialization of energy efficiency in Romania would not be financed by the Romanian Government acting alone. Disseminating these techniques throughout the economy, would occur only very slowly. All the components are to be carried out in one Energy Action Area so that they can interact synergistically, eg general information campaign (component 3) will also contribute to raising the understanding and likelihood of effective action of energy management of senior managers, the issue being addressed by Component 1. (See Annex 4).

## ISSUES, ACTIONS AND RISKS

33. The MoF aims to ensure that end-use prices are close to reference market prices at official exchange rates. In April 1992, energy prices were raised to the reference market levels. Energy prices are calculated according to the interbank exchange rate. Consumers subsidies were eliminated in mid 1993, as scheduled under agreement with the IMF and World Bank. The exception is heating for the residential sector where a small subsidy remains. Current energy prices for industrial consumers are US\$ 80/toe for natural gas and US\$ 0.065/kWh for electricity, remaining slightly below the average for OECD countries. Further increases are expected in 1995.

34. A Law for Electric and Heat Energy Use is in preparation with the main objective being to regulate this sector. It should include the establishment of a regulatory body in charge of pricing, regulating relationships between RENEL, the State and potential new independent

producers, as well as the development of programmes such as Demand Side Management. Other specific laws are in preparation for the oil and mining sectors. These legislative acts, including the Energy Efficiency Law, together with other new regulations on thermal efficiency of buildings, energy efficiency standards and norms, and energy metering, should result in a coherent framework policy.

35. One major risk which was confirmed to the UNDP team in early March by the Ministry of Energy, is that due to the slow Parliamentary process, it may take several months before these drafts laws are adopted. However, as mentioned under the chapter "Sustainability", the Ordinance which will enter into force during the summer of 1995 will provide a strong incentive at an earlier stage.

## **PROJECT FINANCING AND BUDGET**

36. The indicative total cost of the project is US\$ 6,368,000. The contributions of the Government of Romania and Donors are estimated at US\$ 1,160,000 and US\$ 1,850,000 respectively. The Government of Romania will allocate US\$ 1,050,000 in direct support (\$200,000 for combustion efficiency service), \$400,000 for industrial heat recovery, \$350,000 for electric motor controls, \$100,000 for energy efficient municipal lighting and \$200,000 for modernisation of district heating systems and \$110,000 in kind. Parallel financing and cost-sharing from the PHARE programme has been assumed in budgeting the proposed programme and commitments on these contributions have already been obtained. In addition, a commitment of US\$ 200,000 from RENEL has been obtained for investment in energy efficient municipal lighting.

37. Building energy management capacity will lead to preparation of projects for financing by outside sources such as EBRD which is also fully supportive of this project.

**Annex 1:****INDICATIVE BUDGET - CONTRIBUTIONS GEF, ROMANIA AND OTHER DONORS**

Component Task	GEF	Romania	Cost-Sharing		Parallel Financing		Total
			PHARE	RENEL	PHARE	FRENCH*	
1. Improving energy management capacity	320				100		420
2. Capacity development of local energy strategies					350		350
3. General training and information dissemination	400						400
4. Combustion efficiency service	60	200					260
5. Heat recovery in industry	280	400					680
6. Electric motor controls	150	200	500				850
7. Energy efficient municipal lighting	100		350	200			650
8. Modernisation of district heating systems and building insulation	130	250			150	1,000	1,530
9. Project management and coordination	585		400				985
Monitoring and Evaluation	75						75
Support, administrative costs	168	110					278
<b>GRAND TOTAL</b>	<b>2,268</b>	<b>1,160</b>	<b>1,250</b>	<b>200</b>	<b>600</b>	<b>1,000</b>	<b>6,478</b>

Figures are in US\$ 000s

Figures represent budgetary totals for the entire 5-year period

Figure of \$110,000 for GoR contribution is in kind

Support and administrative costs from the Romanian side are in kind contribution

\* This allocation has been authorized by the FFEM Steering Committee. The Steering Committee has proposed that priority be given to Component 8. However, a final decision on fund allocation will take place in September.

Annex 1 cont'd:

## INDICATIVE BUDGET - CONTRIBUTIONS GEF ROMANIA, OTHER DONORS AND ONGOING ACTIVITIES

COMPONENT TASK	GEF	Romania	Cost Sharing			Parallel Financing			Total 1 (GEF Project)	Ongoing activities in the energy sector related to this project			Total 2 (Ongoing activities)	Overall Total (1 + 2)
			PHARE	RENEL		PHARE		FRENCH*		PHARE	USAID	EBRD		
1. Improving Energy Management Capacity	320								420	185		300	485	905
2. Capacity Development of Local Energy Strategies									350					350
3. General training and information dissemination	400								400	185			185	585
4. Combustion efficiency service	60	200							260	90			90	350
5. Heat recovery in industry	280	400							680	90			90	770
6. Electric motor controls	150	200	500						850		200		200	1,050
7. Energy efficient municipal lighting	100		350	200					650		50		50	700
8. Modernisation of district heating systems & buildings insulation	130	250				150		1,000	1,530	280		400	680	2,210
9. Project management and coordination	585		400						985					985
Monitoring and evaluation	75								75					75
Support, administrative costs	168	110							278					278
<b>GRAND TOTAL</b>	<b>2,288</b>	<b>1,160</b>	<b>1,250</b>	<b>200</b>		<b>600</b>		<b>1,000</b>	<b>6,478</b>	<b>830</b>	<b>250</b>	<b>700</b>	<b>1,780</b>	<b>8,258</b>

Figures are in US Dollars

Figures represent budgetary totals for the entire 5-year period.

Support and administrative costs from the Romanian side are in-kind contribution.

\* This allocation has been authorized by the FEM Steering Committee. The Steering Committee has proposed that priority be given to Component 8. However, a final decision on fund allocation will take place in September.

**ANNEX 3:****COMMENTS ON THE GEF PROJECT "ROMANIA -- CAPACITY BUILDING FOR GHG EMISSION REDUCTION THROUGH ENERGY EFFICIENCY"**

July 28, 1995

This is a highly relevant project to greenhouse gas emissions reduction and the mission of the GEF. Increasing energy efficiency is a key strategy for reducing carbon emissions as well as revitalizing the economies of former communist nations such as Romania. The objectives of this project, namely to increase energy efficiency on a wide scale and build institutional capability for supporting energy efficiency improvements, are sound. The project appears to be well-designed. And the political, economic, and institutional conditions in Romania (e.g., energy price and legislative developments) suggest that the project should be successful. I strongly recommend GEF funding for this project.

The approach spelled out in the proposal is clearly defined and appears to be reasonable. The concept of demonstrating energy efficiency improvements in a few buildings and facilities, accompanied by evaluation, training and education campaigns in order to promote replication on a wide scale, should be viable. Capacity building is also emphasized, which is critical. And the creation of a revolving loan fund for financing major investments in energy efficiency (mentioned in section 5) will also be helpful.

I have the following suggestions as to how to possibly increase the effectiveness of individual project components:

In the area of local energy strategies (component 2), it might be useful to link key Romanian cities with the Urban CO<sub>2</sub> Reduction Project of the International Council for Local Environmental Initiatives (ICLEI) based in Toronto. They have formed a network and facilitate information exchanges among cities worldwide (Contact: Phil Jessup - 416/392-1462). Another suggestion is to hold competitions and give out awards to the cities/towns in Romania that achieve the greatest energy savings or implement especially innovative projects.

In the industry demonstration and support areas (components 4-6), the activities could be expanded to include providing direct technical assistance to industries that are in the process of modernizing or simply interested in making minor energy efficiency improvements. This can be done by having experts on staff at ARCE or hiring consultants with expertise in particular areas. Technical experts could make recommendations regarding how to maximize energy efficiency at the time of major renovation or replacement of energy-intensive industrial combustion efficiency, reducing steam leaks, and the like. Direct technical assistance to industries and commercial building owners has

been a successful DSM strategy in the United States and elsewhere.

In the district heating system renovation area (component 8), in addition to conducting a demonstration project and disseminating information, it might be useful to provide technical assistance to local district heating utilities for the purpose of evaluating and designing retrofit projects, as well as providing limited assistance during project implementation (e.g., help with the identification and evaluation of reliable engineering contractors). Also, it might be helpful to link up with other former communist nations where similar district heating system renovation is underway.



**Annex 4:****INDICATIVE GEF BUDGET, INCLUDING INCREMENTAL COST SUMMARY**

COMPONENT	Staff Costs	Training Costs	Equipment Costs	Travel Costs	TOTAL COSTS	Transaction Barrier to Implementation	LIKELY INCREMENTAL COSTS	REPLICATION/ DISSEMINATION
1. <u>Improve Energy Management Capacity</u> Total Funds needed (Requested from GEF)	250 150	150 150	0 0	20 20	420 (320)	Lack of MIS's. Lack of know-how, specially in preparation of project proposals.	Positive.	Consultancy assistance & operational managers available; information and training.
2. <u>Development of Local Energy Strategy</u> Total Funds Needed (Requested from GEF)	150 0	150 0	30 0	20 0	350 (0)	Lack of local skill & knowledge of Energy and IRP.	Incremental costs unlikely.	Replicable training packages
3. <u>General Information Dissemination</u> Total Funds Needed (Requested from GEF)	60 60	300 300	20 20	20 20	400 (400)	Inadequate information & Awareness re Energy Efficiency (rationing)	Positive.	Project officer for dissemination; information campaigns for technical and non technical audience
4. <u>Combustion Efficient Service</u> Total Funds Needed (Requested from GEF)	50	50 50	150	10 10	260 (60)	Lack of skills and modern equipment.	Negative with initial learning costs.	Pre- and post- investments monitoring for results dissemination.
5. <u>Heat Recovery in Industry</u> Total Funds Needed (Requested from GEF)	120 120	120 120	400 0	40 40	680 (280)	Institutional obstacles; Information and finance gaps.	Negative with initial learning costs.	Information strategy & formulation of financing schemes for replication.
6. <u>Electric Motor Controls</u> Total Funds Needed (Requested from GEF)	260 40	160 90	390 0	40 20	850 (150)	Lack of information skills, and financing for VSD's.	Negative with initial learning costs.	Information strategy & formulation of financing schemes for replication.

COMPONENT	Staff Costs	Training Costs	Equipment Costs	Travel Costs	TOTAL COSTS	Transaction Barrier to Implementation	LIKELY INCREMENTAL COSTS	REPLICATION/ DISSEMINATION
7. <u>Efficient Municipal Lighting</u> Total Funds Needed (Requested from GEF)	150 30	100 50	350 0	50 20	650 (100)	Lack of local demonstration and financial schemes.	Negative with financial and demonstration needs.	Information strategy & formulation of financing schemes for replication.
8. <u>District Heating/Buildings</u> Total Funds Needed (Requested from GEF)	150 0	330 130	1,000 0	50 0	1,530 (130)	No skills for rehabilitation; no local demonstration.	Negative with initial learning costs.	Dissemination of project results/design of similar projects.
9. <u>Project Management and Coordination</u> Total Funds Needed (Requested from GEF)	925 525	0 0	30 30	30 30	985 (585)	Lack of project management capabilities.	Positive	Highly skilled staff to assess replication potential/select technology/host sites/put forward case for internal & external funding.
Monitoring				0	(75)			
Support Costs (@ 8% of GEF Contribution)				0	(168)			
TOTAL PROJECT BUDGET					6,368			
TOTAL GEF REQUEST					2,268			

Figures are in US\$ 000s

Figures represent budgetary totals for the entire 5-year period

**Annex 5:**

The potential sites to establish Energy Action Area are: part of Bucharest, Ploiesti, Targe Mures County, Hunedoara County and Baia Mare. All of these areas cover industrial and residential sectors. Sites have been ranked according to population (with about 500 to 700,000 inhabitants considered ideal), the range of industrial sectors, the likely environmental impact from energy saving measures (higher in coal fired areas) and the degree of support from the Council and the RADET (heating company). This approach has been combined with discussions with ARCE to select Targe-Mures and Hunedoara County as suitable sites for the first Energy Action Area. This information relates to counties. In each county approximately 50% of the population, industry and local budget is concentrated in the main city, named in brackets. 1992 information is quoted as more recent information is not available.

**Targu Mures County (Targu Mures)**

Area: 6714 sq. km.

Population: 610,053

Energy & mineral resources: natural gas, oil, mineral water, clay.

Industry : 1992 GDP \$US565M

Main industries:

- . gas exploitation
- . chemicals
- . building materials
- . wood processing
- . glass
- . food processing

Local budget: \$US17.8 in 1992.

**Bucharest City**

Area: 1821 sq. km.

Population: 2,343,105

Energy & mineral resources: geothermal water

Industry: 1992 GDP \$US2770M

Main industries:

- . machine building
- . metallurgy
- . glass
- . electronics
- . electric motors
- . chemicals (drugs, tires, dyes)
- . food processing

- . textiles

Local budget: \$US143 in 1992

NB: A section of Bucharest only would be chosen as an Energy Action Area.

#### **Hunedoara County (The Jiu Valley and Deva)**

Area: 701,601 sq. km.

Population: 549,432

Energy & mineral resources: coal (hard, brown), ferrous minerals

Industry: 1992 GDP \$US549M

Main industries:

- . coal mining
- . steel
- . cement
- . textiles
- . electricity generation

Local budget: 1992 \$US12

#### **Mara Mures Country (Baia Maria)**

Area: 6,304 sq. km.

Population: 540,099

Energy & mineral resources: non-ferrous minerals

Industry: 1992 GDP \$US318M

Main industries:

- . mineral exploitation
- . non-ferrous metallurgy
- . wood processing
- . textiles

Local budget: 1992 \$US17

#### **Ploesti County (Ploesti)**

Area: 4,716 sq. km.

Population: 525,715

Energy & mineral resources: natural gas, oil, lignite, minerals

Industry; 1992 GDP \$US2,016M

Main industries:

- . oil processing
- . drilling equipment
- . building materials
- . paper and board

- . glass
- . food
- . textiles

Local budget: \$US23M

Criteria for selection:

	POINT	NOTES
	< 400 or > 700,000=1	optimum
Spread of industry	1 for each sector	
Environmental impact	1-3	3 for coal fired areas
Cooperation	3-5	5 highest co-operation

AREA	POPULATION	INDUSTRY	ENVIRONMENT	CO-OPERATION	TOTAL
Targu Mures	3	6	2	5	16
Bucharest	1	8	2	3	14
Hunedoara	3	4	3	5	15
Ploesti	1	7	2	3	13
Mare Mures	3	4	2	3	12

Recommendations:

Targu Mures and Hunedoara Counties were visited in the last two months as part of an EU mission. The best choice could be Targu Mures on the grounds of:

- well organised RADET
- well organised Council
- close links between the two bodies (not true in other cases)
- reasonable infra-structure
- Hunedoara county is very reliant on the extractive industries, notably coal. This is good in the sense that any energy efficiency improvements will lead to a proportionately larger reduction in carbon dioxide emissions, but it may mean that there are fewer industrial energy saving opportunities, and hence it may be less effective as a demonstration project.

Conditions under which the fewer selection of Hunedoara County would be preferable include the cooperation of the Council on each component, and not only the project of Deva (rehabilitation of district heating). The latter should be re-evaluated in comparison to lower

cost options and possible decentralisation with local boilers (possibly using oil or coal in Atmospheric Fluidised Bed Units). Ilunedoara could be considered as a prime candidate as second Energy Action Area.

## PROPOSAL FOR REVIEW

<b>Project Title:</b>	<b>Uganda: Photovoltaic (PV) Pilot Project for Rural Electrification</b>
<b>GEF Focal Area:</b>	<b>Climate Change</b>
<b>Country Eligibility:</b>	<b>Convention Ratified 8 September, 1993</b>
<b>Total Project Costs:</b>	<b>US \$ 2.8 million</b>
<b>GEF Financing:</b>	<b>US \$ 1,756 million</b>
<b>Country Contribution:</b>	<b>US \$ 200,000</b>
<b>Cofinancing/Parallel Financing:</b>	<b>US \$ 1 million (UNDP IPF)</b>
<b>GEF Implementing Agency:</b>	<b>UNDP</b>
<b>Executing Agency:</b>	<b>Ministry of Natural Resources</b>
<b>Estimated Approval Date:</b>	<b>January 1996</b>
<b>Project Duration:</b>	<b>3 years</b>
<b>GEF Preparation Costs:</b>	<b>US \$ 45,000 (Government of Uganda: US \$ 15,000; UNDP: US \$ 30,000)</b>

## **UGANDA: PHOTOVOLTAICS (PV) PILOT PROJECT FOR RURAL ELECTRIFICATION**

### **COUNTRY AND SECTOR BACKGROUND CONTEXT**

1. The Government of Uganda is committed to addressing the energy needs of the majority of its citizens who live in the rural areas. Approximately 90% of the population lives in rural areas and depends on traditional fuels (woodfuel and crop residues) for cooking and water heating and kerosene for lighting. In the past, Government emphasis has been on the development of the electric power sector, which serves less than 5% of the total population (2% in the rural areas) and the supply of petroleum products. The supply of these modern conventional sources of energy entails substantial capital investment and foreign exchange requirements, which contribute to the nation's high debt burden. Yet, the direct beneficiaries of this heavy investment are mainly the urban dwellers who use electricity and own vehicles, and constitute a small proportion of the population. Therefore, the Government has realised that some change in emphasis in energy planning, to reflect more of the rural energy needs than before, is the only way that the majority of the citizens can move towards attaining energy security and social welfare. This project represents one important element of a larger programme to meet rural energy needs. Other elements of that programme include conventional rural electrification, the dissemination of fuel-efficient stoves, collection of wind-energy data, and improved woodfuel management.

2. Although the Government's macro-economic policies emphasize rural electrification as a means of improving the quality of life of the rural population and promoting rural economic development, it has become apparent that the fulfillment of this goal cannot be achieved through the extension of the national electric grid due to the people's inability to afford either the connection fee or the energy consumption charges. It is unlikely that the populations living even a few kilometers from the grid will be connected to the grid in the near future, even where the Uganda Electricity Board (UEB) identifies a particular economic activity warranting grid extension.

3. Recognizing the problem of grid extension into rural areas, the Government of Uganda is now focussing on the promotion of solar PV systems for rural electrification or pre-electrification. In 1992/93, The Governments removed duties and sales tax on solar energy equipment. Despite this measure, solar PV system up-front costs have continued to be too high for the rural people. In response to this situation, the Government requested UNDP/GEF assistance in establishing a pilot project to promote the potential use of solar PV systems for rural electrification on a sustainable basis.

4. The Government intends to use this pilot project to establish the necessary conditions for expansion of pre-electrification of remote areas using PV's in solar home systems. This will include developing training packages to increase the number of personnel qualified to install, maintain, and finance these systems. It will involve developing public information to inform the public about how to avail themselves of the benefits of these systems. It will involve working with Uganda Bureau of Standards to develop standards for the systems being installed, and using



skilled technicians to certify that the installations made by private entrepreneurs conform to those standards. This project will also utilise co-financing to develop a small revolving fund on a pilot basis, to help households and businesses defray the high up-front costs of the systems.

5. A consultant mission was fielded in March 1995 to prepare the project. This consultancy was supported by the Ugandan Ministry of Natural Resources and the Office of the President for in-country costs and international travel costs. UNDP/GEF paid the consultant's fees.

6. The major needs for electricity in the rural households in Uganda are: lighting, radio and, to a lesser extent, refrigeration. For community purposes, priority uses include lighting for community centres and institutions, vaccine refrigeration in health centres, and water pumping. These end-use needs can all be met using solar electricity. (Cooking, the most important end-use for households, will still be met through biomass resources.) The technical viability and cost-effectiveness on a life-cycle basis of these applications have been demonstrated in other developing countries, including Kenya, Indonesia, the Pacific Islands, the Philippines, the SADC countries (Southern Africa), and the Dominican Republic. It should also be noted that Uganda's geographical position ensures sunshine throughout the year, therefore enhancing the potential for PV applications (average insolation is in the country about 5 KWh/m<sup>2</sup>/day).

7. The use of photovoltaics (PV) systems began in Uganda in the early 1980's for communication purposes, and their use has spread to lighting and refrigeration in donor-financed projects. But their dissemination has been very slow, due to a number of transactions barriers. It is estimated that there are only about 600 PV installations in Uganda today. Six companies handle PV systems on a part-time basis, but none of them can generate a significant volume of business to expand due to the suppressed nature of the market. The suppression of the market arises from a number of factors. First, the Government's pronouncements of support to the development of renewable energy technologies have not been followed with meaningful demonstrations. Second, the high up-front cost of PV technology and the absence of credit for end-users and local suppliers who have minimal resources for purchasing and marketing solar equipment have been barriers to market expansion. Third, there is an insufficient number of adequately trained manpower in both the public and private sectors to correctly size, install and maintain PV systems. This shortcoming has resulted in customer wariness with respect to the technology. Fourth, the lack of familiarity with the uses of this important renewable energy technology has hindered applications for installations.

8. There are no hard statistics on the number of householders that are willing and able to pay for PV systems. Assuming that PV systems will be used only for "pre-electrification" of domestic consumers in new areas, an estimate of 3,800 new PV-system customers/year has been targeted as part of the government's rural electrification programme. This estimate corresponds to the wealthiest section of the rural (or peri-urban) population: i.e., those householders with the greatest willingness and ability to pay. Connecting these householders can only be met if this programme is effective in eradicating the transactions barriers inhibiting widespread dissemination of PV's. If each household is assumed to use a 50Wp solar panel, the annual market in Uganda will be in the order of 190KWp (approximately 30 times the present market), which would constitute a reasonable size medium-scale market.

9. Interviews with some rural residents, banking institutions, NGO's, government officials indicate that there is a substantial unmet demand for electric power in rural areas which could be provided by household and community-based PV systems. These systems would be affordable to a substantial portion of the population (estimates ranged up to 40% depending on the region) if the cost of the systems was approximately \$750; and credit made available to permit a 20% down payment (\$150) the remainder of the loan payable over time. The banking institutions suggested repayment periods for the balances of between 9 months to 2 years while cooperatives and NGO's prefer periods of up to 5 years. The length of the payback period is one of the factors to be clarified and tested through this Pilot Phase, in anticipation of a scaling-up of this activity with expanded future financing.

10. There are presently other conditions in Uganda that favour the increased use of solar PV and other renewable energy systems. First, Government has removed subsidies on conventional sources of energy, thus levelling the ground for competition from renewables. Second, the recently concluded National Environment Action Plan (NEAP) has strongly recommended the increased use of renewable energy as one of the means of conserving the environment. Third, being a signatory to the Framework Convention on Climate Change (FCCC), Uganda has shown its seriousness in subscribing to international efforts in curbing global warming by carrying out an inventory of greenhouse gases and sinks in the country. The solar PV strategy to reduce the use of kerosene and diesel engines in rural areas would be a continuing process in addressing this environmental issue. Fourth, the banking sector has stabilized, interest rates have decreased, and inflation is low. At least four banking institutions (Uganda Commercial Bank, the Cooperative Bank Ltd., Centenary Rural Development Bank Ltd., and the Uganda Women's Finance and Credit Trust) expressed strong interest to participate in PV system financing. Fifth, the services provided by the UEB in a number of areas have been very poor, and people are looking for alternative or supplementary sources of electricity.

11. The Government of Uganda is committed to the policy of fostering market-driven, private sector-oriented economic development. In this regard, therefore, the supply of the PV systems will be the role of the private sector. A favourable investment code is also in place which encourages local manufacture of PV system components.

12. The envisaged pilot project is meant, therefore, to address these barriers, nurture the existing favourable conditions, and assist the Government to create a favourable environment for market expansion and for the private sector to sustain the use of solar PV technology. The superiority of PV lighting to kerosene wick candles and lanterns in terms of luminescence, the elimination of toxic emissions, and the ability to utilise radios, televisions and eventually refrigerators will greatly improve the quality of life of the rural population, while opening and expanding a new market for these important renewable energy technologies.

## **PROJECT OBJECTIVES**

13. The long-term objective of the pilot project is to lay a firm foundation for the sustainable dissemination and use of solar PV systems in those rural areas that cannot be accessed by the national electric grid. At the same time, this will contribute to the curbing of greenhouse gas emissions from the use of kerosene and diesel generators.

The specific objectives are to:

- evaluate the potential for increased use of solar PV technology to provide electricity in rural areas of the country through the expanded involvement of the private sector in providing energy services;
- determine the necessary policy, technical, financial, social, and institutional requirements to expand the market for PV systems on a demand-driven, full cost-recovery basis;
- strengthen the capacity of the private sector to design, install, service and, eventually, manufacture PV systems, and of the public sector to promote, monitor and evaluate the performance of these systems, and to provide the policy framework for expanded use of solar PV systems;
- provide electricity to at least 840 households and 4 communities in 4 districts not presently served by the grid;
- enable the preparation of an investment plan for the use of PV technology on a national scale in Uganda using one or more proven implementation strategies;
- subscribe to the global efforts in combatting the build up of CO<sub>2</sub> in the atmosphere;
- design and find ways to disseminate smaller systems (i.e., solar lanterns) for the poorer households as well as larger systems for wealthier households and economically and productive applications.

14. The 1000 household systems and the four community-based systems will be purchased using the \$1 million revolving fund. The revolving fund will initially be kept small (on the order of \$1 million) to ensure that the financial institutions are capable of managing a programme of this kind. Once the validity of the approach has been demonstrated and the institutional capability proven, the size of the revolving fund can be increased as part of future bilateral and multilateral financing.

## **PROJECT DESCRIPTION**

15. In order to achieve the project objectives, the project strategy will be to establish programmatic and/or commercial linkages between local industry/importers, banking institutions, NGOs/cooperatives, training institutions, and Government agencies through the financing, design, installation and maintenance of at least 840 household and 4 community-based PV systems in 4 trading centres on a pilot basis. The project will test the effectiveness of several models of financing mechanisms which have succeeded in other countries to induce demand for PV technology. In particular, two models - the consumer financing and the leasing mechanisms - will be tested. Consumer financing will involve either commercial/ development/ cooperative banks giving loans to the consumers to purchase the systems or suppliers extending hire-purchase terms to the consumers. The suppliers that would be involved in the hire-purchase scheme could also be induced by benefiting from a credit facility to procure equipment. The leasing programme will use

cooperatives or NGOs as intermediaries between the financier and the consumer, as manager and guarantor of the funds. The money in this case will be used to seed a revolving fund to facilitate system purchase. The other method which has been used elsewhere, i.e. the use of an energy service company (e.g. UEB), will not be used for this pilot project because UEB does not wish to expand its programme at this time.

16. The Government is aware that in order to fully integrate any renewable energy technology into people's daily lives, the people themselves must get involved in its deployment and understand its strengths, limitations and the associated costs. Therefore, the selection of the 4 sites for the pilot project will be carried out with the active involvement and support of the local communities. To this end, the pilot project staff, local authorities and NGOs will carry out a public education program to the target end-users at the outset, and throughout the course of the project. Emphasis will also be placed on technical training that will ensure technology sustainability. The Government also realizes that this pilot activity is valuable only insofar as it leads to a larger upscaling using greater funds. They have expressed a willingness to finance these activities as part of a future MDB loans. The project implementation will consist of the following activities:

- Selection of the pilot sites:- Using the UEB plan for rural electrification, potential sites will be selected. These population centres, which must be unlikely to receive grid power in the next 5-10 years, will be mapped out. Then, a survey to select the four pilot sites, depending on need, willingness to pay, ability to pay and potential to sustain the technology, will be conducted. It is important that these selected sites contain a sufficient number of households able to afford the payments so that each district will provide a threshold size of at least 20 systems.
- Establishment of financing mechanisms for household and community-based PV systems:- This will involve the selection and commitment of banks to administer the loan scheme using either their own or donor funds. It will also involve training financial institution staff to be able to appraise loans and administer funds for the PV systems. The mechanism for the creation and administration of revolving funds by NGOs and/or cooperatives will also be established.
- Collection of information and visits to similar projects in other countries:- Information and lessons learned will be necessary from other countries and agencies that have been successful in using solar PV technology, including Zimbabwe, the Dominican Republic, and Mexico.
- Ensuring quality of systems:- This will involve the establishment of equipment standards and codes of practice that meet either local or internationally recognised requirements, and a balance of system (BOS) test facility. The Uganda Bureau of Standards will be strengthened through this process. Project staff will ensure that the systems are well designed with quality components, and can be assembled and installed to meet consistent standards. Incentives and arrangements for battery recycling will also be put in place in order to avoid environmental damage will also be put in place.
- Selection of PV system suppliers/installers:- Credible commercial agents for supplying and installing the PV systems will be identified. Project staff will develop criteria for bid qualifications and assist with the review of the bids and the award of contracts to local private firms.

- **System installation and supervision:-** Once the consumers have signed contracts with the banks/financial institutions, the project staff (in conjunction with the National Bureau of Standards) will monitor system installations to ensure conformity to contract specifications and installation codes of practice. This will also involve overseeing and inspecting initial system installation.
- **Strengthening data collection and processing capability:-** Solar radiation equipment will be procured to train technicians. The project coordination unit will also need to link up with the existing GIS in the Directorate of Environment to map the information relevant to the pilot and future projects (i.e. existing PV installations, UEB grid and future expansion, population densities, economic resources, NGO operations, solar radiation data, etc.).
- **Capacity building and public awareness:-** The project will provide training to technicians in both the public and the private sectors in PV system design, installation, normal maintenance and trouble shooting, through polytechnics, colleges and workshops. Consumer education will also be carried out to make them understand and accept the service available from a PV system and how to optimise it.
- **Evaluation of pilot project performance,** including PV system performance, user satisfaction, loan repayment rates, and the establishment of plans for project expansion. Technical, financial, environmental and institutional aspects will be reviewed. Evaluation reports will be prepared and presented to Government, the UNDP, co-financiers, and other interested organisations at the mid point and end of the project. This will also be one of the inputs to a loan application for upsizing the project following on the Pilot Phase.
- **Assisting the establishment of a Uganda Solar Energy Industry Association.** The association will help in consolidating common industry interests, forming linkages among agencies/institutions involved in solar energy activities by circulating information, and improving the solar energy business environment.

## **RATIONALE FOR GEF FINANCING**

17. This project is a Government priority in the energy sector because it will provide a working model of a viable way of meeting the objective of rural electrification in the near and medium term. By replacing kerosene in the rural households, the project is in line with the GEF's view of the development and use of non-carbon emitting technologies to stabilise carbon emissions to the atmosphere.

18. The Government's move to promote the use of solar PV systems was expressed in the 1992/93 fiscal budget when the 58% tax on solar energy systems and devices was lifted. However, a smaller tax (32%) was re-imposed in the 1993/94 budget when it was apparent that the move had not increased the use of the technology due to the high initial costs of the systems and the limited technical and financial capacity to disseminate those systems. It was therefore apparent that removal of tax may be a necessary, but not a sufficient condition for widespread dissemination of solar PV systems. There are definitely other barriers that must also be removed to open and expand the market. The import tax on PV modules and system components will be removed as part of project implementation. On re-examination of the situation and the experiences of other countries, it was realised that more positive actions would be required to open and expand the market for renewable

PV technologies. Without opening a larger market, the bulk importation and sale of solar systems, which could help reduce prices, was impossible. The realization was made that financing was needed to help the consumers and suppliers to increase their capacity to purchase the systems. Technical assistance funds would also be required to ensure adequate institutional capacity for the sustainability of the technology. Because of the Government's financial constraints, these funds have to be sought elsewhere. The GEF support is requested to pay for technical assistance requirements for the project while other donors cofinance the loan fund (several donors are currently considering providing the cofinancing). Local NGO's will also be involved in this project. This pilot project will be followed by a sizeable loan application to multilateral sources.

## **SUSTAINABILITY AND PARTICIPATION**

19. The project will involve the coordination of activities between various groups which singly and collectively will contribute to its sustainability. The Government will provide the necessary policy environment and coordination for the project and ensure that the initiatives undertaken by the project are consistent with the overall national objectives and priorities. It will also remove the import duty on PV components
20. The project will demonstrate to Ugandans the technical and economic viability as well as the environmental benefits of PV solar home and community systems for rural electrification. By requiring full-cost recovery, it will represent a sustainable model of PV dissemination. By educating the consumer to understand and accept the service available from a solar home system, he will be able to use it properly and not abuse it, and also pay his installments promptly. The project will ensure the local availability of trained technicians to be at hand to assist the consumer in case of trouble. Such training can be offered by the Faculty of Technology at Makerere University and/or the Uganda Polytechnic.
21. The project's private sector approach is of particular significance. Its sustainability will depend on the opportunity for some of the participating entities to profit from it in monetary terms. The private commercial suppliers of systems and the manufacturers of components will be looking forward to an expanded market for their wares, which can only be achieved through the success and sustainability of the pilot project. At present, the PV industry supplies mostly hotels and tourist installations. Establishing a market for solar home systems will increase their range and viability. The commercial banks and other lending institutions will benefit from an expanded market as they would earn from interest payments. Considering that the repayment period for the home systems will be relatively short (between one and four years), a large market ensures a large and fast monetary turn-over for the banks. The PV systems, with their life-time projected at 15 and 20 years, will normally act as collateral for the short-term loans in case of payment default and in the absence of another security asset.
22. The current political organisation in Uganda has created a very effective grassroot management system of "resistance councils". A village resistance council is headed by an executive committee whose members are charged with various functions for the development and social harmony of their community. Regular meetings are held by the village members, who constitute the council, to discuss development and social issues. Resistance councils, make it easy to mobilise and educate community members for development projects, like the provision of PV community-based systems. The council would be the best evaluator of the needs to which the PV systems should be put for community services.

23. NGOs are increasingly recognised as important to Uganda since they represent constituencies that have been neglected or unattended in the past. They also fill the gaps in the provision of social services and development support that cannot be provided by Government. They already control resources estimated at approximately US \$125 million, and are increasingly involved in projects for environmental sustainability, including solar energy and biogas. Therefore, they are considered credible agents for community mobilisation, public education, and management of revolving funds.

## **LESSONS LEARNED AND TECHNICAL REVIEW**

24. The traditional energy planning method that concentrates on the expansion of the electricity sector through increased hydropower supply and the procurement of more petroleum products to meet rising energy demand has not only continued to increase the nation's indebtedness, but also failed to improve the quality of life for the majority of the population. The scarcity of fuelwood resources in many parts of the country, the limitations on the extension of grid electricity to the rural areas, and the poor distribution of kerosene in some areas, have threatened energy security in the rural areas. The PV pilot project is an integral part of a larger rural energy planning program that will address the issues of energy security, environmental conservation and quality of life.

25. In recent years, the Government has liberalised the energy market in order to make it more efficient. Power supply is no longer a monopoly of the Government controlled utility company, while the utility now prices its energy output at the long-run-marginal-cost. Price control on petroleum products has been abolished. This has created a niche market for renewable energy technologies for certain end-of-line applications, and also opened the door for private sector participation in the provision of energy services. As long as the Government maintains a conducive policy environment, the ensuing competition for serving this market is bound to result in the provision of relatively cheap energy services to the rural population.

26. The use of solar home systems in rural areas has been successful in a number of developing countries, some of them in the African region. These projects will give the Ugandan project valuable input that will be necessary for its sustainability. Therefore, contacts will be established with these and other on-going donor funded projects to share information on host country energy and environment policies, capacity-building experiences, and institutional participation, and to encourage networking. Project staff will pay visits to some of the projects early-on in the execution of the project to gain first-hand experience. It will be necessary to take stock of, and learn lessons from, the successful and failed local installations.

27. Many lessons learned from the GEF/UNDP project in Zimbabwe (Zimbabwe's Photovoltaics for Household and Community Use - ZIM/92/G31) will be of relevance to this project. The experience from the Zimbabwe project would dictate that future PV-based projects for rural electrification should consider the following elements:

- When establishing a credit window for the purchase of such systems, a number of local financial institutions with outreach facilities into the rural areas (and charging market-based fees) should be involved. Under such arrangements, end-users must pay for the actual (unsubsidized) costs of PV systems over a reasonable period of time and the financial institutions must realize revenues to compensate for their services. It is preferable to establish these arrangements on a pilot basis using a small amount of money prior to endowing a larger revolving fund;

- A regulatory environment must be created in which the quality of PV equipment and installation is ensured and new products are inspected and tested before they are allowed on the market;
- An expanded and virile private sector that is fully capable of designing, installing and maintaining high-quality PV systems on a commercial basis must be involved in project implementation from the beginning; and
- The provision of public information and education efforts is essential to sensitize the public about environmental issues and positive impacts of renewable energy systems.

28. In response to the STAP reviewer's comments, the proposal has been changed to address the main points raised. First, the likely saturation level of PV systems in the rural sector (between 5 and 40%) has been clarified in the proposal. Second, over the course of twenty years, one household using 15 liters of kerosene for lighting per month (baseline use required to operate three lamps) will emit 9.36 tonnes of CO<sub>2</sub>. Third, the focus of the solar home systems on lighting has been strengthened as there is little likelihood for rural households to utilize television in Uganda. Finally, the discount rate used in the analysis is 10%, and at that discount rate, with the prices utilized, the PV systems represent a least-cost solution.



## **ISSUES, ACTIONS AND RISKS**

29. The major issues to be addressed during the project life-time shall include: technical deficiencies in system components, loan administration and repayment, battery hazards, and the need for public information. The project design has included the necessary safe-guards against these problems. In particular, the development of equipment standards, codes of practice, maintenance regimes and technical training are pivotal elements of the project.

30. The major risk in the project concerns the defaulting by consumers on loan repayments. In particular, a number of the consumers may have no collateral which the lending institution could place a lien against. However, the PV system itself could be regarded as collateral. This is because a PV panel's (single crystal cell) life-time is approximated at around 20 years and, therefore, the panel has a very small depreciation rate compared to the loan repayment period of one to four years. Therefore, in case of defaulting on repayment during this period, the lending institution or loan administrator can repossess the system.

## **PROJECT IMPLEMENTATION**

31. UNDP shall be the implementing agency for this project. The Government of Uganda, through the Ministry of Natural Resources, shall be the executing agency. The Ministry of Natural Resources (MNR), in collaboration with the UNDP/GEF, will establish a project advisory committee which will be charged with reviewing the progress of the project from time to time. A project management unit (PMU) will be established with an office in Kampala. The PMU will be independent of the MNR but will function within the policy framework established by the MNR. The day-to-day responsibility for the project will rest with a national project manager (possibly an energy professional from the MNR staff seconded to the project for the duration of the pilot project). There will also be an expatriate Chief Technical Advisor (CTA) who will be supported by an established international technical assistance agency with prior experience in the use of renewable energy technologies for rural electrification.

## **PROJECT MANAGEMENT UNIT (PMU)**

32. A separate Programme Management Unit will be established that will be independent of the Ministry of Natural Resources but will function within the policy framework established by the Ministry.

The PMU will carry out and coordinate the management, administrative and financial functions related to project implementation including the coordination of the participating agencies, the hiring of support personnel, work scheduling, information collection dissemination, and the provision of technical assistance and technical/financial reporting.

## **PROJECT ADVISORY COMMITTEE (PAC)**

33. A project advisory committee will be established. Members of the Committee will be drawn from key institutions actively involved in energy-related activities from both governmental and non-governmental sectors. Some of these institutions will include: Uganda Electric Board, Uganda National Bureau of Standards, Makerere University Faculty of Technology, SEFA (NGO-Solar Energy for Africa), PRIDE (an NGO), Uganda Institute of Bankers, DENIVA (an umbrella NGO), UNDP and other bilateral donors. Banks and other financial institutions that will be participating in the project will form a revolving fund that will continue to be used for solar PV system purchases within each bank on an ongoing basis. The same applies to the NGOs and cooperatives. Other NGOs will also work alongside the PMU staff and local authorities to educate/inform the rural population regarding the use of PV technologies and also to monitor the performance of the installed systems.

## ANNEX 1

**PROJECT FINANCING AND BUDGET****1. A. GEF Contribution**

Expenditure Category	Year 1	Year 2	Year 3	Total
1. Personnel	265,000	265,000	265,000	795,000
2. Sub-Contracts	45,000	45,000	45,000	135,000
3. Training	120,000	120,000	120,000	360,000
4. Equipment	80,000	60,000	60,000	200,000
5. International Travel	20,000	20,000	20,000	60,000
6. Contingency	53,000	51,000	51,000	155,000
Subtotal	583,000	561,000	561,000	1,705,000
7. Project Support Services (Including Exec. Agency Support Costs)	17,490	16,830	16,830	51,150
<b>TOTAL GEF Budget</b>	<b>600,490</b>	<b>577,830</b>	<b>577,830</b>	<b>1,756,150</b>

**B. Cofinancing required for the revolving fund** **\$1,000,000**

**C. Government contribution** **\$213,000**  
(office rent, office supplies, vehicle maintenance etc.)

## Annex 2

### **A Technical Review of GEF proposal on Uganda PV pilot project for Rural Electrification**

#### **1. Relevance to GEF**

This is a technically sound proposal. However, more work is needed on the economic and demographic implications of scale up of the proposed effort, before strong relevance to GEF can be claimed. Clearer justification needs to be presented explaining why this proposal may have an impact on CO2 emissions from Uganda even in the long run (see below).

The proposed general approach is appropriate for the technical and institutional infrastructure in Uganda. PV technology is indeed a possible viable option for rural household lighting in Uganda. This project aims to develop local technical trained manpower which will be necessary for success of PV rural electrification in the long run. The project will also help determine appropriate financing mechanisms for PV powered homes. On the other hand, the following points are either not addressed in the project or are presented in insufficient detail. These points, when explored in more detail, may lead to the conclusion that the project requires reformulation for GEF support.

(i) How many Ugandan rural households can afford (and are willing) to pay back within one year the approximately US\$1000 that the PV system will cost them? This number must be rather a small fraction of the rural households. What fraction is it?

(ii) What are the current CO2 emissions from these households that could be legitimately claimed to be reduced with the use of PV system? Note that cooking will remain biomass based. Entertainment (radio and TV) with PV power will not reduce any existing CO2 emissions. So, the only CO2 emissions saved are those from lighting.

(iii) If the PV panels considered are 60 W<sub>p</sub> (presumably meaning 60 Watts peak) per household, then the panel will each provide about a quarter of a kWh of daily electricity to the house. This equals a power consumption of about 50 watts for 5 hours. If lighting consumes some 36 watts out of this (two 18 watt compact fluorescent lamps), it is difficult to do much by way of TV entertainment in the remaining power. The authors of the proposal should present their technical calculations in more detail to make their case that TV viewing will also be possible.

(iv) The Net Present Value (NPV) calculations given on page 11 of the proposal do not cite the discount rate used in the calculations. It is evident that since the PV system cost is almost all up-front (with only the periodic replacement of the battery as a recurring cost), the PV system will cost close to US\$ 1000 including BOS. The kerosene and the dry cells for the next 20 years are valued at an NPV of \$1,557 for each household. However, the discount rates for future savings for households are not stated. Households commonly use discount rates of between 30% and 90% for future expenses/savings. Did the proposal authors use such high discount rates? If not, then the savings may appear significant from societal viewpoint (discount rates of 10% or 12%), but may be altogether absent when viewed from the household viewpoint. If this is

true, then the systems will be difficult to market. This issue needs to be elaborated clearly in the proposal.

## **2. Objectives**

The project objectives are to develop a method to promote and mature a market for household PV systems. However, this objective needs to be demonstrated to be relevant to GEF objectives by appropriate demographic data for Uganda (see question (i) above).

If the objectives can be justified, then the project is well formulated to address them. If the objectives cannot be justified, the project should be reoriented, focusing only on PV-lanterns and on community PV lighting systems. Individual household PV electrification may have to be removed from the project objectives.

## **3. Approach**

The approach is clearly defined in the project brief. The approach is appropriate and technically sound for the stated project objectives (but see 2 above). No obvious environmental opportunities or problems have been overlooked. Uganda is an appropriate country for the proposed project.

## **4. Background Information**

The project proposal provides much useful background information. However, some crucial pieces are still missing. These are defined in the questions (i-iv) raised in item 1 above. These need to be supplied.

## **5. Funding Level**

The project asks for about US\$ 2.9 million to set up PV installations in 870 homes and 4 community systems. The NPV of these systems will be about half of the budget. This is not too high considering that there are start-up costs, and the costs of building up the expertise and the knowledge base.

## **6. Innovation**

The proposal is innovative in terms of planning program to introduce PV powered lighting to replace kerosene lighting in rural households. This is a potential success story waiting to happen. The proposal addresses the necessity of building up the technical and institutional infrastructure for the success of this approach. Also, the proposal aims to recover costs fully from this effort. It is known that rural households in unelectrified regions are commonly willing to pay up to 30 US ¢ per kWh for electricity for lighting. This can be supplied with conventional PV technology. The problem is how the technical and institutional arrangements will be put in place to supply the PV-powered lighting. This proposal aims to address precisely these issues.

## **7. Strengths / Weaknesses**

As discussed above, the strengths of the proposal are the attention it gives to the problem of building up the necessary institutional and technical infrastructure to make the technology successful in the market. The proposal also does not rely on expectations of continued handouts: the PV lighting systems are supposed to be sold with full cost recovery, so that this effort, if successful, can expand vastly. The main weakness of the proposal is that it lacks adequate detail in the four areas mentioned in section 1 (see parts i-iv). On exploring these issues in detail, the proposal may have to be reoriented to focus on PV-lanterns which will have a much larger market. PV-lanterns costing only US\$ 25 to 50 each, and capable of giving 3 hours of light per day, can be fabricated today. These will reach into a much larger number of households and replace kerosene lighting. The potential impact could be great.

## ANNEX 4

**INCREMENTAL COSTS**

1. This project is designed to expand the market for PV-based electrification in rural Uganda. As part of the project, the Government will revoke import duties on PV modules and components. The project focuses particularly on building capacity to overcome several transaction barriers. First is the lack of trained manpower. As part of this project, a programme for training technicians to work in the private sector, the Bureau of Standards, and the educational institutions will be undertaken. Personnel from financial institutions will also be involved and trained in evaluating PV-based loans. The second is the lack of information. This project will work with communities and NGO's to disseminate information about the potential uses of PV's throughout Uganda. It will also provide a meaningful level of demonstration of the potential benefits of PV-based electrification. The third is the financing bottleneck. Potential PV users will be provided with financing to purchase the systems through a revolving fund administered by existing financial institutions. The beneficiaries will have to pay back those loans. The co-financing element of this project is expected to serve as the endowment for the revolving fund. The GEF funds will be used for the programmatic costs which are largely unrecoverable.

*Broad Development Goals*

2. The broad development goal being pursued as part of this project is the meeting of local energy needs and the improvement of the quality of energy services available to rural Ugandans. This goal will be achieved through helping the Ugandan Government build capacity both within and outside the government to finance, implement and regulate rural "pre-electrification" through using Photovoltaic Home Systems and related PV-fueled electricity services for schools, clinics, hospitals and some businesses.

*Baseline*

3. On a national level, under the baseline, there will continue to be a very gradual and piecemeal dissemination of PV home systems throughout rural Uganda. At present, there are substantially fewer than 100 PV systems being installed per year throughout the country. Most of these are installed at hotels and tourist facilities. Limited national capacity to permit the dissemination of a larger number of systems. As a result of these capacity limitations, most households in the targeted areas will have no access to electricity in the absence of this project. These households will continue to rely on kerosene for their lighting needs, batteries for radios and other lighting needs, and fuelwood for cooking.

*Global environmental objectives*

4. The global environmental objective being pursued through this project is the consolidation and expansion of the market for photovoltaics in Uganda. With a rural population of nearly 17 million or nearly 3 million households, there is a relatively significant potential market for photovoltaics which is not being met due to the limitations of information, institutional capacity and financing. This project seeks to raise the capacity of Uganda to manage and implement this type of project, and also to lay

the foundation to increase future investments in this area. Under the climate change operational programme, this project fits in under the long-term programme to open and expand the markets for renewable energy technologies.

#### GEF alternatives

5. Under the proposed project, there will be a major national programme to build capacity for carrying out rural-based PV projects. This project will seek to strengthen local capacity through providing training for assembling and installing solar home systems, building public institutions to finance and certify installations, providing support to private entrepreneurs for sales and servicing of solar home systems, and arranging a revolving-fund mechanism to defray the high up-front costs of these systems for consumers wishing to purchase them. Given the high costs of these systems, initially, only the wealthier households in rural areas will be able to afford them, even with the financial support from the revolving fund. Depending upon the selected sites between 5 and 40% of rural households will be willing and able to afford the payments for a solar home system. As the costs of PV systems and components fall, a greater fraction of the rural population will be anticipated to participate in the programme. The establishment of a financing programme for this project will influence the ability of this project to expand beyond this pilot level to a more substantial level of financing with support under larger bilateral and multilateral loan-supported programmes. (The appropriate length of the payback period for such investments in some of the variables to be tested as part of this initial activity). In addition, a national plan for the expansion of the "pre-electrification" activities will be produced as part of a national rural electrification plan to be financed under future loans. This plan will assist Uganda in examining different ways of meeting rural power needs, not just the needs for PV-based systems.

6. For a rural household using solar electric lighting instead of three kerosene lamps, the amount of CO<sub>2</sub> to be avoided will amount to about 9.36 tonnes per household over the twenty year lifespan of the project. If one thousand systems are installed as part of this project, the project will have accounted for 9,000 tonnes of CO<sub>2</sub> avoided over twenty years. However, since the goal of this project is to open the Ugandan market for PV systems, CO<sub>2</sub> avoidance is not the relevant goal--rather it is the number of systems sold in Uganda both directly and indirectly attributable to the project.

#### *System boundary*

7. For the purposes of this analysis, the system boundary is designed as the Uganda rural sector. Although the project will initially focus on 4 districts, it is expected to lay the foundation for a larger national programme which might include peri-urban and even unelectrified urban areas.

#### *Additional domestic benefits*

8. The additional domestic benefits are twofold. First, the project will provide a vastly superior quality of lighting for rural households when compared to the baseline. This improved lighting quality can be measured in lumens, but is not quantified in the analysis. Second, for those households purchasing solar home systems, the indoor air quality of their homes will improve as kerosene will no longer need to be burnt for lighting.



*Costs*

9. The cost to the country of this project is estimated to be \$2.8 million, of which \$1.8 is being requested from GEF as the information, training, and institutional capacity building elements. The remaining \$1 million is being sought from other sources and will serve as the initial endowment for a revolving fund, which will provide front-end financing for up to 1000 solar home systems. As these small loans are paid back, the financing agencies will be able to provide loans for additional systems, between 5000 and 10,000 systems over 20 years, depending upon how quickly the cost of solar panel falls, the payback period settled upon, and the default level on the loans.

## Incremental cost matrix: Barriers to Implementation and Their Removal

COMPONENT	STAFF COSTS	TRAINING COSTS	EQUIPMENT COSTS	TRAVEL COSTS	TOTAL COSTS	TRANSACTION BARRIER	INCREMENTAL COSTS	HOW WILL FUTURE PROJECTS PROCEED ONCE BARRIERS ARE REMOVED
1. PREPARATION OF DETAILED WORKPLAN (including selection of Districts & Inst.) Total Funds Needed (Requested from GEF)	80 50	50 50	0 0	50 20	180 120	Lack of PV component for national renewable energy policy	Positive	Project will be implemented as part of an effective national policy for promoting renewable energy systems.
2. GENERAL INFORMATION DISSEMINATION Total Funds Needed (Requested from GEF)	100 100	150 150	80 50	70 50	400 350	Inadequate information and awareness of renewable energy systems	Positive	Public information campaigns and personnel and equipment for information dissemination
3. TRAINING OF TECHNICIANS Total Funds Needed (Requested from GEF)	100 100	250 220	150 150	40 40	540 510	Lack of skilled personnel to maintain and properly install solar equipment	Positive	Highly skilled staff will be trained and permanent training facilities established
4. TRAINING OF FINANCIAL INSTITUTIONS PERSONNEL Total Funds Needed (Requested from GEF)	100 100	150 150	80 50	70 50	400 350	Financial institutions have no ability to appraise and operate PV-based loan accounts	Positive	Trained staff will be available to manage revolving fund for up-front costs of renewable systems
5. PREPARATION OF SOLAR ENERGY EQUIPMENT STANDARDS Total Funds Needed (Requested from GEF)	60 60	50 50	0 0	20 20	180 150	Lack of standards and inspections leaves consumers with little confidence and no protection	Positive	Codes on PV equipment and installation maintained and inspections carried out to ensure satisfactory installation and maintenance
6. PROJECT MANAGEMENT Total Funds Needed (Requested from GEF)	250 250	0 0	0 0	50 50	300 300	Lack of project management capability	Positive	Skilled staff available to ensure project success
7. REVOLVING FUND Total funds needed (Requested from GEF)	0 0	1,000 0	0 0	0 0	1,000 0	Lack of financing for small-scale rural energy	Negative	Revolving fund will allow dissemination throughout rural Uganda
TOTAL PROJECT BUDGET					3,000*			
TOTAL GEF BUDGET					1,800			

\* Uganda Government Contribution (in kind): \$200,000.

## **PROPOSAL FOR REVIEW**

<b>Project Title:</b>	<b>Island Biodiversity and Participatory Conservation in the Federal Islamic Republic of the Comoros</b>
<b>GEF Focal Area:</b>	Biodiversity
<b>Country Eligibility:</b>	Convention Ratified September 29, 1994.
<b>Total Project Costs:</b>	US \$ 3,279,000
<b>GEF Financing:</b>	US \$ 2,442,000
<b>Country Contribution:</b>	US \$ 242,000
<b>Cofinancing/Parallel Financing:</b>	US \$ 595,000 (UNDP)
<b>GEF Implementing Agency:</b>	UNDP
<b>Executing Agency:</b>	Government of Comoros - Ministry of Rural Development, Fisheries, and the Environment (MDRPE)
<b>Estimated Approval Date:</b>	January 1, 1996
<b>Project Duration:</b>	5 years
<b>GEF Preparation Costs:</b>	None (US \$ 35,000 UNDP)
<b>Government Endorsement:</b>	February 6, 1995

## COUNTRY/SECTOR BACKGROUND/CONTEXT

1. The archipelago of the Comoros, located in the western Indian Ocean to the northwest of Madagascar, consists of four islands of volcanic origin: Grande Comore, Anjouan, Moheli and Mayotte, of which the last one remains under French administration. Endemic species and their habitats are facing severe and unprecedented threats due to human population pressure and unsustainable resource exploitation. With the realization that ecological degradation and resource loss have negatively affected the islands' economy and biological heritage, biodiversity conservation and sustainable use are now high on the list of both the government's and the people's priorities. Given the government's lack of financial resources however, biodiversity conservation will require an innovative, cost-effective participatory approach.

2. The Comoros hold some of the least studied yet most threatened biotas of the Indian Ocean. According to available data, more than 33% of vascular plants are endemic, including 43 species of orchids, (Adjonohoun *et al.*, 1982; Ahama and Mohamed, 1989; CNDRS, 1992, 1993). The status of these species is largely unknown, though many are threatened by deforestation and the rapid colonization of invasive and introduced plant species, whose impact remains to be assessed. Of the fauna, endemism reaches 25% and 75% for nesting avifauna at the specific and subspecific levels, respectively (Louette, 1988; Louette *et al.*, 1988). Contained as well on the list of endemic species are three species of bat, (including the Livingstone fruit bat—*Pteropus livingstoni*) (Carroll, 1993), at least two species of reptiles (Meirte, *in* Ledan, 1993), several dozen terrestrial soft water mollusks, and butterflies (Clark *et al.*, 1992). In the marine environment, of global ecological and scientific interest is the threatened Coelacanth (*Latimeria chalumnae*), known only from the fossil record until rediscovered in 1938 (Fricke *et al.*, 1991). Other globally threatened species found within the archipelago include two species of lemurs, the dugong (*Dugong dugon*), and sea turtles (*Eretmochelys imbricata* and *Chelonia mydas*) (Frazier, 1985; Mortimer, 1993).

3. In addition to their large numbers of endemic species, the islands boast a multitude of habitat types, both marine and terrestrial (Takhtajan, 1986). Terrestrial ecosystems include montane heath above the forest zone (1,800 + m.) dominated by *Phillipia comorensis*, closed and moist high-altitude forests (1,200 to 1,800 m.), closed evergreen forests (600 to 1,200 m.), grass and bush savannas, pioneer plant communities on lava flows, lowland xerophytic forest on the coast, and crater lakes. In addition to their use as habitat for the islands' plant and animal species, such terrestrial ecosystems are of critical importance for migratory avifauna from the Palearctic region. Littoral and marine ecosystems are also remarkably varied, consisting of mangroves, coral reefs (fringing and shoal), and water plant communities. Despite this wealth of varied habitats, there are to date no protected zones in the Comoros, with Boundouni lake on Mohéli only recently being listed in the Ramsar Convention.

4. The wealth of the country's biodiversity stands in contrast to the poverty of its people, with an estimated per capita income of \$520. The population of 484,000 (1994) is growing at an estimated annual rate of 2.7 % (UNDP, 1994). The population, with one of the highest densities in Africa (260 persons/km<sup>2</sup>), is primarily rural and depends largely upon the production of vanilla, cloves, copra and essential oils from ylang-ylang for export earnings. Local food production cannot meet demand and must be supplemented by imported food, including food aid.

5. Population pressure and poverty have led to a vicious circle of over-exploitation, environmental degradation, and further poverty. On land, the rate of deforestation is of serious concern, brought on by increasing fuelwood needs, environmentally-damaging agricultural techniques, and a lack of forest policy and regulation. Between 1950 and 1993, natural forests disappeared at a rate of over 500 hectares annually. If this rate continues, within the next 15 years the forests will have completely vanished, taking with them forest-dwelling species such as the Livingstone fruit bat. This excessive deforestation also accelerates natural erosion, leading to sedimentation of terrestrial soils on coral reefs, decreased soil fertility, the drying up of streams and springs, the destruction of potential tourism sites, and the disappearance of natural habitats and species.

6. Unsustainable resource exploitation extends to the coastal and marine environments. Sand and coral are collected for construction purposes, which weakens coastal habitats (mangroves and beaches) and increases their vulnerability to marine erosion. At sea, traditional fishing techniques, such as poison and dynamite, are rudimentary but destructive and overused, resulting in overfishing along the coast. In contrast, the high seas are largely under-exploited, but local fishermen have neither the means nor the techniques required to tap these resources. Motorization, fish concentrating devices (FCDs) and trolling techniques are accessible only within the framework of village cooperatives or with external funding. Since such assistance is currently unavailable to most fishermen, many fish on the external ridge, catching the occasional coelacanth and endangering the remaining population.

7. Efforts to reverse these trends gained momentum at the beginning of the 1990s, spearheaded by several organizations, including UNDP, UNEP, FAO, and the World Bank, as well as several countries under bilateral arrangements (France, Belgium, Canada, and the European Union). An important step forward in environmental planning in the Comoros came with the UNDP-funded project entitled "Support to National Capacity Building Activities in the Field of the Environment", which was executed by UNESCO and IUCN. This project led to the formulation of a National Conservation Strategy, whose main activities included: 1) the environment and resource assessment conducted in 1993, which served as a basis for the National Environmental Policy; 2) a national workshop in December 1993 with the participation of seven government ministers, representatives from all islands and social sectors, and international agencies. This led to the adoption of the National Environmental Policy by the cabinet, and the establishment of priorities for an Environmental Action Plan (PAE); and 3) the approval of the PAE at the Donors Round Table in Geneva under UNDP auspices in October 1994. The Environmental Action Plan calls for: 1) Knowing and promoting knowledge of the national heritage; 2) Instituting efficient public services, agencies (both central and decentralized); and adopting appropriate legislation; 3) Training specialists and raising environmental awareness among all segments of the population; and 4) Ensuring a concerted, rational management of the national heritage.

8. Within the same period, numerous instruments required for the conservation of the Comoros' natural heritage were created, including: 1) the Interministerial Advisory Committee on the Environment (CICE) and its regional committees (CRCEs); and 2) the General Directorate for the Environment (DGE) with its regional services (SREs) and four main departments--Regulations and Controls, National Planning and Development, Education and Communications, and Applied Research and Natural Resources. Several other legislative, scientific and education initiatives were launched, including 1) ratification of the International Conventions on Biological Diversity, the Law

of the Sea, Wetlands of International Importance (the Ramsar Convention), International Trade in Endangered Species (CITES), the World Heritage Convention, and the Regional Convention for the Protection, Management and Development of the Marine and Coastal environment of East Africa; 2) the adoption in 1994 of the Framework Law for the Environment (LCE), covering in particular the protection of fauna, flora, ecosystems and habitats, the creation of protected zones, the requirement of impact studies, and the creation of the Environmental Management Fund (FGE); 3) the identification of the major species, ecosystems and habitats in the country to ensure the conservation of national biodiversity (with the help of numerous projects from international agencies, research centers, and NGOs); and 4) support to international NGOs to raise awareness and involve village communities in the conservation of the environment in general and biodiversity in particular.

9. The GEF project described herein follows directly from the planning and baseline activities already undertaken, and will support the implementation of the national biodiversity strategy components of the PAE. The project will complement both ongoing and planned projects including UNDP's Capacity 21 initiatives, the World Bank's Agriculture and Environment project, and at a regional level UNEP's Regional Coastal and Marine project, the European Union/Indian Ocean Commissions Coastal Zone and Endemic flora project, and the GEF interagency Western Indian Ocean Marine Conservation Programme. It will assist the government to coordinate the growing number of biodiversity projects within a sound institutional management framework. It will also aim to integrate national priorities with local-level realities, taking advantage of traditional participatory village-level decision-making processes to further engage communities in the sustainable management of the islands' ecosystems and the conservation of their species.

## **PROJECT OBJECTIVES**

10. The goal of this project is to develop capacity in the Comoros Islands to effectively manage biological diversity, through the implementation of the biodiversity components of the National Environmental Policy (PNE) and the Environmental Action Plan (PAE). All sectors of society, including communities, local NGOs and government institutions, will be included in these efforts. At the international level there will be close cooperation between this UNDP/GEF project and the World Bank's proposed Agriculture and Environment project. The seven project objectives, to be achieved in coordination with the above sectors and agencies, are:

1. To create a participatory institutional framework to oversee biodiversity conservation and management at all levels.
2. To build the capacity for biodiversity management at the local, regional, and national levels.
3. To mobilize financial mechanisms at the national and local levels to ensure the sustainability of biodiversity conservation efforts.
4. To establish a national network of marine and terrestrial protected areas in accordance with the priority sites as nationally identified.
5. To design and implement action plans for the conservation of species with global significance both inside and outside the national network of protected areas.
6. To strengthen public commitment to biodiversity conservation through information and awareness-raising activities.
7. To initiate environmentally sustainable economic development alternatives to reduce pressure on endangered species and degraded ecosystems.

## PROJECT DESCRIPTION

11. Many tropical countries are faced with similar situations as Vietnam, where the remaining centers of biodiversity are under increasing stress to provide sustenance to an expanding population. During the last few decades, the frontiers of Vietnam's biologically rich wildlands have been retreating. What fragmented natural areas remain are often too small and too isolated to maintain unique habitats, species assemblages, or viable populations. The urgent unmet need is to seek a fair balance between the provision of ecologically sound livelihoods and the conservation of biodiversity.

12. PARC expands the function of conservation to mean wise preservation and *use* of natural resources to insure sustainability. The PARC concept is based on a *modified landscape ecology* approach, which is a recent development in conservation science based on the experiences gained from integrated protected area programmes in other tropical countries. The approach deals with the fragmentation of habitats and the multiplicity of objectives that must be met. In the case of PARC, these objectives include provision of sustainable livelihoods and generation of employment, protection of endemic genetic resources and preservation of distinctive ethno-biological forms and values of global significance, and mitigation of fragmentation effects. Instead of focusing conservation efforts on a small protected area, the PARC project plans to manage entire landscapes that include ecosystems in varying intensity of human uses.

13. The landscape included in the PARC site would include a large core protected area which is connected to smaller areas by suitably chosen corridors. Surrounding areas would be managed multiple-use zones dedicated to meeting the economic and cultural needs of local communities. These areas would be devoted to some forms of sustainable agriculture, agroforestry, tree plantations, and re-forestation. The success of these multiple-use economic units is linked to the effective protection of the core area, corridors, and smaller conservation areas. Additional measures to promote ecologically sound human interactions may be provided by some form of buffer zones.

14. Based on a number of criteria<sup>3</sup> and in consultation with all relevant stakeholders, two PARC sites were selected in areas of crucial concentrations of biodiversity: Yok Don National Park and Ba Be - Nahang nature reserves. (Please refer to Annex 2 for detailed summaries on these two sites.) Each of these sites is rated by the BAP as having quality A biodiversity and as being in need of urgent (Phase 1) investment. These two areas provide the required diversity in ecological, economic, and cultural conditions to ensure that the project produces enough experience, resources and information to apply to the development of biodiversity conservation in other areas in Vietnam and elsewhere.

15. In conformity with GEFOP recommendations, an indicative management plan for the first year has been

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**3. Criteria for site selection included consideration of:** the extent to which the local people living near the site wish to participate; maintenance of ecological functions vital to the economy of the rural communities and the nation and the larger Southeast Asian region as a whole; opportunities for sustainable rural development by promoting more efficient and ecologically sound use of natural products; establishment of land tenure systems that are compatible with cultural traditions of indigenous communities and ecological sustainability; environmental stabilization (e.g. reduced rates of siltation, greenhouse gas emissions, etc) of the surrounding region by sound watershed management and sound land use planning; sustainable uses of biodiversity which support indigenous communities, the agricultural economy, and major industries; the extent to which alternatives for sustainable livelihoods can be developed; opportunities for education in ecology and natural history for academic institutions, policy makers, and the general public, and contributions to scientific research on natural habitats, wild species, and their relationship with human development; protection of endemic genetic resources and preservation of distinctive ethno-biological forms and values of global significance; habitat size to maintain viable populations of important flora and fauna species.

prepared drawing on the existing management plans for the sites and encompasses the landscape ecology approach. The indicative management plan can be found in Annex 3. Upon approval of this project by the GEF Executive Council, a multi-disciplinary formulation mission will be undertaken to draw up the project document. During this mission, further work will be done in consultation with the project's stakeholders (e.g. central and provincial authorities, district and community leaders, professional associations, people's organizations and NGOs) to flesh out the indicative management plan with respect to activities and modalities of implementing them.

***Immediate objective 1:*** To finalize management plans for two PARC sites in biologically, environmentally, socially and economically critical regions.

Outputs

- 1.1 Report documenting the ways that people in Vietnam as well as in other tropical countries may have managed biodiversity sustainably through integrated protected areas and community forest management.
- 1.2 Socio-economic appraisals of the selected sites and designs for new or updated sustainable community resource projects and livelihood systems, including recommendations on land tenure concepts and a fair and equitable incentive system.
- 1.3 Measurable success indicators and baseline information.
- 1.4 Finalized management plans for the protected sites, based on the landscape ecology approach, including an analysis of sustainable financing options including development plans to integrate biodiversity conservation into regional planning.
- 1.5 Plans for the regeneration of corridors and buffer zones through tree plantations, assisted natural regeneration, and other agro-forestry and rural development activities.

***Immediate objective 2:*** To implement management plans and community programmes for two PARC sites with ongoing monitoring for progress and impact.

Outputs:

- 2.1 Management plans for PARC sites implemented, and impact monitored (based on the success indicators developed in Objective 1).
- 2.2 Project staff, community members and local government provided with 'on the job training' in integrated conservation and development.
- 2.3 Community resource development projects, such as the provision of credit and extension facilities to women, implemented.
- 2.4 Pilot-testing of sustainable financial mechanisms, ecotourism and sustainable harvest and value-added production of non-timber forest products and creation of a financial plan for the project. Investigation into the potential creation of a trust fund will also be undertaken.
- 2.5 Significant areas regenerated using a vegetative cover appropriate to the area.



**Immediate objective 3:** To evaluate PARC implementation and modify if for replication in other areas based on the evaluation assessments.

Outputs:

- 3.1 Field surveys evaluating the impact of the project on biodiversity conservation.
- 3.2 Socio-economic surveys assessing the impact of the community development projects, and based on these assessments, modifications of the PARC concept for replication.
- 3.3 Demonstration of the PARC modified landscape ecology experience so that the PARC approach can be replicated in other areas of Vietnam and dissemination of results.

**INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

16. PARC is a project of the Government of Vietnam. It will be executed by the United National Office of Project Services (UNOPS), and implemented by the Ministry of Forestry, Government of Vietnam, and World Wildlife Fund-International.

17. At the local and provincial levels, a Project Implementation Unit would oversee day-to-day operational functions of the two sites and would work in cooperation with the Management Boards of the national parks which operate at the protected area level and include representatives from the Provincial and District Forest Protection Department and People's Committees. As a result of their successful participation in the development process of Vietnam PARC, the project also hopes to institutionalize the inclusion of local participation in the park Management Boards by the Women's Union, Youth Union, Farmer's Associations, religious organizations, and other local groups. Such formalized participation by these local and provincial organizations will ensure that local people have input into important decisions such as location of reserve boundaries, negotiating traditional use zones, and so forth and thus will help to ensure the project's social and institutional sustainability.

18. Field operations and management would be undertaken by two project teams *in situ*. Membership in the teams could be drawn from district Forest Protection Departments of the People's Committees and provincial offices of the Ministry of Forestry. To ensure a full stake-holder commitment and a participatory approach, open and inclusive community consultative panels composed of representatives of local people's organizations would be organized to provide counsel and services to the project teams.

19. An open and inclusive National level Steering Committee, which has proved an effective management tool for the ongoing GEF project VIE/91/G31 will also be formed to provide overall guidance at the national level. Membership and organization of the Committee will be finalized as part of the Project Document Formulation mission, however it is likely that the following organizations/institutions could be represented: the State Planning Committee, Ministry of Forestry, Ministry of Science, Technology and the Environment, Park Management Boards, People's Committees from the two concerned provinces, Director of the two concerned protected areas, and UNDP. Among other benefits, the presence of such a Steering Committee will allow the project apply lessons learned from PARC towards the required reforms in sectoral and social development policies. This Committee would furthermore provide coordination with other government agencies whose cooperation is essential to successful project implementation.

## RATIONALE FOR GEF FINANCING

20. The PARC proposal supports the objectives of the Convention on Biodiversity which the Government of Vietnam ratified on 31 October 1994. It is also in line with guidance for priority funding areas from the Conference of the Parties of the Convention on Biodiversity. This project is in alignment with the GEF Programming Guidance for 1995 as well as the emerging guidance from the GEF Operational Strategy in Biodiversity which supports as a long term approach to biodiversity conservation, actions which strengthen existing protected areas in forest areas, especially those that have a high degree of threat, and that have priority status at the national level, and those that include activities such as establishment of long term funding mechanisms, integrated conservation and development around protected areas, schemes to promote sustainable natural resources management by local communities, indigenous groups and other sectors of society consistent with biodiversity conservation, and demonstration projects linked to alternative livelihoods for local and indigenous communities consistent with biodiversity conservation.

## SUSTAINABILITY AND PARTICIPATION

21. Participation at all levels (local, provincial, and national) has been evident throughout the development of the PARC project. The long development phase of the project (2 years) reflects the importance that PARC has put on the *process* of consultation as much as the output of the consultation. In order to ensure that local participation is continued into project implementation, a Project Implementation Unit, under the direction of the National Steering Committee (see paragraphs 16-19), would supervise day-to-day operational functions over the two sites and would work in cooperation with the Management Boards of the national parks which operate at the protected area level and generally include representatives from the Provincial and District Forest Protection Department and People's Committees. Vietnam PARC also hopes to institutionalize the inclusion of local participation in these Park Management Boards by the Women's Union, Youth Union, Farmer's Associations, religious organizations, and other local groups. Such formalized participation by these local and provincial organizations will ensure that local people have input into important decisions such as location of reserve boundaries, and negotiating traditional use zones will help to ensure the project's social and institutional sustainability.

22. A number of factors, both as a result of the initial planning process and later as a result of project activities, will help to contribute to the project's long-term success. In particular:

*social sustainability* is ensured through the project's wide participatory consultative planning process and the active participation of community stake holders in the project implementation as described above.

*financial sustainability* is to be sought through the preparation of a financial plan in the project, and potentially through the development of financial instruments such as a trust fund.

*economic sustainability* is one of the principal innovative features of the project. This would require developing community resource development projects such as ecotourism and sustainable use of non-timber forest products, as well as provision of credit and extension facilities to women. Such initiatives will serve to enable communities to thrive in a market situation.

*institutional sustainability* is ensured through the development of new and innovative partnerships formed during the project in the form of a National Steering Committee and a local Project Implementation Unit (please refer to the section on Institutional Framework and Project Implementation for more on these partnerships). The fact that the project is firmly embedded in national environmental frameworks and action plans, including UNDP's strategic ENRM programme, and builds on capacities developed during the successful GEF Pilot Phase project will also contribute to institutional sustainability

## LESSONS LEARNED AND TECHNICAL REVIEW

23. PARC builds upon the lessons learned and the capacities and processes built through the GEF Pilot Phase project (VIE/91/G31 and other related projects) in two important ways. First, VIE/91/31 developed the BAP for Vietnam and PARC is identified as a priority in this plan, as well as a core element to it. VIE/91/G31 undertook a comprehensive conservation training programme. PARC will utilize the human resources developed under this training programme. An open and inclusive National Steering Committee has proven to be an effective management tool for the ongoing GEF project VIE/91/G31. This would be a suitable arrangement for implementation of the PARC project and will help to ensure that PARC's lessons learned will be able to influence the required reforms in sectoral and social development policies. (For more linkages between the two projects, please refer to paragraphs 5 and 6).

24. Technical reviews: The present proposal, in addition to independent technical reviews, has also benefitted from a review by the GEFOP. Care has been taken to ensure that all relevant recommendations made by the reviewers have been addressed in the project brief. Please refer to Annex 4 for a copy of this STAP review.

## PROJECT FINANCING AND BUDGET

25. The project will focus on activities most appropriate for GEF funding. In Vietnam, in the chosen areas, this includes: boundary demarcation; development of management plans and strategies; infrastructure development for in-situ conservation (minimal access roads, staff and office accommodations, research and tourist facilities); forest rehabilitation programmes, forest corridors, community forestry; community development programmes; training and recruitment of staff; monitoring and evaluation. Accordingly, government and expert estimations for the *minimum* costs of intervention for establishing and developing pilot protected areas in Vietnam over five years, estimated in US Dollars *per protected area* of average 50,000 ha, is US\$ 3,348,000. The total project cost for two PARC sites is \$6,696,000. The Government contribution, equivalent to the baseline scenario, is estimated at \$655,000 plus in kind. Accordingly the GEF contribution is \$6,041,000.

26. Please refer to Annex 5 for more information on the budget on an output by output basis.

## INCREMENTAL COSTS

27. The incremental costs of the project were calculated in accordance with the GEF Secretariat reporting format and can be seen in Annex 6. In line with GEF practice, the incremental costs of the project will be refined further during the project formulation mission to take into account emerging guidance on the issue.

## MONITORING AND EVALUATION

28. The project will be subject to the standard UNDP tri-partite monitoring system as well as the emerging monitoring and evaluation guidelines of the GEF. In the final year of the project a full-scale evaluation of the project will be undertaken that will provide detailed, practical recommendations for the implementation of future biodiversity conservation projects in Vietnam. In addition, in line with GEF recommendations, the full-scale evaluation will consider such issues as knowledge acquisition, capacity improvement, environmental impact, etc.... It is acknowledged that many of the benefits/results of the project (e.g. regeneration of corridors) will not be realized in the short term (i.e. during the life of the GEF project), so provision will be made for longer-term monitoring of the project beyond the life of the GEF project.

## SCHEDULE/DURATION

29. Due to the comprehensive and reiterative process and wide participation in the project brief formulation,

it is expected that implementation could commence as soon as it has gained approval of the GEFOP, GEF Executive Council, and UNDP. This is expected by January 1996. Implementation covers a five year period. Please refer to the indicative management plan in Annex 3 for the approximate timing of activities in year one.

#### ANNEXES

1. UNDP's Environment and Natural Resources Management Framework
2. Detailed descriptions of two PARC sites.
3. Indicative management plan for first year of project
4. Review of STAP expert
5. Project budget on output by output basis
6. Incremental costs in standard reporting format

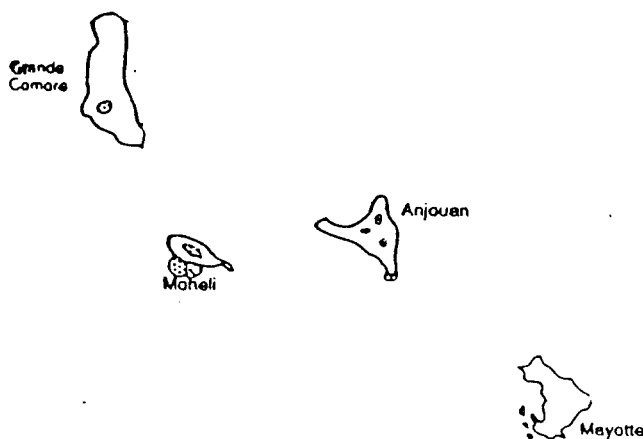
## ISSUES, ACTIONS, AND RISKS

38. The first issue of concern is local resource ownership and reform of the country's land tenure system. This is currently in progress, and promises greater security of ownership at the grassroots level, which may encourage fuller involvement of community members in the planning and implementation of protected area management plans. Secondly however, is the question of economic security, which must be strengthened if the national protected areas system is to be effective. The project will address this issue through facilitating the development of eco-tourism and alternative income-generating activities at the grassroots level. At the national level, the long term continuation of biodiversity conservation in the Comoros rests upon the financial resources of the Environmental Management Fund. Long term efforts however, must also be supported by conducive national policies and programs in the areas of population control, public health, agriculture, and rural development.

## INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

39. The project will be executed and implemented by the Ministry of Rural Development, Fisheries, and the Environment (MDRPE), and more specifically by the General Directorate for the Environment (DGE) and its regional services (SREs), who will take responsibility for establishing the national protected areas network, drafting legislation for their designation, and with village assistance, preparing management plans. The National Scientific Documentation and Research Centre (CNDRS) will provide technical back-up, design the biodiversity information system, and coordinate the participation of other national research institutions and international scientific missions. The Interministerial Advisory Committee for the Environment (CICE), the National and Regional Biodiversity Committees (CNB and CRBs), and the Protected Areas Committees (CAPs) will provide consultation and coordination at all levels of government and society. A Project Steering Committee (CDP) will be set up specifically to monitor and coordinate the GEF project activities and this will include representatives of other closely related ongoing or scheduled projects, in particular the World Bank's Agriculture and Environment project, the UNEP projects, and the European Union.

### Map of the Comoros showing proposed Protected Areas



**Annex 1. Project Financing and Budget (\$ US - 5 years)**

<b>PROJECT BUDGET</b>	<b>GEF</b>	<b>UNDP</b>	<b>Gov't</b>	<b>TOTAL</b>
1. Participatory Institutional Framework	200,000	200,000	30,000	430,000
2. Capacity Building	400,000	295,000	30,000	725,000
3. Mobilizing the FGE and local revolving funds	150,000		40,000	190,000
4. Establishing a National Protected Areas Network	710,000	100,000	40,000	850,000
5. Species Action Plans	300,000		40,000	340,000
6. Public Education	170,000		30,000	200,000
7. Economic Development Alternatives	290,000		10,000	300,000
Sub-total	2,220,000	595,000	220,000	3,035,000
Contingency (10%)	222,000		22,000	244,000
<b>TOTAL PROJECT BUDGET</b>	<b>2,442,000</b>	<b>595,000</b>	<b>242,000</b>	<b>3,279,000</b>

**Budget Showing GEF contribution by Item and Year**

<b>Years</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Personnel</b>						
International Consultants / 18 months	60,000	50,000	50,000	50,000	60,000	270,000
United Nations Volunteer / 1	30,000	30,000	30,000	30,000	30,000	150,000
National Consultants and others	21,000	21,000	21,000	21,000	21,000	105,000
<b>Operations</b>	50,000	50,000	50,000	50,000	50,000	250,000
<b>Subcontracts (evaluations/audits)</b>	-	30,000	-	40,000	50,000	120,000
<b>Training</b>	80,000	80,000	100,000	70,000	20,000	350,000
<b>Equipment</b> vehicles, boats, communications, crusher, office equipment	100,000	60,000	20,000	20,000	20,000	220,000
<b>Activities</b> Negotiation, inventories, economic alternatives, education, etc.	100,000	150,000	150,000	150,000	80,000	630,000
<b>Administrative support</b>	25,000	25,000	25,000	25,000	25,000	125,000
<b>Sub-Total</b>	466,000	496,000	446,000	456,000	356,000	2,220,000
Contingencies (10%)	46,600	49,600	44,600	45,600	35,600	222,000
<b>Total</b>	512,600	545,600	490,000	501,600	391,600	2,442,000

**Annex 2: STAP Technical Reviews**

**Technical review of GEF proposal  
"Island Biodiversity and Participation:  
Protected Areas Network for the Comoros"**

**1. General review:**

1. The project is specific in outlining institutional arrangements. These arrangements seem to be well established and could prove to be the best chance of success for the project.
2. The earlier establishment of appropriate governmental bodies, authorities, institutional arrangements and regulations to define and implement environmental policies seems to guarantee the general soundness of the project.
3. The GEF project is to be complemented by a variety of other projects currently developed or to be developed shortly by other Agencies in environmental fields or related fields.
4. The project proposal is relevant to global environmental concerns. In the case of the Comoros, the question is: How is it possible to ensure the sustainable development of a very poor country, guaranteeing at the same time the conservation of its rich but threatened Biodiversity? In terms of world Biodiversity, the significance of tropical islands is well established. Islands are unique laboratories of evolution, but fragile laboratories. As such, they deserve a special attention as was confirmed by the Rio Conference in 1992.
5. The priority of the project, generally speaking, is well established by the ecological significance of tropical islands, and particularly in the case of Comoros, thanks to the spectacular specificity of its indigenous fauna and flora (eg. *Latimeria Chalumnae* and *Philippia Comorensis*), be it marine or terrestrial. These species are today badly threatened. I personally visited Comoros thirty years ago and could watch at this time the local damages of human's activities on the magnificent flora of the Karthaba, up to the summit of this volcano. Since then, the population was more than doubled.
6. The second priority is the development. Should the current trend prove impossible to curb, then the sustainable development of this very poor country would be definitely jeopardized, and what is left today of its natural potential would be wiped out forever.
7. Having to comment mostly on the scientific aspects of the project, I have to regret that history of the Archipelago resulted in the separation of Mayotte from what must

be considered as an homogeneous islands group, sharing natural similarity and identical Biodiversity issues that would justify a common policy of conservation and environmental management. As a result of its political status as well as its GNP/C level, Mayotte is not eligible for GEF funding. Let me mention that another striking example of this situation is offered by New Caledonia in the South Pacific. Although one of the most remarkable hot spots of Islands Biodiversity (Endemicity ratio of vascular plants may exceeds 80%), New Caledonia could not be included in the South Pacific Regional Environment Program (SPREP)'s Biodiversity project recently funded by GEF, even though this territory is a member of SPREP.

## 2. Relevance to GEF:

The proposed project would be an important achievement in the conservation of biodiversity. The Comoros Islands are part of a remarkable regional grouping of archipelagoes from Mascarene to Seychelles, including Madagascar, in terms of insular terrestrial ecology and marine biology. This rich biodiversity is threatened today by population pressure and must be protected. While the production of economic resources is not sufficient to spare the natural potential, marine and land Ecosystems could be rapidly damaged beyond recovery.

Unique endemism of other islands of this part of the world, such as Rodrigues, Mauritius and Reunion were historically ruined by human permanent occupation shortly after being colonized, in less than one century. The striking living environments of the big island of Madagascar itself experienced great damages, although on a longer span of time, until today.

## 3. Objectives:

Objectives of the project, as defined by the Brief, are relevant and valid. They may however be considered as ambitious. The Project is designed to implement a conservation policy while, at the same time, creating alternative resources for the sustainable development of an Island State plagued by the lack of mineral resources and having to face a dynamic population growth.

Nevertheless, at this stage, the project objectives seem adequately focussed. Points 1 to 5 have reasonable chances to be achieved under two conditions:

1. Involvement and motivation, at every level of institutions and rural communities, should be as strong as expected.
2. Various projects from other funding Agencies on related issues should experience a real success if the project is to develop working connections with them.

One may wonder how Objective 6 could be achieved, given the weakness of the local scientific and technical communities.

On Objective 7, the question is: will the alternative resources obtained from the implementation of the conservation policy, eco-development and eco-tourism projects allow the project to carry on while



fulfilling new needs resulting from the end of environmental abuses (agricultural encroachment on forests, bushfires, destructive fishing) and from demographic expansion? In this respect, the real power and capacity of CNAD is questioned.

#### **4. Approach:**

Approach of the project as defined by the Brief, is clearly formulated. It seems to be appropriate and technically sound insofar that the principles will be accepted by the village communities. A great effort of education is supposed to make a majority of people environmentally conscious. This effort should be facilitated by:

- a. The comprehensive system of central and local justifications.
- b. The apparently strong village communities and Associations.

Concertation, education, as well as the expected success of the related development projects by other agencies should make the definition, promotion and implementation of a conservation policy easier. Training to environmental management will be accepted if the production of alternative resources can reasonably be expected and are produced at an acceptable rate. A few problems seem to have been overlooked:

- a. The question of natural hazards: The Comoros are volcanism and tropical cyclone prone. These risks and their recurrence should be considered in the identification of the protected areas in order to alleviate potential catastrophic damages on unique species or ecosystems. The possibility is however considered by the Brief when the program on the Livingstone Bat is mentioned.

Another risk to be considered is the possibility of damages to protected lowland coastal areas as a result of the sea level rise, should the climatic global change be confirmed in the next century.

- b. Socio-economic issues related to the implementation of the conservation policy should be addressed more closely. Village communities are described as highly coherent, highly disciplined groups, prone to take and implement collective decisions. Has this been ascertained? Nothing is mentioned about the gender role, a crucial point in an Islamic society where women seem to enjoy a special status.

What is known about the rivalry of one island against the neighbor, of villages to be involved in the delimitation of protected areas, of islands against the Grande Comore, of the real - historical - degree of independence, resulting in relative autonomy of an island like Anjouan? Has the role of the Muslim religion, and leaders as possible factors of success (or failure) of the policy of education and awareness be properly estimated?

- c. Finally, one may regret that the question of a possible association of Mayotte, as part of the island group socio-geographical unit was apparently neither discussed nor

explored and solutions proposed, even though they suppose political discussions.

The choice of the pilot-projects is relevant and a recommended approach particularly appropriate for Moheli. Details were missing for Anjouan and Grande Comore in documents provided.

## **5. Background Information:**

It seems to be the weak point of the proposal. Information provided seems to be relevant far from being comprehensive. Flora and fauna lists have to be completed, for instance in the field of Entomology, various orders of marine fauna with possible biological use. No mention is made of the question of possibly damaging introduction of alien species in the indigenous flora or fauna, if introduced species and other plantation species are mentioned with some domestic animals and cultivated foodplants. Which solutions do exist or have been imagined to control and/or eradicate dangerous introductions turned into pests?

About natural hazards, an inventory of risk-prone areas should be conducted prior any identification and limitation of areas to be protected, including coastal lowlands exposed to the effects of global change.

## **6. Funding Level:**

The political status of the FIRC, its economic level (GNP/C=520 US\$), the priorities that were defined at the first conference of the Convention on Biodiversity, and the significance of the natural environment of this country fully justify the funding level of the project.

Funding might be considered to be high. It is actually not significantly higher than the initial funding by GEF of the BD project designed to create protected areas with local community managements in the South Pacific Countries at the beginning of the 90's. This project is supervised by SPREP and 14 countries are involved with a population of about 2 million. Papua New Guinea is funded separately. Us and French territories are excluded. Initial funding was 10 million US\$.

Given the very low level of the Comoros resources, the local contribution is small. One may be surprised, however, by the weakness of the in-kind contribution of the Government (barely more than one third of the sum to be given for personnel seconded to the project). As far as the GEF contribution is concerned, a little more than half of the total sum will go to personnel and activities expenses, a normal ratio. The same observation can be made on Training and Equipments, whose share amount to about one third of the total. It is suggested that training allocation should be beefed up, considering the local needs and level.

The stimulation of the local economy is expected from the implementation of the project in a difficult local context. Central and local government awareness, active participation of the rural communities and associations to be involved are positive factors to be confirmed on the long run. Nothing is said by the Brief about the initial operation of the Fund For Environment (FFE) to be created as a result of the Constitutive Law on Environment (LOE). Nothing more is said of the new resources to be expected from other related projects, be they direct funding or resulting resources.

## **7. Innovation:**

Innovative aspects of the project, in my opinion are:

- a. The initial association of a wide range of appropriate governmental structures to the Project under the supervision of the MRDFE (ICCE, RCCE).
- b. The initial existence of specific institutional framework (CLE, APE).
- c. The initial existence or early planned creation of coordinating authorities or groups at various levels (GDE, RSE, NCP, RCP, NCDSR).
- d. The early and strong involvement of local communities and NGO's awareness of some groups (ULANGA) is encouraging.
- e. The effort to avoid duplications, particularly by considering closely the objectives and expected results of related projects developed by other agencies.
- f. The coordination of the project with Governmental action from other Ministries than MRDFE in the areas of health, population policies, etc..., that may contribute to the success of environmental policies.
- g. A real concern to create operating vertical and horizontal exchanges between people and/or groups involved in the project, be it in preliminary discussions, coordination of actions or decision-making processes.

## **8. Strengths/Weaknesses:**

The project's strength results mostly from the above mentioned innovative aspects (strong administrative and institutional local underpinning), providing that red tape can be reduced to an acceptable level. Decision making levels of the various committees should be clarified in this respect. Weaknesses might be:

- a. Status of the land, revision of the land laws may prove a long and tedious process as usual, because of the intrication of Muslim, colonial and customary rules.
- b. Although it is acknowledged by the Brief, the lack of updated Data and/or partial missing of basic data should not be neglected. What could be produced, in this respect, by the project itself, should not be over estimated (e.g. the benefits quoted by the brief "in terms of the potential of bio-technologies, scientific and medical research"). Taxonomy projects or the research of potentially useful substances in flora and fauna are long and tedious.
- c. A related concern is the weakness of the local scientific community and infrastructure. Even if one considers that the scientific and technical leadership of the local NCDSR will only be effective as mentioned, in collaboration with

international and "and other local research institutions". Very few is said of the later. (see objective 6: "IRDA, IFERE, autres laboratoires" all unidentified. See also p. 18/41, French text, about "les autres organismes concernés par la recherche."). NCDSR's research capacity will most probably have to be improved by the appropriate training of existing (and new) scientists to deal with the tasks resulting from the implementation of the project. Existing and proposed investment (Canadian Museum of Nature, 1 UNV) may prove insufficient to guarantee full scientific soundness.

- d. The definition and collection of biological and socio-economic indicators used to monitor the program of various actions should be clarified. Who will define, who will collect, who will interpret the indicators?
- e. Some of the local conditions, left unmentioned by the Brief might prove to be basic weaknesses and deserve attention:
  - National Integration: The creation of local bodies is to be praised, but great differences (social, economical, even political) still do exist between islands. Local powers might be reluctant to accept central governments' (or what could be perceived as) decisions, given the strong local identity.
  - The question of gender: Comoros women, in a rather strict Muslim society seem to enjoy a higher status than in other Islamic countries. What would be their role in the definition and implementation of the project?

### **Annex 3: Incremental Costs Analysis**

#### **1. Broad Development Goals**

Under the framework of its National Environmental Policy the National Environmental Action Plan of the Federal Islamic Republic of the Comoros, approved in October 1994, calls for:

- (i) Knowing and promoting knowledge of the national heritage;
- (ii) Instituting efficient public services, agencies (both central and decentralized); and adopting appropriate legislation for the environment;
- (iii) Training specialists and raising environmental awareness among all segments of the population; and
- (iv) Ensuring a concerted, rational management of the national heritage.

#### **2. Baseline**

The Comoros started making significant efforts to address its environmental problems, and to ensure the protection of its important biological sites, in the mid 1980's. For example, as early as 1987, an FAO mission examined the possibility of establishing a national marine park to protect the coral reefs along the southern coast of Moheli. However, due to the absence of a suitable policy environment little progress was made until the early 1990's when a UNDP-funded project entitled "Support to National Capacity Building Activities in the Field of the Environment", executed by UNESCO and IUCN, initiated a process leading to the formulation of a National Conservation Strategy. This in turn led to the development and adoption of a National Environmental Policy and the preparation of an Environmental Action Plan.

Within the same period, numerous instruments required for the conservation of the Comoros' natural heritage were created, including:

- 1) the Interministerial Advisory Committee on the Environment (CICE); and
- 2) the General Directorate for the Environment (DGE).

Several other legislative, scientific and education initiatives were also launched, including: 1) ratification of the International Conventions on Biological Diversity, the Law of the Sea, Wetlands of International Importance (the Ramsar Convention), International Trade in Endangered Species (CITES), the World Heritage Convention, and the Regional Convention for the Protection, Management and Development of the Marine and Coastal environment of East Africa;

- 2) the adoption in 1994 of the Framework Law for the Environment (LCE) and the creation of the Environmental Management Fund (FGE);
- 3) the identification of the major species, ecosystems and habitats in the country to ensure the conservation of national biodiversity; and
- 4) support to international NGOs to raise awareness and involve village communities in the conservation of the environment in general and biodiversity in particular.

Within the DGE the Comoros government has assigned one individual to be responsible for the coordination of a system of national parks. Its in-kind contribution of personnel,

equipment and facilities is estimated to be \$242,000, together with the \$595,000 to be provided by UNDP, is considered to represent the baseline - what the government would do on its own to protect biological diversity in the Comoros.

### **3. Global Environmental Objective**

The global environmental objective to be achieved is the protection of some of the least studied yet most threatened biotas of the Indian Ocean including: 43 species of endemic orchids, fauna and nesting avifauna with rates of endemism of 25% and 75% respectively, one Ramsar site, coral reefs included in the recent World Bank/IUCN study of important coral reefs of the world, and various endangered and threatened species including the scientifically unique and world renowned Coelocanth.

### **4. GEF Alternative**

The main challenge confronting the design of the GEF project was how to establish a series of protected areas, and protect highly localized species outside these protected areas, in the absence of a central government able to furnish technical expertise, infrastructure, and operating costs to manage a traditional protected areas system. This is the same challenge that had confronted earlier efforts examined by FAO and others and to which a solution had not been found.

The GEF alternative is to establish a national protected area system based on local cooperation and management. Through education, negotiation, and a very limited amount of local funding derived from a national environment fund and ecotourism revenues, local community managed protected areas and endangered species protection programmes are envisaged. Discussion has taken place with the communities concerned who have expressed a willingness to try the approach. A key factor in project success will be the efforts of closely related projects run by the EU and the World Bank which are intended to improve agricultural and resource management practises.

### **5. System Boundary**

The three islands of the Federal Islamic Republic of the Comoros are part of a four island group which includes Mayotte, the latter still being under French control. Politically and economically the activities of the project will affect the whole three island nation in that ecotourism interest should be increased. However, this is not likely to be a very large source of revenues and it will be offset by a reduction in access to certain resources for the local communities living around the five protected area sites and those who find themselves living in an area of major import for a species action programme.

Ecologically the terrestrial systems are limited to the islands, however, the coral reef and marine systems form a part of the larger Indian Ocean. The issues associated with the conservation of the wider Indian Ocean are being addressed through a variety of related programmes, both GEF and non-GEF funded, in particular the Coastal Zone and Endemic Flora project of the Indian Ocean Commission, funded by the EU, the Coastal Areas Planning Project, funded by UNEP, and the Western Indian Ocean Marine Biodiversity Programme, currently under development by GEF (UNDP with UNEP and the World Bank).

## 6. Incidental Domestic Benefits

Incidental domestic benefits will accrue to two groups:

(i) those living immediately around the five protected area sites and those who find themselves living in an area of major import for a species action programme. In compensation for suffering reduced access to certain resources they are likely to find enhanced benefits in terms of support for alternative revenue generating activities through improved agriculture or microprojects as delivered by the French and World Bank programmes. They may also gain very limited revenue earning potential from ecotourism opportunities.

(ii) those individuals employed in the tourism sector which should experience a limited amount of growth.

## 7. Costs

Total project costs associated with establishing a national protected areas system and species action plans are \$3,279,000. Of these the Comoros government will provide \$242,000 while UNDP will provide an additional \$595,000 through its Capacity 21 programme.

## 8. Incremental Cost Matrix

	Costs	Domestic Benefits & Disbenefits	Global Environmental Benefits & Disbenefits
Full Cost of GEF Alternative	\$ 3,279,000	Limited ecotourism benefits nationally and to some local communities. Restricted access to resources for some communities.	Unique species and ecosystems of Comoros maintained.
Cost of Baseline Activities	Government \$ 242,000 UNDP \$ 595,000 Total \$ 837,000	No increase in ecotourism due to absence of attractive features. No limitations on natural resource access for any communities.	Insufficient effort to achieve protected area establishment or species conservation. Unique species and ecosystems largely lost.
Incremental Costs	Proj. Cost \$ 3,279,000 Baseline \$ 837,000 Incr. Cost \$2,442,000	Limited ecotourism benefits nationally and to some local communities. Restricted access to resources for some communities.	Unique species and ecosystems of Comoros maintained.

## 9. Agreement

The agreements on levels of resource access limitations for each local community will be negotiated with each community as a part of establishing the protected areas or species action plans.

## Acronyms

CAP	Protected Areas Committees
CBD	Convention on Biological Diversity
CDP	Project Steering Committee
CICE	Interministerial Advisory Committee for the Environment
CNAD	National Coordination for Development Associations
CNB	National Biodiversity Committee
CRB	Regional Biodiversity Committee
CRCE	Regional Advisory Committees for the Environment
DGE	General Directorate for Environment
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FGE	Environmental Management Fund
GEF	Global Environment Facility
GIS	Geographic Information System
IFERE	Institute for Training, Education and Research
IRDA	Institute for for Agricultural Research and Development
IUCN	World Conservation Union
LCE	Framework Law on Environment
MDRPE	Ministry of Rural Development, Fisheries and Environment
PAE	Environmental Action Plan
PNE	National Environment Policy
RFIC	Islamic Federal Republic of the Comoros
SRE	Regional Environmental Services
UNDP	United Nations Development Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNV	United Nations Volunteers
WHO	World Health Organization
WTO	World Tourism Organization
WWF	World Wildlife Fund



## **Associated Programs**

**UNDP**, in cooperation with **UNESCO** and **IUCN**, supported national environmental programming between 1992 and 1994, which led to the creation of CICE, the structuring of the DGE, the training of personnel, the adoption of the Framework Law on the Environment, and the adoption of several international environmental conventions. The planned **UNDP Capacity 21** project, entitled "Sustainable Development and Environmental Management Capacity", will build on these foundations. Its main activities will include assisting the government of the Comoros in the creation of CRCEs, the internal reorganization of the DGE, the strengthening of SREs, and the training of associated management staff.

**UNEP** is executing the Comoros component of the EAF5-EAF6 project "Protection and Development of Marine and Coastal Areas in East Africa", which is being implemented by **FAO**. In conjunction with **WFP**, **UNEP** is also implementing *in-situ* and *ex-situ* training activities, concerning more specifically coastal area management and GIS use. **UNEP** is also launching a second phase of its "Eastern African coastal and marine environment resources database and atlas project" (EAF/14). The projects first phase focused only on Kenya but the tested methodologies for summarizing and distributing information on the coastal resources in a format accessible to planners and decision makers, as well as the wider community, will be extended to other Indian Ocean countries including the Comoros in 1995 and 1996. The project will involve the establishment of a GIS.

**FAO** is implementing projects, both with its own funds and with **UNDP** support, regarding forest conservation in connection with changes in agricultural practices. The initial activities under this project consisted of surveys and assessments of the remaining forest formations.

**The World Bank**, in cooperation with the **FAO Investment Centre**, is currently planning an "Agriculture-Environment" project, whose main activities will include institutional support for the MDRPE, agricultural rehabilitation, environmental protection through the creation of village protected areas and the design and implementation of an environmental information system. Once the diagnostic phase is complete, the project itself should begin in 1996.

**The European Union** is implementing various environmental and biodiversity conservation projects in the Comoros, including:

- A project supporting the Indian Ocean Commission countries within the framework of the seventh European Development Fund (FED/COI/ENV). This project, which began in April 1995, has two components: coastal and marine environment, and terrestrial environment and endemic flora. Its aim is to set up databases on the coastal and marine environments (ecology and oceanography, socioeconomic assessment of biological resource use, pollution and degradation of the flora) by networking with **UNEP's** Infoterra system. The project is aimed at ensuring the conservation of flora biodiversity at the genetic level through the creation of regional botanical conservancies.
- A fisheries project, to be completed in 1995, but with plans to continue. One of the outputs--the creation of fish concentrating devices (FCDs)--alleviates fishing pressures on the reefs and on the external shoal, thereby indirectly reducing the catches of coelacanths.
- A funding project, which set up monies available to local communities for the implementation of micro-projects supporting the conservation and sustainable exploitation of natural

resources. The funds made available were largely under-utilized, as the beneficiaries did not have sufficient capacities to design, submit, and manage such projects.

**France**, through its cooperation mission and the Caisse française de développement (CFD), has been involved for several years in an integrated rural development project on the island of Mohéli. This project combines several types of activities to support the environment, in particular agroforestry for soil conservation and streamflow control. This project is due to end in 1995, but the feasibility of a new phase is currently under discussion between France and the Government of the Comoros.

Two **Canadian** organizations are involved in conservation activities, namely:

- The Canadian Museum of Nature, which signed a cooperation agreement in Nassau in 1994 with the Comoros to produce a "National Monograph on Biodiversity" and which represents one of the obligations undertaken by the Comoros under the Biodiversity Convention.
- The *Centre canadien d'études et de coopération internationale* (CECI), which is currently implementing an integrated community development program, and which has former experience in the Comoros with a project in environmental education. Key to its success in the country has been its participatory approach at the village level.

**The Jersey Wildlife Protection Trust** and **Fauna and Flora International**, under agreement with CNDRS, have been conducting a project aimed at the conservation of the Livingstone fruit bat (*Pteropus livingstonii*) for several years. The species is endemic to the Comoros and is threatened as a result of the destruction of its high altitude forest habitat. Other organizations participating in the project include the University of Bristol and another British organization, Action Comoros. Action Comoros is also involved in activities concerning other species (butterflies, lemurs).

**The Max Planck Institute** in Germany has conducted missions to the Comoros to study the coelacanth (*Latimeria chalumnae*). It is collected baseline data and is preparing a plan for the conservation of the species.

**The Peace Corps** is providing volunteers for educational programmes, including environmental education. They are participating actively in awareness raising among the village populations.

**CARE International**, due to financial problems and other priorities, just recently terminated its operations in the Comoros.

## PROPOSAL FOR REVIEW

<b>Project Title:</b>	<b>Creating Protected Areas for Resource Conservation (PARC) in Vietnam Using a Landscape Ecology Approach</b>
<b>GEF Focal Area:</b>	Biodiversity
<b>Country Eligibility:</b>	Convention Ratified 31 October, 1994
<b>Total Project Costs:</b>	US \$ 6.696 million
<b>GEF Financing:</b>	US \$ 6.041 million
<b>Country Contribution:</b>	US \$ 655,000 (and in kind)
<b>Associated UNDP/IPF and GEF Projects:</b>	US \$ 4.55 million
	Conservation Training and BAP - US \$ 3.0 million
	Environmental Awareness - US \$ 553,000
	Sub-Regional Biodiversity Conservation - US \$ 1.0 million
<b>GEF Implementing Agency:</b>	UNDP
<b>Executing Agency:</b>	United Nations Office of Project Services
<b>Local Implementing Agency Counterpart:</b>	Ministry of Forestry
<b>Estimated Approval Date:</b>	January 1996
<b>Project Duration:</b>	5 years
<b>GEF Preparation Costs:</b>	None
<b>Government Endorsement:</b>	March 4, 1995

## COUNTRY AND SECTOR BACKGROUND

1. Vietnam remains one of the poorest countries in Asia with a per capita GDP of approximately \$200. In addition, years of isolation from many of its neighbors have left a dearth of appropriate managerial resources in many aspects of society, a major constraint to development. Fiscal constraints have left Vietnam unable to rebuild and maintain its infrastructure. However Vietnam's position in the Human Development Index is relatively high due to a well educated population, a comprehensive health service, and the strong position of women in society. Vietnam's population in 1992 was 70.8 million with an annual growth rate of approximately 2.3%, making it the 12th most populous country in the world. The economic future for Vietnam looks bright as it is currently experiencing a period of profound transition from a centrally planned to a market-oriented system. The economic situation is extremely dynamic with current GDP growth (1992) estimated at 8.3% in real per capita terms. This rapid rate of growth is occurring in an economy which is still largely agrarian (39% of GDP in agriculture) but is rapidly moving toward a more industrialized and services base. These structural changes and other developments create an immediate and *once-only opportunity* for the development of appropriate policies, mechanisms and resource exploitation practices.

2. Vietnam has a land area of 330,363 km<sup>2</sup>. The forests, waters and wetlands of Vietnam contain a great wealth of flora and fauna. It is estimated that the nation's forests contain up to 12,000 species of higher vascular plants, of which 2,300 are known to be used by humans for food, medicines, animal fodder, timber, oil, and many other purposes. The fauna of Vietnam is also very diverse. Some 276 species of mammals, 826 species of birds, 180 species of reptiles, 80 species of amphibians, 471 species of freshwater fish, and about 2,000 species of ocean fish are known, in addition to many thousands of invertebrate species. The flora and fauna in Vietnam also show a very high level of endemism and a high degree of local distinctiveness, with many endemic species of great conservation interest. Twenty-eight species of mammal, 40 species of bird, 7 species of reptile, and one species of amphibian found in Vietnam are listed in the IUCN's (1990) Red List of Threatened Animals. Indicative of Vietnam's great biological wealth is the recent discovery of two large mammal species, the saola (Vu Quang ox) and the giant muntjac. Notably, this globally important biodiversity is being threatened as agricultural encroachment, population pressures, and unsustainable land use practices lead to a destruction and fragmentation of habitats.

3. The Government of Vietnam is seriously committed to biodiversity conservation. The first national park was established in 1962, despite the difficulties raised by the then ongoing conflict. In 1985, Vietnam adopted a *National Conservation Strategy*, and later the comprehensive *National Plan for Environment and Sustainable Development* (NPESD). The NPESD advocates the interdependence of environmental protection and economic development. In accordance with this new thinking, the Government and the UNDP Country Office in Vietnam prepared during 1992-93 a programmatic and strategic framework for Technical Assistance in Environment and Natural Resources Management for Vietnam (ENRM) (See Annex 1 for ENRM framework). The present project was identified and designed through this preparation process to be a core element of this Technical Assistance programme. It is important to note that the projects within this ENRM have been designed so that they are complementary to one another, and that the benefits of any one project is not limited to that project only, but will also facilitate/enhance the implementation of any other project.

4. Recently, the Government has reviewed and revised its national forestry policies. Regulations which affect wildlife, forest and coastal management both directly and indirectly, are being drafted in rapid succession. Most notable among these are Government Decree No. 39/CP (May, 1994); Law on Land (1993); and Forestry Protection and Development Act. A major result of these initiatives has been to shift responsibility of forest management and protection to local communities. Such policies may provide for greater equity, but they do not necessarily guarantee greater protection of biodiversity. They need to be complemented by programs that assist in incorporating local

communities into plans to manage and protect biodiversity, not only to ensure that new unsustainable management practices do not begin, but also to be sure that existing sustainable ones are not lost. The Law in Land in particular, whose emphasis is on the allocation and uses of non-forestry land, provides the legal framework for action within which the PARC project will operate. As this law is very new, it is proposed that the PARC project will create one possible means by which this Law will be implemented, providing for community inclusion in park management and associated multi-use zones in Vietnam.

5. The proposed Protected Areas for Resource Conservation (PARC) project has also been identified as a priority in the context of Vietnam's Biodiversity Action Plan which was prepared with the assistance of a GEF Pilot Phase UNDP/GEF project (Conservation Training and Biodiversity Action Plan - VIE/91/G31). An early conclusion of the BAP discussions was the need for integrated protected area management, consisting of a mix of large and smaller core areas and for adjacent sustainable resource use zones, as one of the most important methods for preserving critical ecosystems, landscapes and biodiversity in Vietnam. This Pilot Phase project also developed a national conservation training programme consisting of field training for forest guards working directly with villagers in the forests; field training for park directors and deputy directors focusing on participatory protected areas management approaches; field training for protected area science offices in the areas of wildlife management and sustainable forest management; and advanced training for officials of the Ministry of Forestry, the Ministry of Science, Technology and Environment, the Forestry College, the Institute for Ecology and Biological Resources (IEBR).

6. The PARC project would build on these human and institutional capacities developed in the GEF Pilot Phase project. Specifically, capacity would be built within staff of the PARC site, including the Protected Area Director and Deputy Director, Science Officers, Forest Guards, and Community Extensionists. Technical transfer provided by the CTA and UNVs working in the PARC sites would be a valuable tool for capacity building. Also benefitting from capacity building through the implementation of the PARC project, would be the Provincial Forest Protection and Agriculture Departments, Provincial People's Committees, District Forest Protection and Agriculture Offices and District and Commune People's Committees in the respective districts and provinces of the two selected sites. Extension programmes coordinated through the local offices of the Women's Union, Youth Union and Farmer's Union would also enhance the ability of these important mass organizations to outreach to their constituents.

## **PROJECT PREPARATION**

7. The initial idea for a model integrated protected areas management project specific to the environmental situation in Vietnam was proposed in late 1992 by the Vietnam Forest Protection Department (FPD) and the Forest Inventory and Planning Institute (FIPI). These two departments within the Ministry of Forestry are responsible for protected area management in Vietnam. The idea for a GEF project focusing on the in-site protection of biodiversity was further discussed at the Ministry of Science, Technology and Environment (MOSTE) during the early planning meetings of the Biodiversity Action Plan (BAP) in February 1993. It was agreed by the BAP Consultative Team of about 25 Vietnamese scientists and conservationists, that protected area management in Vietnam was still in its infancy and needed suitable models and management systems more adapted to the fragmented ecosystems and heavily populated conditions of Vietnam. An early conclusion of the BAP discussions was that integrated protected area management, consisting of a mix of large and smaller core areas and adjacent sustainable resource use zones, was one of the most important methods for preserving critical ecosystems, landscapes and biodiversity in Vietnam. In March 1993, as a result of these discussions, the "Protected Areas for Resource Conservation" (Vietnam PARC) concept was formally prepared as one of three complementary GEF pipeline projects for Vietnam, the other two focusing on watershed management and coastal marine resources. The PARC Project Brief was further developed

by a multi-disciplinary team with inputs and ideas presented by a large number of people/institutions.<sup>1</sup> In addition to the current project, the BAP of the pilot phase GEF project has spawned nearly the entire ENRM programme for Vietnam.

8. Further reviews of the project were undertaken by the **Donor Working Group for Environment and Natural Resource Management**<sup>2</sup> in June 1993, and during July-August 1993 as part of the BAP consultative process, including discussions with provincial, district, and community leaders in eight provinces. The project was discussed with the State Planning Committee (SPC) in March 1993. This is the institution responsible for the coordination of all international assistance to Vietnam, including assistance originating from global and multi-lateral funds such as the GEF. The SPC approved the project idea in April 1993 and have provided guidance, comments and ultimately approval for each stage of the development of the project.

## PROJECT OBJECTIVES

9. The overall development objective of this five year project is to conserve Vietnam's globally significant biodiversity through implementation of a landscape ecology approach to protected areas management which will seek to find a fair balance between the provision of ecologically sound livelihoods and the conservation of biodiversity in Vietnam's unique socioeconomic conditions. The project will introduce, develop and implement the PARC concept which is based on a participatory approach, an open consultative process, and the appropriate integration of conservation and development. The resulting capacity to implement the PARC project in Vietnam will be applicable to all areas in the country where biodiversity is fragmented, population pressure high, and socio-economic development integrally linked to conservation.

10. The global benefits to be obtained from the input of additional GEF funds above the normal Government of Vietnam contribution would include strengthening of Vietnam's capacity for:

- Preservation of endemic animal species, such as the severely endangered kouprey, tiger, the Tonkin snub-nosed monkey and many others. Besides their intrinsic value, they can provide important genetic material for domesticated animals and for evolutionary research.
- creation of carbon dioxide sinks through tree planting programmes.
- conservation of biodiversity of global significance.
- demonstration of a model approach to natural resource conservation applicable to other areas around the world.
- demonstration of the sustainable use of the components of biodiversity to ensure sustainable livelihoods for local human populations.

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<sup>1</sup>Provincial, district, and community leaders in eight provinces; Pham Monh Glao/Nyuyen Nhu Phuonh of the MOF Forest Protection Department; Vu Van Dung, Nguyen Ngoc Chinh and Do Tuoc of Forest Inventory and Planning Institute (FIPI); Professor Hoang Hoe of the Vietnam Forestry Association; Profession Vo Quy and Hoang Van Thang of the Centre for Natural Resources Management and Environmental Studies (CRES); Dr. Nguyen Van Truong of the Institute of Economic Ecology; Ngo Si Hoai of the MOF International Cooperation Department; Nguyen Ba Thu of the Cuc Phuong National Park; Huynh Van Keo of the Bach Ma National Park; Hoang Ba Pho of the Lam Dong Provincial Forest Protection Department; Tran Van Tri of the Ha Tinh Provincial Forest Department; Yannick Glemarec and Justine Elmendorf of UNDP/Hanoi; Shanthini Sawson and David Hulse of the VIE/91/G31 project and WWF, Victoria Heymell of the IUCN.

2. **The Donor Working Group on Environment and Natural Resource Management is open to all major multilateral, bilateral and non-government organizations working in Vietnam, and meets regularly on a thematic basis.**

## PROJECT DESCRIPTION

### *Objective 1. Creating a Participatory Institutional Framework for Biodiversity Conservation*

11. While the formulation of a National Environmental Action Plan and the creation of institutional structures such as the CICE to oversee its implementation are signs of substantial progress, much remains to be done. National and regional institutions must gain the capacity to implement their plans, while local organizations must be created and/or supported to manage related village-level initiatives. One of the first steps will be to assist the DGE to carry out its mandate in biodiversity conservation by supporting the designation of an official to oversee Protected Areas and Biodiversity. Then, to build on the structures in place and to encourage cooperation and coordination between the national, provincial and local levels, a National Biodiversity Committee (CNB) will be established, along with Regional Biodiversity Committees (CRBs) for each island. These will provide both advice and coordination for biodiversity activities in general in the Comoros. The CNB will be composed of representatives from indigenous NGOs and research institutions, the Biodiversity Officer from the DGE, and the executive committee of the CICE, with the participation (on invitation) of international agencies/ organizations, and bilateral missions. Similar Protected Area Committees (CAPs), will be created at the local level which will have direct responsibility for managing each protected area. The CAPs will consist of local community representatives, traditional leaders, representatives from the private sector and other concerned local associations, local government officials, and the DGE Protected Areas Coordinator. Regular meetings will be held between local, provincial, and national levels to ensure cooperation and coordination among all parties. Finally, a Project Steering Committee (CDP) will be established specifically for the GEF project and will be composed of members from the CNB, donor organizations (UNDP, UNEP, the World Bank, FAO, etc.) and international NGOs directly involved in project implementation.

### *Objective 2. Capacity Building for Biodiversity Conservation*

12. This part of the project includes activities designed to build the sound institutional capacity and the conducive legislative framework necessary to ensure effective implementation of biodiversity and protected areas activities under the National Environmental Action Plan. First, community, non-governmental and government officials from local, regional and national levels of the DGE, SREs, CNB, CRBs and CAPs will be trained in the selection, delimitation, establishment, planning, management and monitoring of protected areas, as well as in species conservation techniques. In addition, special training will occur at the village level, focusing upon ecosystem restoration, biodiversity conservation, and the rational planning and management of each site's natural resources. Third, special enforcement and protection agents selected by the local communities will be trained in the implementation of protected area operational and management plans. National Gendarmerie, the Maritime Gendarmerie, and the Customs office will also participate in these training activities. Finally, the project will assist the MDRPE to formulate appropriate legislation and policies in biodiversity conservation. These will support the categorization of protected areas and their uses, forest management, etc.

### *Objective 3. Operationalize the Framework Law's Environmental Management Fund to Ensure Financial Sustainability for Biodiversity Conservation Activities*

13. The project will support the operationalization of the Comoros' Environmental Management Fund (FGE), established under the Framework Law on the Environment. This fund will be used to cover some of the costs associated with implementing the law itself, as well as recently ratified international

environmental conventions. The operationalization of this self-sufficient nationally-overseen financial source for environmental activities is especially attractive since external funds for biodiversity projects are short-term. The GEF project will help to develop an appropriate administrative framework and mechanisms for disbursement. It will also offer training to designated management staff charged with disbursing the funds. It is anticipated that monies for the FGE will come from tourism revenue (taxes on air travel, hotel accommodation, etc.), as well as fines and voluntary contributions.

14. While the FGE will fill the financial gap at the national level, local level biodiversity management costs must also find a permanent funding source. The GEF project will establish a system of local revolving funds, supported in part from the national fund and in part from locally-generated tourism revenues (tours and excursions, access fees, etc.). Local income generated through tourism may be directed towards the cost of local level management of the protected areas. Local Protected Areas Committees (CAPs) will manage the revolving funds.

*Objective 4. Establishing a National Protected Areas Network*

15. Given the lack of government resources, actual establishment of the national protected areas network will rely to a large extent on village-level management. The GEF project will assist the government in a number of activities to establish this decentralized approach, including negotiations with local communities and NGOs for the delimitation and the zoning of activities, as well as participatory planning sessions to prepare, adopt and implement individualized management plans.

16. Review of existing biodiversity information and discussions held at the national seminar in 1993 led to the identification and prioritization of the major sites for biodiversity protection. These include two primarily marine and coral reef sites and three terrestrial sites as follows:

- The marine and littoral ecosystems of the southern coast of Mohéli, including Niamoucheli and Boundouni lake (site designated under the Ramsar Convention);
- The peninsula of Binbini and the islet of La Selle near Anjouan;
- The natural forest on the crater of Mohéli;
- The forested region of Karthala on Grande Comore;
- The relict forests on Anjouan.

17. While the above locations have been prioritized for protection and conservation activities, other areas deemed to be important for species protection may be added to the network as additional biodiversity information emerges. This network of locally run national protected areas will complement the village-level protected areas proposed by the World Bank Agriculture and Environment project. Consultative discussions have been carried out with local communities around proposed protected areas by the UNDP mission. The communities agreed to participate in the establishment of protected areas. Exactly what access to resources that the community will give up will be negotiated as part of the establishment of the protected areas. Failure to achieve agreement will lead to withdrawal of GEF financial support for that particular site.

*Objective 5. Action Plans for Species Conservation*

18. While the establishment of a national protected areas network is a crucial first step to protect many of the Comoros' endangered or threatened species, additional conservation activities will be necessary to restore populations of some species to viable levels and individual species actions plans



will be developed for species both within and outside the national protected areas system. Currently three species action plans are already under development:

19. Conservation of the Livingstone Fruit Bat--has been led by two NGOs, the Jersey Wildlife Preservation Trust and Action Comores. Jersey Wildlife has established a captive breeding program for the Livingstone fruit bat in the hopes of strengthening their numbers in the wild (now estimated at less than 400 individuals). Part of the success of this project has come with the public education work done by the indigenous NGO, Ulanga, as well as Action Comoros' data collection project, which provides local residents with additional income.

20. Conservation of the Coelacanth--is being led by the Max Planck Institute with some support from the French government and technical support from the World Bank. Project components include further research on the species and efforts to raise the public's awareness of the species' ecological significance.

21. Conservation of the Scotts Owl-- will involve consolidation of protected sites for nesting, targeted public awareness activities, and, depending on the final outcome of action plan development, reintroduction of individuals.

22. This GEF project will support further work with the Livingstone Fruit Bat, the further development of the Scotts Owl Plan, as well as identification of other critically endangered species of flora and fauna and the preparation of conservation action plans.

#### *Objective 6. Strengthening Public Commitment*

23. While information on the predicament of endangered species is spreading through local education projects currently being implemented by organizations such as Ulanga and the Peace Corps, such efforts must be mainstreamed to reach a larger audience. The project will support these groups to plan and implement a broader coordinated public awareness campaign to increase the general public's knowledge of the importance of biodiversity and its conservation. The campaign will be aimed at all levels and facets of society, from fishermen and farmers, in particular women who in addition to often being farmers are also responsible for the gathering and utilization of wood fuel and the collection of sand, to school children. In addition the project will assist the Ministry of Education and the DGE and CNDRS to train educators in biodiversity conservation and develop a formal national environmental education curriculum for use in primary and secondary schools. The purpose of the campaign is to build a strong base of popular support for biodiversity conservation in the Comoros and is designed to follow the example of a successful IUCN environmental awareness project carried out on the small Caribbean island St. Lucia

#### *Objective 7. Initiating Sustainable Economic Alternatives*

24. Biodiversity conservation plans may be implemented, but without economic alternatives for farmers, fishermen and others that depend on terrestrial and marine resources for their livelihood, the prospects for successful conservation are slim. In order to discourage damaging exploitation-intentional or otherwise- of threatened species and fragile ecosystems, and to reinforce the newly established national protected areas network, the project will provide funds to organized community groups seeking to implement economically feasible and environmentally friendly alternative income generating projects. Money will be available to support eco-tourism initiatives, alternative fishing

techniques, stone crushing for construction, and other activities not covered within the World Bank's agricultural development activities. Emphasis will be placed on the development of eco-tourism at the local level, with support provided to the training of guides, production of materials, and the like. Eco-tourism has great potential for development, given the islands' plethora of natural attractions, relative accessibility, supportive national policies, and tourism's general growth in the Indian Ocean region and South Africa.

25. To encourage applications for funding, orientations will be held for community members and groups. Similar "micro-realization" projects are being conducted in the Comoros, in particular by the EU, the French cooperation agency, and the Canadian cooperation agency (CECI). Their potential for success lies in the planning of an orientation program for community members, as well as the design of a user-friendly funding mechanism.

#### **RATIONALE FOR GEF FINANCING**

26. The government of the Islamic Federal Republic of the Comoros ratified the Convention on Biological Diversity on 29 September 1994. The project builds on recent initiatives by the government to establish institutions and instruments for the protection and conservation of biodiversity. The project is in a unique position to assist the government in carrying forward these initiatives by providing support for capacity building, a biodiversity information system, the implementation of conservation action plans, environmentally friendly alternative economic activities, and a well-coordinated environmental education campaign. Concrete mechanisms for establishing and managing a network of national protected areas will be established through institution-building activities, creation of a conducive legislative and policy framework, and the participation of local stakeholders. . This project will act as a financial and technical catalyst that will mobilize existing biodiversity plans by producing concrete activities and results.

27. The Comoros biogeographic region is of global significance in view of its high biological and ecologic diversity, its impressive degree of endemism, and the economic potential of many of its genetic resources. But reversing unsustainable environmental exploitation and restoring degraded ecosystems to their full potential is key not only to the preservation of the Comoros' globally significant plant and animal species, but also for the economic development of the archipelago. Without this project and associated parallel activities, population pressure and environmental degradation will leave the islands increasingly impoverished and dependent on food aid and other forms of external assistance to meet their survival needs.

28. Despite the current socioeconomic difficulties, the government attaches great importance to the concept of sustainable human development (Mitsamiouli Declaration, 1994). Unfortunately however, it is unable to provide all the financial resources required for the implementation of the National Environment Action Plan, the Framework Law for the Environment, and the biodiversity strategies contained therein.

#### **SUSTAINABILITY AND PARTICIPATION**

29. Government commitment to this project specifically and to biodiversity conservation generally is strong. The government has demonstrated this by adopting the PNE, preparing the PAE, and

strengthening the administrative structures required for their implementation. The adoption of the Framework Law for the Environment, the ratification of most of the major international environmental conventions, and proof of financial commitment by the setting up of a national Environmental Fund further attest to government commitment. As the project falls within the mandates of the MDRPE, the CICE, and the DGE, it will contribute to the strengthening of these structures, leading to greater sustainability.

30. In addition to the high level of government commitment, there is a growing environmental awareness among rural communities which have mobilized village associations and local NGOs to engage in conservation measures. Indigenous associations and non-governmental organizations, such as *Ulanga*, have successfully carried out numerous environmental initiatives at the grassroots level, and have great potential for further action and coordination. At the village level, the social structure facilitates such grassroot actions. Nationwide, leverage is assured through the *Coordination Nationale des Associations pour le Développement* (CNAD), which is represented on the CECI. The project's participatory approach will allow communities and local associations to be involved beyond the project's lifespan. Communities will be free to choose from among different biodiversity management alternatives, and will be further empowered through training and greater economic opportunities. Furthermore, they will be involved in the project's overall coordination through the CAPs, liaising regularly with the National and Regional Biodiversity Committees and the Project Steering Committee.

31. The economic feasibility of the project is ensured in the long run by the mobilization of the Environmental Management Fund (FGE) at the national level and by the establishment of revolving funds locally. The FGE, provided for in the Framework Law on the Environment, will be used for long-term internal financing to meet the management requirements of the protected areas.

32. The overall project approach is participatory as it depends on local community commitment to establish and manage protected areas. As a Small-Island Developing State with limited resources, the Comoros cannot pursue any form of top-down protected area management and expect it to succeed. Project preparation has involved extensive and detailed discussions with local communities, NGOs and government agencies over a two year period.

#### LESSONS LEARNED AND TECHNICAL REVIEW

33. Traditional approaches to biodiversity conservation in other areas of Africa which have emphasized central management capacities and exclusionary protection with an absence of local participation, cannot succeed in the Comoros. IUCN has played a major role in the development of this project and has drawn particularly from its extensive technical experience in protected area management and biodiversity conservation in Small Island States, particularly in the Caribbean and the Southern Pacific, as well as the Indian Ocean, Africa and elsewhere. The project's aim--to conserve biodiversity through the implementation of the PNE and PAE--will not be realized unless local representative bodies are given full partnership in the decision-making processes. While there is already an indication of concern and local commitment to the idea of biodiversity conservation, economic pressures may negatively impact the protected areas unless there are viable economic options that reduce pressure on critical biodiversity resources. As stated in Objective 7, the project will support alternative income generating projects proposed by community members, but will

incorporate the EU's experience by conducting orientations and necessary training on the funds and how to access them for community members.

34. Full technical reviews (see Annex 3) of the draft Project Brief were undertaken by Dr. Paula Williams and Dr. Jean-Francois Dupon of the STAP roster. Both reviewers were supportive of the project approach. The main criticisms - the need to increase efforts to ensure local participation and concerns about "enforcement" by central government, reflect a lack of clarity in the draft. This has been amended to emphasize the fact that it is the local communities themselves, through Protected Area Committees (CAPs), who will manage the protected areas. Local enforcement will be carried out through the existing village structures which will call in legal enforcement only when the problem exceeds their own jurisdiction, as for example in the case of inter-island violators.

#### **PROJECT FINANCING AND BUDGET (\$ US - 5 YEARS)**

35. See annex 1.

#### **INCREMENTAL COSTS**

36. The Comoros supports significant and important biological diversity and the government is committed to its protection. However, as a Small Island Developing State with limited resources, particularly given the reduced competitiveness of its commercial crops, a rapidly increasing population, and the recent currency devaluation, the country is not currently able to fully finance the biodiversity conservation activities it wishes to undertake. Its in-kind contribution of personnel, equipment and facilities is estimated to be \$242,000, together with the \$595,000 to be provided by UNDP is considered to represent the baseline - what the government would do on its own to protect biological diversity in the Comoros. The additional costs of ensuring the protection of the globally significant biodiversity of the Comoros are those being sought from the GEF, ie. \$2,442,000, and this represents the full incremental cost. The GEF contribution is equal to the full Incremental Cost and the Incremental Cost represents 75% of the total project cost.

#### *Cost Effectiveness*

37. Given the government's lack of financial resources, cost-effectiveness is essential. The project is cost-effective because it will facilitate coordination and cooperation among and between government departments and local communities at all levels through the development of a participatory institutional framework for biodiversity protection. By coordinating efforts, duplication and redundancy will be avoided. Further, by enlisting the cooperation of local communities and existing government agencies, and by avoiding the establishment of any new institutions or government posts, this project establishes a highly cost-effective approach to protected areas in that it avoids the high recurrent costs that have halted previous efforts to establish a protected areas network in the Comoros. Finally, by establishing local and national mechanisms for financing ongoing biodiversity conservation efforts, the project will strengthen the country's self-sufficiency and reduces donor dependency in the long term.

## Annex I: Ongoing Projects in the ENRM Programme

	Impact of Industrial and Urban Pollution Reduced	Impact of Natural Disasters Reduced	Natural Resources Sustainably Exploited
Capacity Building	VIE/93/020 - Industrial Env. Protection VIE/93/025 - Marine & Coastal Resource Management (P) RAS/92/073 - Env. Sound Technology VIE/93/081 - National Capacities to manage investments VIE/93/030 - Environmental Awareness INT/92/207 - Trade and Environment RAS/93/040 - Economy & Environment Research in Asia RAS/93/068 - Awareness Creation	VIE/93/025 - Reduction of Green House Gases (P) VIE/95/031 - Disaster Management Unit VIE/95/026 - Son La Seismological Risk Assessment (P) RAS/92/067 - Disaster Preparedness GLO/93/031 - Training Prog. for Climate Change	VIE/91/031 - Biodiversity Action Plan and Conservation Training VIE/88/005 - Aquaculture Production VIE/93/001 - Fish Culture II VIE/92/022 - Coastal Reforestation VIE/91/005 - Cun Long Delta Rice Research VIE/93/023 - Marine and Coast Resource Mngt (P) VIE/93/026 - Reduction of Green House Gases (P) VIE/93/061 - National Capacities to manage investments VIE/93/030 - Env. Awareness VIE/92/063 - Sustainable Fisheries in Asia VIE/93/102 - Sub-regional Project on Biodiversity VIE/92/070 - Remote Sensing for Natural Resource & Environment
Pre-Investment Studies	VIE/93/030 - Programme Framework for Env. RAS/92/031 - Reduction Green House Gas Emission RAS/92/076 - Sustainable Business Training Facility INT/93/061 - Montreal Protocol	VIE/94/009 - Action Plan for Water Disaster Mngt VIE/89/034 - Red River Delta Master Plan	VIE/91/031 - Biodiversity Action Plan and Conservation Training, RAP component VIE/89/034 - Red River Delta Master Plan VIE/93/019 - Water Sector Review
Pilot Projects	VIE/93/030 - EA - Pilot Project component VIE/94/024 - Phasing out CFC's in aerosoles in Vietnam (P) VIE/95/019 - Industrial Pollution Control in Viet Tri (P) VIE/92/025 - Industrial Pollution Control in Dong Mai (P) VIE/93/081 - Capacity 21 - pilot project component VIE/95/003 - Env. Issues in Open Mining (P)	VIE/93/002 - Seismological Network VIE/92/023 - Sea Dykes Engineering Services VIE/94/016 - Biological Termites Control (P)	VIE/95/020 - Mangrove Conservation (P) VIE/93/027 - Protected Areas for Resource Conservation (P) RAS/92/078 - Farmer - Center Agriculture Resource Management RAS/92/034 - Pollution Control in East Asia Seas

VIE/.....:National Project  
RAS/.....:Regional Project  
GLO/ and INT/.....:Global and International projects  
.../.../G.....:Projects funded by the Global Environment Facility or UNDP/Capacity 21 fund.  
(P) .....:Pipeline Projects

## Annex 2 - Information on the Two PARC Sites

### Yok Don National Park, Dac Lac Province

#### General

Dac Lac Province, situated in the Central Highlands along the border with Cambodia, has Vietnam's largest remaining forest area. The province covers an area of 19,800 km<sup>2</sup> and has a permanent population of 1.126 million (1992) giving a density of 57 per km<sup>2</sup>. The province is divided into 16 districts and one provincial town. Buon Ma Thuot, the provincial capital, can be reached by air from various destinations in southern Vietnam.

Yok Don National Park lies in Ea Sup district and its entrance is 40 km from Buon Ma Thuot. The Western edge of the park lies along the Cambodian Border. The park lies on a relatively flat area surrounding the Srepok river, with two main mountainous protrusions. It lies at 13°N latitude, has an average rainfall of 1500-1600 mm per annum, and a tropical monsoon climate with a well defined dry season. Yok Don was declared a nature reserve in 1986 and upgraded to a National Park in 1991. The park's 58,000 hectare core area was surveyed by national and international experts in 1989 and a draft management plan submitted to the Government.

#### Vegetation

The vegetation can be classified into 5 types. The dominant type is dry dipterocarp forest in which the trees are widely spaced with extensive grass cover between them. On the whole, Yok Don is the only reserve in Vietnam protecting dry dipterocarp forest. The form and composition of these forests is quite variable ranging from well formed forests with a canopy of about 20m and a basal area of about 22m<sup>2</sup> and a timber volume of about 200 cubic metres/ha to thin forests of very many smaller trees (recruitment phase forest) where few trees exceed 10m in height and basal area is as low as 6m<sup>2</sup> and timber volume of only 40 cubic metres/ha. Individual forest blocks may be dominated by any of several common trees. The most common trees being *Dipterocarpus obtusifolius*, *D. intricatus*, *D. turberculatus*, *Shorea obtusa*, and *Pentacme siamensis*. *D. alatus* and *Terminalia tomentosa* are also common. All the above trees are valuable hard timbers but rarely grow more than 22m. Other common trees include *Dillenia spp.*, *Syzygium spp.* and occasional *Bombax spp.* The slender bamboo *Arundinaria falcata* is common. Some common grasses include *Imperata cylindrica*, *Arundinella setosa*, *Heteropogon*, *Themeda triandea*, and *Alloteropsis semialata*. The ground cover also has many tree saplings and some shrubs such as *Bauhinia malabaricum*, and *Grewia asiatica*.

On higher ground and along the rivers the variety of tree species increases and forests remain evergreen. Forests on Yok Don and Yok Da are dominated by *Hopea odorata* and *Shorea siamensis* on the higher parts, and *Sindora cochinchinensis* and *Lagerstroemia spp.* on the lower slopes. Other common trees in these forests include *Terminalia belerica*, *T. tomentosa*, *Cassia siamea*, *Dillenia spp.* and *Artocarpus spp.* Cycads, tree ferns and palms also occur.

Along the rivers grow tall forests. Where the rivers have year-round water the forests are evergreen. In other places there are mixed deciduous forests. Many of the same species occur in both types of forest, staying green or losing their leaves depending on local conditions.

River banks are lined by tall clumps of bamboo *Babusa arundinacear* and *B. bechevna*. Typical riverine trees include the tall *Lagerstroemia calyculata* and *L. angustifolia*, *Tetrameles nudiflora*, *Pahudia cochinchinensis*, *Sindora cochinchinensis*, and *Pterocarpus pedatus*. There are also large fig trees of importance to wildlife.

Many of the tree species have value as timber. Others are also valuable for turpentine resin, especially the

dipterocarps *Dipterocarpus*, *Shorea*, and *Hopea* spp. A few species provide edible fruits e.g. *Ziziphus*, *Grewia*, some have medicinal value e.g. *Dillenia*, and others are useful for thatch e.g. *Imperata*, *Livistona*, or *Calamus*.

### **Fauna**

The full area has not been comprehensively surveyed. However, so far, 225 bird species, 35 reptile species, and 62 mammal species have been identified (species lists available). Some of the more important larger mammals observed in Yok Don include kouprey, tiger, elephant, banteng. However estimates of scientists studying Yok Don over recent years indicate that the densities of many mammals are declining. Moreover it is certain that current stocking levels are well below carry capacity, and hunting is the likely cause of this.

### **Human land-use**

The area surrounding Yok Don is economically poor, due to its relative isolation and weak infrastructure. At least 6 different ethnic groups inhabit the area including Ede, Mo nong, Gia rai, Ba na, Lao and Viet. Population density is approximately 8 inhabitants/km<sup>2</sup>. The main economic activities of people are agriculture in burnt-over land, hunting and exploitation of forest products.

The villages have irrigated fields in which they grow rice and other crops. After the harvest, there is an idle period on the fields before the next wet season, This is traditionally a period for hunting and collecting resin, honey and other materials from the forest. The villages also catch a lot of large fish in the Srepok river.

Hunting was traditionally done using cross bows from elephant back, but after the war there is now an abundance of automatic weapons in the area and hunting is far more lethal for the wildlife. It is estimated that 4 to 5 parties of hunters consisting of 5-6 elephants per party enter the reserve each month on average to hunt and collect forest products. The duration of each trip last as for up to 5 days until game is obtained.

In the dry season, the hunters set fire to the reserve to attract animals onto the new grass shoots and to make travel and visibility easier for hunting. In addition, some fires are started by resin collectors who use fire to start the resin flowing from dipterocarp trees.

Since the war, the border areas of the reserve have been patrolled by the Vietnamese Army, who maintain a good patrol road and several guard posts. As a result, there is almost no human incursion into the reserve from the Cambodian side, but the Forestry Department has little control of the activities of army personnel.

The road from Buon Ma Thuot passes much good quality plantation forest. The population around the park is at present low, and much primary and good secondary forest remains. Indications are that the area surrounding Yok Don could support a growing population without compromising the ecosystem of the park.

### **Original management plan and current situation**

The 1989 draft management plan recommended that the following actions be taken to protect the area:

- \* zoning of biodiversity areas;
- \* recruitment and training of park staff. In particular it will be necessary to development professional management and community participation skills;
- \* develop facilities for field research and monitoring. A park-based research facility could both generate revenue and provide a means to improve knowledge of the park;
- \* develop a programme for tourist development. Although very isolated, the area offers excellent tourist potential in the form of good wildlife viewing facilities (on

- \* foot and elephant back trekking), camping, rafting, and cultural diversity;  
wide-ranging extension, information, education and awareness programme.

In March 1995 a WWF/IUCN Tiger Action Plan mission visited the park. A principal finding was that, although six years have passed since the preparation of the plan, all the above remain crucial management issues for Yok Don. In addition, economic developments since 1989 mean that there is now a greater range of economics alternatives available to people, but also much less of a social security system. The results of this are a greater threat on the remaining forests through incursion, poverty and in-migration. Accordingly it will also be necessary to focus other development efforts on surrounding communities to ensure a broadened management scope of the area. However the small population of approximately 5670 (1048 households) living in the park is not considered a threat to the park resources, and could be developed as part of the solution to the protection of the forests.

The existing park management have adopted pragmatic approach to the task of forest protection, and have developed ambitious management plans. However existing resources are inadequate to the growing threats, and could not account sufficiently for the needs of nearby communities. The Yok Don forest protection team of 6 people is attempting to work with tourism. This generates financial resources available for biodiversity protection. However a valid concern for the park authorities is that they have had little experience with tourism and they require assistance to ensure sustainability.

#### **Outlook for the future**

Ea Sup and surrounding districts provide an ideal model for the modified landscape approach to biodiversity conservation. The protected area is surrounded by many primary forested areas, both in Dac Lac and across the Cambodian border. These house important biodiversity. Surveys reveal that there are many animal visitors to Yok Don from these areas. At the same time, the areas around the park and near these forested areas house a growing human population, including many seasonal visitors. *Using appropriate measures*, Yok Don, surrounding forests and corridors can be protected, animal movement patterns be retained, and communities in the region can benefit. An area of up to 100,000 ha can be managed by the local authorities with the primary objective of conserving biodiversity. These efforts to protect the forest can accompany parallel efforts to assist the communities, and intensify their activities and increase their wealth. Since it is located on the border with Cambodia, there is also an excellent opportunity for trans-frontier management arrangement. The Government of Cambodia issues a Decree in 1994 relating to national parks. This identified a large forested area, Phnom Nam Leer, adjacent to Yok Don as a priority for protection.

The case is almost unique in Vietnam. Good primary forest habitat has been preserved, and there is even good primary forested area to be used in buffer areas. It is possible to act now to prevent the otherwise inevitable and immediate fragmentation and destruction of the ecosystem and the biodiversity. However as elsewhere in Vietnam, the situation is changing quickly. Economic liberalization is allowing greater trade, and decreased controls mean sustainability of exploitation is no longer assured, movement of people is easier, and remaining forest are attractive to agriculturalist with land. It is essential to act now in order to avoid the costly degradation experienced in many places in Vietnam and in the region.

#### **Ba Be National Park, Cao Bang Province and Nahang Nature Reserve, Tuyen Quang Province**

Cao Bang and Tuyen Quang are adjacent provinces in Northeastern Vietnam covering a combined area of 14,246 km<sup>2</sup> and a population of 1.227 million people. Administratively, Cao Bang is divided into 12 districts plus the provincial town, and Tuyen Quang into 5 districts and the provincial town. The provinces share similar socio-economic conditions, with a weak physical and economic infrastructure, relatively high levels of poverty, and a



number of ethnic groups making up a large percentage of the population.

They also share similar geographical conditions. Annual rainfall is in the range of 1400 - 1800 mm, the climate is mild tropical, and the original vegetation is humid tropical monsoon forest. They lie in unit 6a of the biogeographical classification system for the Indo-Malayan Realm developed by MacKinnon and MacKinnon (1986). The provinces lie at a latitude 21-23°N. Although not particularly high in altitude, the large number of spectacular and steep limestone peaks in the 1000 - 1200 m range ensure that terrain across the provinces is rugged, with many small lakes, rivers and streams lying between the hills. The majority of the two provinces lie in the altitude range of 300 - 800 meters.

### **Ba Be National Park**

Ba Be National Park is situated in Ba Be District, Cao Bang Province near to the borders with Tuyen Quang and Bac Thai Provinces. It was established as a national park in 1992. The unprotected core area covers 7,611 hectares and is centred on a freshwater lake covering approximately 500 hectares. A buffer zone of over 40,000 hectares has been designated. The core area has three peaks of over 1000m, and the area is renowned for its waterfalls and has a history of tourism and recreation.

Recent surveys, although not comprehensive, indicate the rich biodiversity in Ba Be, with over 370 species of plant, 64 mammals, 111 birds, 33 bats, and 10 species of rare, mountain freshwater fish reported. Important mammal species living in the park include leopard, Francois leaf monkey, and possibly tiger and Tonkin snub-nosed monkey.

Temporary headquarters have been constructed at the park entrance, and a staff of 35 persons recruited to manage the park and guard the forests. However the small area of Ba Be means it is of limited value for biodiversity conservation by itself. Given that the good quality forest surrounding the lakes stretch into the neighbouring provinces, the Government of Vietnam is considering various alternatives by which the protected mountain, an extension of over 20,000 hectares and remaining in Ba Be district. A second possibility is to extend the reserve into Chu Don District, Bac Thai province. Here, adjacent to Ba Be, large areas of primary and good secondary forest remain, and holding some remaining populations of the Tonkin snub-nosed monkey. However a restricted military sensitive zone may complicate management of protected areas. A third possibility is to extend the protected area into Nahang district, Tuyen Quang province where the Nahang Reserve already exists. (more below)

### **Nahang Nature Reserve**

A nature reserve has already been established in Nahang district, centred on the small town of Hahang about 20km to the southwest of Ba Be. The reserve is divided into two core areas covering a total of over 20,000 hectares, and proposed surrounding regeneration and buffer areas. As a nature reserve, this area is presently under the control of the provincial authorities. This reserve was quickly established as recently as 1994 in order to protect its large populations of the Tonkin snub-nosed monkey (*Pygathrix avunculus*). This species has been identified by IUCN (Eudey, 1987) as one of the four most threatened primates in Asia, and is endemic to Nahang and surrounding forests. Until as recently as 1950 the range of this species was a circular area of over 100km radius centred on Nahang.

Little attention was given to this area until early 1992 and few surveys have been undertaken in recent times. A quick review revealed over 350 plant species and 56 mammal species including pygmy loris, tiger, clouded leopard and Francois leaf monkey. There is also good, primary forest lying outside the nature reserve, some of it in the designated buffer zones. This forest reaches far beyond Nahang district, into Bac Thai Province in the East, and towards Ba Be National Park in the North.

Nahang nature reserve was established quickly and due to constraints in resources it currently exists only on paper.

A staff of five has been appointed by the provincial authorities, and they are currently working without salaries. Plans are to be drawn up to construct a headquarters, build research facilities, patrol rivers and forests, and establish tourism. Discussions are also ongoing with ethnic minorities inhabiting the core area to ensure a sustainable use of resources. However the implementation of these plans is constrained by the lack of financial and human resources.

For the two designated protected areas of Ba be and Nahang, and for unprotected forests, the main threats to the remaining biodiversity have been identified as:

- \* hunting and poaching;
- \* fragmentation and agricultural encroachment;
- \* growing urban areas and infrastructure.

Local management has identified the first of these, originating from people living inside the park, as the principal threat to the core zones. Even the core and buffer of the two protected areas house sizeable populations, with over 2,500 in Ba Be and up to 11,000 in Nahang. The Tai, Dao and Hmong ethnic minority groups form the majority of these populations. Socio-economic conditions in the forested areas are particularly difficult, with the main economic activities being rain-fed agriculture in the narrow valley bottoms, and hunting and gathering activities in the forests. In areas surrounding the core zones the clearing of forest for cultivation is still common.

The modified landscape approach is appropriate to the area. The three established core zones and much of the buffer zones contain pristine forests. Good patches of scattered forests lie in the limestone mountains which separate these core areas. There is significant potential to regenerate much and link core areas thereby establishing a large forested zone. The combined protected area could be well over 50,000 hectares. Outside of this area there is a lot of regrowth forest and bamboo forest. However the population density in the area is high, and much of the forest in the three adjoining provinces has been significantly degraded, in between the protected areas lie many settlements and many barren areas. Agricultural practices in these areas are extensive.

With the full involvement of the three provincial authorities, the local district authorities and local communities, it should be possible to manage a vast landscape from a biodiversity perspective. By adopting good and more intensive land-use techniques, the pressure on the remaining forest could be relieved. Given time, it would be possible to focus economic activities in areas away from forest. The local authorities have plans to both promote the development of poor people in the area, and develop the size of the protected area in a step by step manner. The modified landscape approach complement these plans.

Accordingly, key management issues to be addressed in the near future are:

- \* consultation with authorities and forest departments in the three concerned provinces and all districts;
- \* consultation with the various ethnic groups and other residents in and around the forested areas;
- \* land-use planning and zoning for biodiversity conservation integrated across the three provinces, overcoming the fragmentation effect;
- \* delineation and enforcement of protected areas.
- \* development of community development programmes;
- \* development of education programmes for local communities;
- \* development of a research and monitoring programme;

The Nahang-Ba Be area exemplifies the situation in Viet Nam in 1995. As little as ten years ago, forest protection

would have been unnecessary, as there was little pressure on the forest. Now, the remaining forest is facing many new and growing threats, but efforts to conserve the forest can also benefit from new opportunities.

New threats include the effects of the liberalization of the economy. Now, individual goldminers and agriculturalists are free to engage in activities which may be environmentally damaging. Another threat stems from rural economic structural transformation which has led to the upgrading of the Nahang main access track to a metal-surfaced, all year road. Local park management have expressed their belief that this will facilitate control of in-park activities but there is also a danger that it will encourage exploitation and degradation. Third, the improving economic situation in Vietnam has created more finances for investment into the area, both private and public. These may indirectly damage the forest. An example of this is a large-scale gold mine located just outside the park's northern boundary.

However, as mentioned above, the new socio-economic situation in Vietnam will facilitate environmental protection in the area. First, individual responsibility in decision-making is being encouraged and this should foster more sustainable exploitation techniques. Second, a greater emphasis is being placed upon people and community participation in decision-making should lead to better resource allocation decisions. Third, the quickly growing economy is helping to provide economic alternatives to those previously engaged in poverty-driven, unsustainable agricultural practices. Finally, a general increased awareness of environmental issues and appreciation of biodiversity is leading to a raising of biodiversity conservation on the national and provincial agendas.

If assistance is given to the local forest protection authorities now, it is still possible to exploit the above alternatives and so meet the above-listed threats. In the long term it is likely that the population and range of the Tonkin snub-nosed monkey could return to their levels of the mid-1950s, or greater. On the other hand, waiting just a short time could mean that the rapidly changing situation will cause the depletion, even loss, of this important biodiversity.

### **ANNEX 3: DRAFT OPERATIONAL WORKPLAN FOR YEAR 1 ACTIVITIES**

This operational plan for the first year of central project and the PARC field activities is based upon the existing draft management plans for Yok Don and Nahang/Ba Be, discussions with the park and local authorities, and experience gained from implementation of similar projects in other countries. However this plan should be considered as indicative; more detailed workplans will be updated and prepared annually by the Project staff. Further detail on this first year workplan will also be provided through the project formulation mission once the project has been approved by the GEF Executive Council.

In order to meet the project objectives of building national capacity to formulate and implement ICDPs, it will be necessary to implement several activities at the national level. This will also ensure feed-back from project results into the national planning system and the dissemination of project experience. These activities are listed below under the heading "National Project Administration". These activities will provide national protected area officials with essential professional experience and skills in developing a protected area network which incorporates a more participatory planning and implementation process. The first three activities listed for Immediate Objective 1 in section 6.0 of the project brief are covered by these national activities.

In year 1, the majority of activities will be undertaken at the local level, although national teams and experts will also participate. These activities are divided into two categories: those undertaken at Nahang/Ba Be and those undertaken at Yok Don. These activities correspond to the latter three listed under Immediate Objective 1 in the section 6.0 of the project brief.

Following the brief description of the operational activities, an activity timeframe and budget is provided in table form.

#### **1. National Project Administration**

##### **1.1 Project Start-up**

The first activities will be to establish the project and to set up the project management structure.

##### **1.2 Operational Activities**

First year activities in Hanoi will aim at the establishment of working groups, the design of training programs, and key training activities.

National level activities which will take place over the two sites during the first year include the documenting of the ways that people in Vietnam, Southeast Asia and other tropical countries have managed biodiversity sustainably in the past; the conducting of socio-economic appraisals of the selected sites and design and encourage sustainable community resource projects and livelihood systems, and; the finalisation of measurable success indicators.

#### **2. Nahang/Ba Be Biodiversity Complex Project Administration**

##### **2.1 Project Start-up**

Several start-up activities will be undertaken before it is possible to commence activities targeting the project objectives. It will be necessary to recruit local staff, establish management teams, hold consultative workshops, etc. These should include involvement from both of the two provinces and districts concerned, with observers invited from neighbouring Cho Don District of Bac Thai Province. In addition, it will be necessary to design

and upgrade communications between the headquarters of the two contiguous protect areas.

## **2.2 Project Operational Activities**

During the first year, some initial activities will take place targeting the project objectives. These include designing a joint management plan covering the two adjoining protected areas and analyzing sustainable financing beyond the project period of GEF support; drafting development plans for the area using the modified landscape approach and biodiversity perspective, classifying land use, delineating the revised /expanded protected area border (PARC), establishing corridors, buffer zones, regrowth areas, multiple use areas, and economic activity areas; and planning re-afforestation and regeneration of the corridors, buffer zones and surrounding areas which contain fragmented forests.

## **3. Yok Don National Park Project Administration**

### **3.1 Project Start-up**

Start-up activities must be undertaken before it is possible to commence activities targeting the project's field activities. However, since Yok Don National Park is already a more operational protected area unit with a management board and infrastructure, these activities will be different than at Nahang/Ba Be. It will be necessary to recruit local staff, establish management teams, and to hold consultative workshops. These activities should include involvement from Dac Lac Province and observers from the proposed Phnom Nam Lear Wildlife Sanctuary and other conservation professionals from neighbouring Cambodia if possible.

TABLE 1. PARC OPERATIONAL PLAN ACTIVITY TIMEFRAME AND BUDGET FOR YEAR 1

1. National Park Administration					
NATIONAL PROJECT ADMINISTRATION ACTIVITIES	BUDGET (US\$)	QUARTER			
		1	2	3	4
RECRUIT PROJECT PERSONNEL		.	.		
ESTABLISH PROJECT IMPLEMENTATION UNIT IN HANOI	10,000	.	.		
DESIGN REPORTING AND PROJECT MONITORING PROCEDURES			.	.	
PREPARE WORKPLAN AND INCEPTION REPORT				.	
NATIONAL PROJECT OPERATIONAL ACTIVITIES					
1.2.1 HANOI					
NATIONAL STEERING COMMITTEE MEETING		.	.		.
PROJECT MANAGEMENT TRAINING	10,000		.	.	
DESIGN WORKSHOP AND STUDY TOUR PROGRAMME (IN COUNTRY AND OVERSEAS)				.	.
ESTABLISH NETWORK OF EXPERTS ON FINANCIAL SUSTAINABILITY AND INITIATE STUDIES				.	
1.2.2. NATIONAL- DOCUMENTING OF WAYS PEOPLE HAVE SUSTAINABLY MANAGED BIODIVERSITY					
RECRUIT INTERNATIONAL CONSULTANT			.		
COLLECT DOCUMENTATION	10,000			.	
PRODUCE REPORT ON SUSTAINABLE BIODIVERSITY MANAGEMENT	20,000			.	.
1.2.3 NATIONAL - CONDUCTING SOCIO-ECONOMIC SURVEY(S)					
2. NAHANG/BA BE BIODIVERSITY COMPLEX PROJECT ADMINISTRATION					
NAHANG/BA BE FIELD ACTIVITIES	BUDGET (US\$)	QUARTER			
		1	2	3	4
FIELD MISSIONS TO BOTH PROVINCES AND PROTECTED AREAS	15,000		.	.	
WORKSHOP WITH LOCAL AND PROVINCIAL OFFICIALS	10,000			.	
DEVELOP FINANCIALLY SUSTAINABLE PLAN					.
DRAFT AND APPROVE MANAGEMENT PLAN	15,000			.	.
2.2.2 DRAFT DEVELOPMENT PLANS FOR THE TWO LANDSCAPES					
ANALYZE PROVINCIAL DEVELOPMENT PLANS	10,000		.	.	
PREPARE MAPS, DETERMINE EXACT LAND COVER AND SETTLEMENT PATTERNS FOR CONCERNED DISTRICTS	10,000			.	
HOLD WORKSHOPS WITH PROVINCIAL AND DISTRICT OFFICIALS	10,000			.	.
PROVIDE RECOMMENDATIONS FOR REVISED LAND ZONING, AGRICULTURAL AND FORESTRY INTENSIFICATION, AND PROVINCIAL DEVELOPMENT	10,000				.
2.2.3 PLAN REFORESTATION AND REGENERATION OF CORRIDORS, BUFFER AND SURROUNDING ZONES					
RECRUIT FOREST REGENERATION PLANNING TEAM	10,000			.	
DEVELOP PLANS TO INTENSIFY AGRICULTURE PRACTICES WITHIN ALLOCATED/SUSTAINABLE USE ZONES	10,000				.
PLAN REFORESTATION AND REGENERATION AT DA VI AND IN OTHER KEY AREAS OUTSIDE PROTECTED ZONES	10,000				.

3. YOK DON PROJECT ADMINISTRATION					
YOK DON PROJECT FIELD ACTIVITIES	BUDGET (US\$)	QUARTER			
		1	2	3	4
3.1 PROJECT START-UP					
RECRUIT LOCAL PROJECT STAFF		•	•		
ESTABLISH YOK DON PROJECT IMPLEMENTATION UNIT	15,000			•	
PLAN AND HOLD CONSULTATIVE WORKSHOP WITH LOCAL COMMUNITY REPRESENTATIVE (AND OBSERVERS FROM CAMBODIA)			•		•
3.2.1 ANALYSIS AND UPDATE OF YOK DON MANAGEMENT PLAN					
RECRUIT CONSULTANTS	5,000	•	•		
FIELD MISSIONS TO REVIEW EXISTING MANAGEMENT PLAN	15,000		•	•	
REVIEW AND REDESIGN TOURISM PLAN FOR YOK DON AND ADJOINING AREAS IN DAC LAC				•	
WORKSHOP WITH LOCAL AND PROVINCIAL OFFICIALS	10,000		•		•
PREPARE UPDATED/INTEGRATED MANAGEMENT PLAN	15,000				•
3.2.2 DRAFTING DEVELOPMENT PLANS FOR DAC LAC FROM A BIODIVERSITY PERSPECTIVE					
ANALYZE PROVINCIAL DEVELOPMENT PLAN FOR YOK DON	10,000		•	•	
PREPARE MAPS, DETERMINE EXACT LAND COVER AND SETTLEMENT PATTERNS FOR CONCERNED DISTRICTS	10,000			•	
HOLD WORKSHOPS WITH PROVINCIAL AND DISTRICT OFFICIALS	10,000				•
PROVIDE RECOMMENDATIONS FOR REVISED LAND ZONING, AGRICULTURAL AND FORESTRY INTENSIFICATION, AND PROVINCIAL DEVELOPMENT	10,000				•
3.2.3 PLAN REFORESTATION AND REGENERATION OF CORRIDORS, BUFFER AND SURROUNDING ZONES					
RECRUIT FOREST REGENERATION PLANNING TEAM	10,000			•	
DEVELOP PLANS TO INTENSIFY AGRICULTURE PRACTICES WITHIN ALLOCATED COMMUNITY ZONES	10,000				•
PLAN REFORESTATION AND REGENERATION ALONG PROTECTED AREA BOUNDARY AND IN KEY CORRIDORS OUTSIDE THE PROTECTION ZONES	10,000				•

Note on costing: A blank space in the 'cost' column indicates either that the activity has no cost, or that the Government of Vietnam or the contracted implementing agency will cover the funding

#### **Annex 4 - STAP review**

Review of the PARC project by a STAP expert from the Dept. of Biology, University of Mass. Highlights of the review have been numbered, and UNDP's response to these comments can be found at the end for the review.

#### **Comments on the proposal: Creating protected Areas for Resource Conservation (PARC) in Vietnam Using a Landscape Ecology Approach**

This proposal seeks to develop a participatory management plan for conservation and sustainable utilization of natural resources in and around two protected areas in Vietnam. The participatory management plan will involve local communities. Moreover, the project will entail community development projects and the strengthening of infrastructure and human resources. Extension of the plan to other areas, based on experiences at the proposed sites, is an integral part of the overall objectives. Conservation of biodiversity provides the context for the whole project.

Vietnam, the focus of the project, has experienced considerable degradation of its environment during the last few decades. The country's unique biota is severely threatened from a number of directions. Although the project proponents do not provide any figures about the rate of loss of biodiversity, I believe the rate is high. Thus this project has a sense of urgency. The successful implementation of the project should result in effective conservation of biological resources that are important from a national as well as an international perspective.

The proposal is unusually strong in its overall approach. The goals are ambitious and even partial success in realizing the many objectives of the proposal will constitute a substantial achievement. The project objectives are clear and concise and the outputs are related to the objectives. It is however not clear how the approaches to be used will yield desired results. For example, the project refers to landscape ecology and modified landscape ecology approach several times, but these approaches are not defined and various inputs and outputs are not specified<sup>1</sup>. Fortunately, enough has been written about landscape ecology that one could almost guess the approach the proponents will be taking, and hope that they will succeed.

While the project appropriately emphasizes management, it should be obvious that one cannot effectively manage the resource until one knows what the resource is and I hope that in the project a serious effort will be made to assess the resources. For a project that is central to conservation of biodiversity, sufficient details concerning the project's contribution to the inventory of biodiversity should have been provided and I hope such details exist in other documents. The project proponents must not overlook the tremendous opportunity to assess and monitor biodiversity at all levels of biological organization in various landscapes, managed and unmanaged, at the two sites<sup>2</sup>.

The sustainability of this project is difficult to evaluate. Although the participatory elements are well outlined there is insufficient information about financial and human mechanisms that would allow the proposed activities to be continued<sup>3</sup>. The project also describes a number of the initiatives that are relevant to the main theme of the proposal. Perhaps then, collectively, an adequate infrastructure will be created to sustain project activities beyond the period of current funding from GEF.

The innovative features of the project include the goal of integrating biological, socio-economic, and management approaches to preserve and utilize natural resources.

It is difficult to determine if the funding level is appropriate or not. Very few details are provided about the manner in which the funds will be spent. There seems to be undue emphasis on workshops and curiously each workshop is supposed to cost \$10,000. I recognize that the budget allocations are preliminary but I hope that before



implementation the UNDP staff and project proponents will carefully review the budgetary details <sup>4</sup>

Overall, this is a very good proposal. The success of the project will have a strong bearing on management of natural resources in other parts of the world. The project deserves a very high priority for funding/

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**UNDP action on comments**

- <sup>1</sup> Since addressed in Project Description Section 9 (paragraphs 11-15).
- <sup>2</sup> Since addressed in Project Description Section (paragraphs 11-15) and Outputs 1.3 and 3.1
- <sup>3</sup> Since addressed in Sustainability and Participation Section (paragraphs 21 and 22).
- <sup>4</sup> The budgetary figures were arrived upon based on previous experience of the cost of such activities in Vietnam (e.g. through experience gained in the Pilot Phase GEF project and other UNDP activities in the country). These indicative figures are, of course, subject to revision during the project formulation mission.

**Annex 5 - Project budget on output by output basis**

1.1	Review of model integrated forest management and report preparation	10,000
1.2	Detailed descriptions of the two PARC sites	40,000
1.3	Baseline statistics and success indicators for monitoring	40,000
1.4	Management plans for two PARC sites and recommendations for sustainable financing instruments	200,000
1.5	Plans for reforestation, agro-forestry, and tree plantations	80,000
<b>TOTAL: Immediate Objective 1</b>		<b>370,000</b>
2.1	Two self-sustaining model PARC sites, including key training activities	1,570,000
2.2	On the job training *	0
2.3	Community resource development projects	1,385,000
2.4	Pilot sustainable financial programmes for two PARC sites	900,000
2.5	Re-afforestation and agro-forestry programmes	690,000
<b>TOTAL: Immediate Objective 2</b>		<b>4,545,000</b>
3.1	Field surveys, measurements	100,000
3.2	Revised management plans and PARC model	400,000
3.3	Demonstration of the PARC modified landscape ecology experience and dissemination of results	130,000
<b>TOTAL: Immediate Objective 3</b>		<b>630,000</b>
Project Management costs**		496,000
<b>PROJECT TOTAL</b>		<b>US\$ 6,041,000</b>

\* There has not been a separate provision made for training in this budget as the costs of this activity are already built into all the activities and outputs.

\*\* Project management costs represent only approximately 8% of total project costs.

**ANNEX 6**  
**Standard Reporting Format**  
**for the Proposed Approach to Estimating and Agreeing on**  
**Incremental Costs in the Vietnam PARC Project**

### 1. Broad Development Goals

The overall development objective of this five year project is to conserve Vietnam's valuable biodiversity and natural resource base. The project will introduce, develop and implement the PARC concept which is based on a participatory approach, an open consultative process, and the appropriate integration of conservation and development. Capacity to implement the PARC-concept in Vietnam will be applicable to all areas where biodiversity is fragmented, population pressure high, and socio-economic development integrally linked to conservation.

### 2. Baseline

Recent government budget figures indicate that Vietnam is currently spending about US\$ 31 million annually for forest sector programmes, of which approximately US\$ 5 million is targeted for protected area management. This funding situation, although far from optimal, is adequate to *maintain* at a minimum level, a portion of the 87 protected areas of Vietnam. The average expenditure is therefore US\$ 60,000 per protected area, per year. This money would normally go to basic maintenance of a park at a minimum level.

For the selected sites, based on 1994 figures, the budget allocated to protected areas management (per year) are estimated as follows:

Yok Don National Park:	\$80,000
Nahang Nature Reserve:	\$0
Ba Be National Park:	<u>\$51,000</u>
Total	\$131,000
Total over the five year project implementation,	$\$131,000 \times 5 = \$655,000$

Despite the above investments, recent trends in Vietnam show that economic development and inappropriate management techniques are combining to lead to a reduction of biodiversity and depletion of ecosystems. However there are significant opportunity costs to be incurred by further domestic investments in biodiversity. The Government of Vietnam is facing severe fiscal constraints at a time of heavy demands on public sector spending. For the Government to invest in biodiversity conservation, it would have to *forego* investments in other crucial sectors, such as rural roads, power supply, schools, or telecommunications. All recent economic analyses in Vietnam indicate that such investments would have very high economic yields. Hence, investing in biodiversity means not investing in these crucial high yield sectors, and could mean a loss in terms of domestic benefits.

Routine government investment in integrated spatial planning (on the basis of laws such as the Law on Land) has been very limited to date, and has not yet been proposed for those two sites for which the PARC concept will be implemented. Consequently, it is not possible to include such planning in the project's baseline scenario. It is the hope, in fact, of this project, that the PARC project will be able to demonstrate to the Government of Vietnam, one method by which the Law on Land can be implemented.

### 3. Global Environment Objective

At the existing level of protection, and given the current economic and policy environments that decentralizes forest management authority while at the same time encouraging rapid exploitation of the resources, additional funds are needed in order to ensure that national development priorities can be reconciled with the need to protect and sustainably use the country's rich biological resources.

If appropriate resource management techniques are not developed and adopted, the global losses to be incurred would include:

- Loss of endemic animal species, such as the severely endangered kouprey, tiger, the Tonkin snub-nosed monkey and many others. Besides their intrinsic value, they can provide important genetic material for domesticated animals and for evolutionary research.
- loss of sequestration of carbon dioxide through loss of vegetative cover
- loss of biodiversity of global significance.

#### 4. GEF Alternative

In order to appropriately protect the ecosystem and the globally important biodiversity, it will be necessary to invest substantially in the PARC area. It will be further necessary to develop financially sustainable management mechanisms for the PARC areas. The proposed GEF alternative tackles these two issues. Hence it will (i) protect biodiversity and ecosystems at the project site, and (ii) provide a demonstration model approach to natural resource conservation applicable across the country and to other areas in the world.

It is estimated that in order to fully achieve the above, the following interventions will be necessary:

- boundary demarcation
- development of management plans and strategies
- infrastructure development for in-site conservation (minimal access roads, staff and office accommodations, research and tourist facilities)
- forest rehabilitation programmes, forest corridors, community forestry
- community development programmes
- training and recruitment of staff
- monitoring and evaluation

A detailed budget covering the total costs of intervention for establishing and developing two pilot protected areas in Vietnam over five years is provided in section 7 of the project brief.

#### 5. System Boundary

Implementing the proposed GEF alternative will place a demand on the human resources in Vietnam. Vietnam has a limited human resource base, and in order to suitably undertake all project activities, many resources will have to be diverted from other development initiatives. This may cause some indirect losses to the development process in Vietnam.

Protecting biodiversity will lead to some short-term economic losses to those people currently exploiting the natural resource base. However these short-term losses will eventually be outweighed by the many long-term benefits of protecting ecosystems and biodiversity and sustainable livelihoods.

## 6. Additional Domestic Benefits

Over one-third of Vietnam's population derives at least a portion of their sustenance income from collecting fuelwood, fodder, natural foods and other non-timber forest products. Nationally, the estimated economic value of this income is conservatively estimated at US\$ 600 million annually. The proposed GEF alternative should help to do this on a more sustainable basis, and therefore in the long run implementing the GEF alternative could potentially increase this figure.

In the timber sector, the permissible sustainable cut in Vietnam is 800,000 cubic meters annually, of which approximately 600,000 cubic meters is collected from natural forests. If these natural forest timber sources were depleted through non-sustainable utilization, the replacement cost of importing cut timber at a cost of US\$ 300-350 per cubic meter would be between US\$ 180 and 210 million annually.

Additional domestic benefits such as reduced rates of siltation, watershed protection, and realization of ecotourism and other non-timber forest products value may also accrue as a result of the PARC project.

While there could potentially be additional domestic benefits accrued from implementing the proposed GEF alternative as outlined above, none of them meet *all* the generally agreed-upon criteria for subtraction from the cost: they are not easily-quantified and readily-monetized; they are not certain to be captured by the host country if it implements the project; they will not all necessarily accrue within a time horizon of interest to current policy-makers. Moreover, some benefits will accrue to a small narrow group, but others, such as watershed protection will be beneficial to a larger undefined constituency. These additional benefits should not therefore be subtracted from the incremental cost of the project.

## 7. Costs

As indicated above (section 2), the baseline scenario is Government investment of approximately \$655,000 in cash and in kind over the five years.

The total project costs, over five years, for two project sites, is \$6,696,000. This does not include project formulation costs, which are estimated at \$103,900.

## 8. Incremental Costs Matrix

	Costs	Domestic Benefits	Global Environment Benefits
Alternative	\$6,696,000	long term domestic benefits	-Protection of ecosystems and species of global sig. -sequestration of CO <sub>2</sub>
Baseline	\$655,000	short term benefits but unsustainable over long term	none
Increment	\$6,041,000		

## 9. Agreement

The project has already undergone a long and thorough preparation process. This has involved local community representatives, Government officials at all levels, national and international technical experts, STAP, UNDP and international NGOs. All concerned parties and stakeholders have been thoroughly consulted and have agreed to the project in principle.

Once a complete project document has been prepared (this will be finalized under the Block B PDF granted to the project at the January 1995 GEFOP), this will again be circulated to all concerned parties to secure their further input. However, given the already long process, no obstacles to reaching rapid agreement are likely.

## **PROPOSAL FOR REVIEW**

<b>Project Title:</b>	<b>Action for a Sustainable Amazonia</b>
<b>GEF Focal Area:</b>	Biodiversity
<b>Country Eligibility:</b>	Convention Ratified by participating countries
<b>Total Project Costs:</b>	US \$ 3.8 million
<b>GEF Financing:</b>	US \$ 3.8 million
<b>Country Contribution:</b>	
<b>GEF Implementing Agency:</b>	UNDP
<b>Executing Agency:</b>	Pro Tempore Secretariat of the Amazon Cooperation Treaty
<b>Coordinating Agencies at the National Level:</b>	Ministry of sustainable Development and Environment (Bolivia), Ministry of the Environment (Colombia), Ministry of the Environment and Renewable Natural Resources (Venezuela), National Board for Amazonian Legal Affairs (CONAMAZ) (Brazil), Sub-Secretariat for Environment of the Ministry of Energy and Mines (Ecuador), National Institute of Natural Resources (Peru), and Guyana Natural Resources Agency.
<b>Estimated Approval Date:</b>	May 1996
<b>Project Duration:</b>	3 years
<b>GEF Preparation Costs:</b>	None
<b>Government Endorsement:</b>	Received August 29, 1995

## **Project Summary:**

1. The objectives of this project are to
  - a) engage all interested ACT Member Countries in the discussion and research on sustainable development for the Amazonia; and
  - b) assist in developing the capacity of local institutions to lead the Amazon countries toward sustainability.
2. Three sets of activities form the core of this project: national policy analyses and consultations through participatory dialogue, case studies of selected high-priority topics by regional technical task forces, and capacity building for sustainable development. Key government institutions in the region led by the Amazon Cooperation Treaty will be strengthened in the field of information collection, analysis, policy study, and dissemination. The series of analyses, with ample participation, on regional and national policy studies and task force reports will be synthesized into a major report entitled Bases for Action for Amazonia to be published in 1997. Consensus among a diverse array of stakeholder groups will be furthered throughout the course of the project for implementation of the report's findings.
3. The project differs from the ongoing GEF regional project (RLA/92/G31/G32/G33) in its much broader participation and consensus-building approach, focus on policy and institutional opportunities and obstacles to promote sustainable forest use (including components addressing trade and infrastructure policy), and strengthening of local and regional capacity to develop appropriate policies and better-advised decision makers.
4. It is important to note that this project, in which so many national and regional institutions have substantially contributed, can be crucial to carry out actions foreseen by countries parties to the Amazon Cooperation Treaty with regard to the recent Tarapoto Proposal for Criteria and Indicators for Sustainability of Amazonian Forests. This proposal is a landmark in joint efforts by the ACT countries to lay down a set of criteria that will lead to sound national policies on sustainable development of Amazonia.

## **Strategic importance of the project:**

5. The countries of the Amazon Basin (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela) are confronted by serious challenges of alleviating poverty, meeting agricultural production goals, creating employment, satisfying domestic needs for basic raw materials (including forest products), and satisfying the energy demands of their growing economies.
6. Each of these countries has experienced a shift in legislation and institutional structures designed to promote sustainable development in the region. In practice, this shift has meant greater concern with environmental and social factors in development planning, and recognition that emphasis on

short-term needs can greatly reduce the options for achieving long-term development goals.

7. At the same time, however, senior policy makers in many of the Amazon countries recognize that they lack a long-term development strategy for sustainable development of the Amazon region as a whole and there is a need to strengthen its institutions, both at national and regional levels.

8. The various indicators of the growing receptivity among senior policy makers, civil society and development agencies worldwide to explore possibilities of seeking alternative directions for meeting the needs of the Amazon countries justify renewed effort to promote revision of perspectives and strategies for the region.

9. Aware of their needs, Amazon countries have just concluded a workshop which opens bright and long-lasting perspectives for fulfilling those precise shortages.

10. On February 25, 1995, at a meeting in Tarapoto in the Peruvian Amazon, hosted by the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty, the representatives of the Foreign Ministries of the Amazon countries recommended that their governments adopt an agenda-setting proposal for a new framework for guiding the implementation of sustainable development in Amazonia. The "Tarapoto Proposal" (See Appendix 1) recognizes the commitments made by the Amazon countries to implement the agreements adopted at UNCED (United Nations Conference for the Environment Development, Rio de Janeiro, 1992) and establishes a framework for decision makers in the region to promote such policy objectives as conservation of forest cover and biological diversity, sustainable forest production, and development of institutional capacity to promote sustainable development in Amazonia.

11. Given these circumstances, the Project will focus on supporting follow-up activities to the "Tarapoto Proposal" at the national and regional levels with a view to presenting for consideration, through the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty, policies and institutional arrangements needed to reduce biodiversity loss and deforestation and promote sustainable development in the Amazon Basin. A component of the project is reinforcing the capacity of the *Pro Tempore* Secretariat at the regional level.

#### **Global Environmental Benefits:**

12. The Amazon Basin is one of the world's most important regions in terms of its biodiversity and role in global water and carbon cycles. About 80% of Amazonia's 7.25 million square kilometers was originally covered by forest, approximately 10% of which has been deforested. Continuing deforestation and forest degradation threatens Amazonia's biodiversity. It is estimated that more than 50% of the world's biodiversity is found in Amazonia. Specifically, the region is home to 20-50% of vascular plant and arthropod species, as well as over 2,000 species of freshwater fish, of which 90% are endemic (three times as high as the nearest competing river system, the Zaire Basin). Brazil, Colombia, Ecuador, Peru and Venezuela are among the top 15 countries for endemic higher vertebrate species (mammals, birds, and amphibians).



13. Amazonia is also a storehouse of global stored carbon in the form of biomass, and recent calculations have shown that deforestation in the region accounts for a small percentage of greenhouse gas emissions worldwide.

14. Although there has recently been a decrease in deforestation rates (especially in the Brazilian Amazon), the threat continues, and is particularly acute in the frontier zones where local rates of forest and biodiversity loss are extremely high, hence the critical need to invest in capacity building in the area of policy development and reform throughout the region.

#### **Relationship with National Priorities:**

15. This project is designed to reinforce and help meet the priorities of each of the Amazon countries as already identified under the framework of the Amazon Cooperation Treaty and its six Special Commissions.

16. The activities have been developed and planned through a partnership of national authorities, senior policy makers, grassroots groups, indigenous peoples' organizations, research and teaching institutions, business community leaders, conservation and social development NGOs, and others from each of the eight nations of the Amazon Cooperation Treaty (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela).

17. The priority and urgency of the initiative were emphasized at the Tarapoto workshop where the Amazon Cooperation Treaty countries called for immediate international technical and financial assistance through the Treaty mechanism to support national debate and analysis of policy to promote sustainability. They also called for national and regional capacity building to assess progress toward sustainability through implementation of the criteria and indicators agreed to in Tarapoto.

#### **Regional Synergies:**

18. The countries of the Amazon have recognized the need for cooperation to promote harmonious and equitable development (led by Brazil, the Amazon Cooperation Treaty was signed in 1978). Now such cooperation is needed more than ever, with current moves for trade liberalization and delicate issues of access to biogenetic resources, among others.

19. This project seeks to maximize exchange of ideas and experiences between institutions in the Amazon countries, and, through strengthening of key regional bodies, contribute to the process of regional harmonization and integration. As such, it builds upon various other initiatives of the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty.

20. Several major initiatives are being implemented to reduce deforestation rates and promote sustainability in Amazonia, including the Group of Seven (G7) Pilot Program for the Conservation of the Brazilian Rain Forest, national forestry action programs in various countries, and hundreds of

projects underway at the national and local levels in each country.

#### **Transparency and Participation:**

21. The project has a highly participatory approach, involving partnerships at both the regional and national levels in Amazonia to achieve wide input into overall project development and implementation. It is designed as to involve competent government institutions, senior policy makers, grassroots groups, indigenous peoples' organizations, research and teaching institutions, business community leaders, NGOs, and others. Each Member Country shall be responsible for determining which entities will take part in the process.

#### **Promoting Innovation:**

22. This project complements and builds upon such on-going initiatives in the region, and the project seeks to promote innovation in several ways:

- \* The project is regional, working with partners and issues in all of the Amazon countries.
- \* The project has been predominantly a local effort with international institutions playing only a catalytic role since its inception.
- \* A diversity of interest groups are participating in the design and execution of the project.
- \* The project will promote actions based upon rigorous research of the opportunities for and obstacles to sustainable forest ecosystem management.
- \* The project includes research and action at local, national, and international levels.
- \* The project does not compete with, but rather complements and draws upon the strengths of, other initiatives in Amazonia.
- \* A widespread outreach strategy, both at regional and international levels, will begin early in the project to inform of its objectives and aims.
- \* The project strategically responds to the need for immediate follow-up oriented towards the adoption of criteria and indicators of the sustainability of the Amazon ecosystem, which lays the basis for a new, original and comprehensive approach to sustainable development in the Amazon Region.

#### **Complementarity and Follow-up to Existing GEF Regional Project:**

23. Implementation of this project complements other initiatives which are currently in process, thus contributing to reinforce their overall efficacy. This proposal complements other ongoing projects in

the following ways:

- \* Promotes broader participation, seeking consensus among the various stakeholders on what steps should be taken and how.
- \* Focuses on policy, identifying the present obstacles, opportunities, and needed reforms, in the broader scheme of policies which affect sustainability attainment.
- \* Includes in-depth research in some key complementary issues including sustainability assessment, trade policy, and infrastructure.
- \* Provides assistance in policy implementation, for example, the sustainability assessment component will contribute to implementation of zoning legislation.
- \* Contributes to strengthening the institutional capacities, particularly in the areas of local policy research and provision of information to policy makers.
- \* Contributes to strengthening the regional institutions in policy analysis, sustainability assessment, intersectorial analysis, and other ways which complement the institutional strengthening components of the currently funded project.
- \* Complements other GEF funded regional projects, such as the RLA/92/G31/G32/G33.

#### **Sustainability:**

24. Because the project builds upon existing processes and initiatives and includes a broad participation and shared ownership, it is highly likely that the activities which the project stimulates will continue following the end of formal GEF support.

### **III. PROJECT DESCRIPTION**

#### **A. History of the Project**

25. In 1992, the Ecuadorian *Pro Tempore* Secretariat of the Amazon Cooperation Treaty invited technical experts from many institutions to participate in an effort to prepare a proposal for harmonization of forest policy at the regional level in Amazonia. Representatives from all of the TCA member countries participated and a proposal was developed and published in 1993.<sup>1</sup> In addition, the SPT-TCA has published various reports with the objective of promoting a more informed and rational debate at the regional and national levels about Amazonia, the challenges it faces, and how the challenges might be addressed.

26. Building upon the past work of the SPT-TCA, a series of informal, one-on-one consultations were initiated with institutions and individuals in all of the Amazon countries with the objective of beginning to identify key obstacles to increasing the sustainability of forest ecosystem management in the region. A wide range of interest groups was consulted including government policy makers, grassroots and research NGOs, indigenous peoples organizations, indigenous leaders, research and teaching institutions, advocacy groups, private sector industry federations, and donor and development agencies.

27. There seemed to be general agreement in the consultation process on many of the basic obstacles, such as problems with current policies and institutional structures, but there had been little agreement or success in developing means to address the problems.

28. The design and workplan for this project reflects the input received during the numerous consultations held in the region, and reviews from many individuals throughout the region. In addition, a planning workshop was held to bring together representatives from a range of interest groups from the Amazon countries to discuss and modify the draft workplan and to consider whether sufficient common interest existed to warrant program implementation. The workshop was organized with the local sponsorship of the Association of Amazonian Universities (UNAMAZ) and the FAO Project in Support of the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty, and international sponsorship from the World Resources Institute (WRI), the Center for International Forest Research (CIFOR), the German Federal Ministry for Economic Cooperation (BMZ), and the United States Forest Service (USFS).

29. The workshop, held in Santa Cruz de la Sierra, Bolivia in March 1994, marked the end of the project planning phase and the initiation of policy research, capacity building, and outreach activities. The workshop's Final Report is attached hereto as Annex 2.

30. The Regional Workshop to define Criteria and Indicators of Sustainability for Amazonian Forests in which senior representatives of Bolivia, Brazil, Colombia, Peru, Suriname and Venezuela agreed to a proposal for periodic assessment of their progress toward sustainability (described in the "Tarapoto Proposal" -- See Appendix 1), has set the ground for an intense and fruitful process of consultations and debate with far-reaching goals. The agreement established a basis upon which to develop capacity building, information dissemination, research and policy review to promote sustainable forest use at the national and regional levels.

## **B. Background**

31. The Amazon Basin is one of the world's most important regions in terms of its biodiversity and role in global carbon and water cycles. Regionally, it is an area that begs for multi-national and multi-stakeholder cooperative agreements to establish settlement patterns and resource use, as well as social and economic policies that are in the common interest. Locally, the region features complex policy issues, including land tenure, rights of indigenous communities, and regulation of access to and benefits from genetic resources. At the same time, the countries of the Amazon Basin are confronted

by serious challenges of poverty, meeting agricultural production goals, creating employment, satisfying domestic needs for basic raw materials (including forest products), and satisfying the energy demands of their growing economies.

32. Amazonia is estimated to be the home to approximately 22 million people, over 70% of which live in or on the edge of poverty. Demands for energy, food and industrial wood are large and growing, and take a heavy toll on the region's natural resources, in particular forests.

33. Considering small increases in per capita consumption and projected population growth, it is projected that national demand in the Amazon countries for industrial wood products will almost double between 1990 and 2015. This projection does not factor in policy makers' stated goals of increasing exports.

34. Demand for agricultural and farming products will also increase. Agricultural and farming commodities currently account for one third of export earnings for the economies of the Amazon countries. If exports are to be maintained, the growing population fed, and policy makers' goals to reduce basic food imports realized, a significant increase in the agricultural and farming sector productivity will be required.

35. Pressures outside the region and the creation of opportunities in Amazonia, albeit short-lived, have encouraged human migration to the Amazonian territories. The expansion of oil exploration in Ecuador, penetration roads in Peru and Colombia, and mining activities in Guyana have all facilitated unplanned colonization. In Brazil, incentives programs and occupation policies have also driven colonization. Much of the "problem" now faced "in" Amazonia can therefore be traced back to forces outside the region. This is particularly clear in the Andean countries which have witnessed a flood of migration to the Amazon frontier due to land scarcity and declining fertility in the Sierra.

36. Poverty, inadequate education levels and lack of technologies stand distinctly among adverse structural conditions which prevent efficient use of natural resources.

37. The economic and social pressures have resulted in the deforestation of large areas of native forest, converting them into relatively unproductive agricultural land and pasture which are often abandoned after a few years. Furthermore, the less favored sectors of the region are demanding for alternative development strategies to meet their needs.

38. Of the 7.25 million square kilometers of Amazonia, about 80% was historically covered by forest and the rest by other vegetation types such as natural savannas. While the actual amount deforested is debated and the percentage of which varies according to the definition method used, it is generally admitted that nearly 10% has been deforested. It is estimated that approximately 64% of the deforestation registered during the 1980s was due to conversion to agriculture and pasture, 20% to forestry activities, and 16% to other uses such as mining and hydroelectricity generation.

39. These activities, implemented to meet agricultural, forestry and energy needs of the Amazon region, as well as expand exports, have not produced the results expected, particularly in the forestry sector. Basically, appropriate forest management systems have not been implemented at all. Wood extraction and processing are extremely wasteful; a recent ITTO study for Ecuador measured wastage rates of up to 70% of the useable timber. Typically less than 10% of the useable timber is harvested due to market constraints, and in the process 40% of the standing trees are damaged due to use of inappropriate felling techniques and equipment far inferior to those which could be employed given more training and investment. In addition, due to the high profits captured in this poorly regulated industry, logging companies have a strong incentive to exploit relatively isolated and previously inaccessible sites, especially where the most valuable export species are abundant. Access roads have facilitated the movement of colonists into these areas to establish shifting cultivation. Further, many of these areas have been purchased by larger land owners for extensive cattle ranching.

40. Over the past five to ten years there has been a shift in all of the Amazon countries with respect to legislation and institutional structures designed to promote "sustainable development" in the region. In practice, this shift has meant greater concern with environmental and social factors in development planning, as well as the recognition that emphasis on short-term needs can greatly reduce the options needed for achieving long-term development goals.

41. In Bolivia, the treatment of the environmental issue is characterized by the implementation of institutions which are responsible for environmental management and whose activities are enclosed within the lines and national policies identified by the Central Government, for which purpose the Ministry of Sustainable Development and Environment, recently created, presents actions for harmonizing the socioeconomic development with the preservation of natural resources, in order to generate sustainability capacity and raise the living standard of the population, as a legacy for future generations.

42. In this sense, the approved environmental legislation includes a series of provisions which governs natural resources use and management, in areas such as Environment, under Law 1333, which synthesizes and organizes the use of the parts which form the environment by introducing the concept of "integral management" thereof within the concept of sustainable development.

43. Said Law's Regulation considers aspects of Environmental Management, Prevention and Environmental Control, Atmosphere Contamination, Hydric Contamination and Activities with Hazardous Substances, which aspects are complemented by specific laws on Biodiversity, Wildlife, Forestation, National Parks, Hunting and Fishing, as well as by complementary actions, such as the Plan for Soil Use and the Territorial Regulation Program.

44. In Brazil, the actions of the Federal Government in the area of Environment are defined and implemented by the Ministry of Environment, Hydric Resources and Amazonian Legal Affairs, which has consolidated national priorities in the "Integrated National Policy for Amazonian Legal Affairs". The major objective of said policy is to raise the living standard of the population thanks to sustainable economic growth, to fully use natural and cultural potentials, to deepen the subject and

to better distribute wealth. To this effect, institutional strengthening is vital, at local level, as well as the definition of integrating actions, at regional level. Brazilian 1988 Constitution recognizes the importance to include the environmental issue on the discussions on development and the country's environmental legislation is very comprehensive in terms of protection and conservation of natural resources.

45. The G-7 is financing a pilot program in the Brazilian Amazonia to reduce deforestation, including projects to strengthen extraction reserves, indigenous areas, national forests, research centers, the Ministry of Environment, Hydric Resources and Amazonian Legal Affairs and the statutory organisms on Environment. Loans are being granted by the World Bank to the States of Rondonia and Mato Grosso for agricultural and farming development, preservation of forest resources and strengthening of local institutions.

46. The Government of Colombia has also restructured its administration, by creating an Environmental Ministry and simplifying the relationship between national and local governments for the formulation of environmental policies. Presently, no forest concessions in the Amazon Region are being offered by the Government of Colombia. The Colombian 1989 Constitution took a significant step in providing the transformation of approximately half of the national Amazon territory into semiautonomous indigenous areas.

47. Within this context, the government's institutions and regulating mechanisms have been reinforced by its broad social policy, aimed at attaining sustainable development of the environment by encouraging crop substitution programs and the preservation of the ecosystem. Additionally, an environmental legislation has been incorporated for exploration and exploitation activities of mineral resources and oil, which policies require the cooperation of multilateral and financing organisms.

48. In Ecuador, a national project on environmental planning was implemented in order to develop a plan to reduce the environmental impact of the country's development activities. This effort shall be led by a recently created environmental agency, which shall be responsible for identifying development limitations in Amazonia and promoting promissory alternate uses of the soil.

49. In Guyana, the administration has committed itself to restructuring, by giving the highest possible priority to the area of the environment. This has manifested itself in the formation of a National Environmental Protection Agency, which would be guided by a National Environment Action Plan. An integral part of that plan is the sustainable use of the country's natural resources, particularly its forestry and bio-diversity resources. Legislatively, Guyana is in the process of considering a comprehensive package of legislation on the environment which would, in large measure, correct the present legislative deficiencies which exist in the area of the environment.

50. In Peru, the Political Constitution as approved by the 1993 National Referendum, provides under Chapter II, Article 69, that the State shall promote sustainable development of the Amazon Region with an appropriate legislation. The use and preservation of the resources which make up the national ecosystem are conveniently regulated by a series of specialized provisions. Moreover, the Central

Government, Regional Governments and the civil society entities jointly collaborate in this task. The national environment policy is established by the State through the National Environment Council - CONAM. Natural resources, both renewable and non-renewable, are considered as the Nation's patrimony. The State has sovereignty on the use of its resources and must promote the conservation of biological diversity and natural protected areas.

51. The National Institute of Natural Resources -INRENA- in accordance with its applicable regulations, is responsible for acting as National Coordinator of the Regional Project "Action for a Sustainable Amazonia".

52. The Government of Venezuela has established a number of legal and institutional changes since 1989 in order to implement a unique policy for the State of Amazonas. This includes the establishment of an Autonomous Service for the Environmental Development of the Territory of Amazonas, which has created an innovative working relationship with the State's population, being greatly indigenous. Additionally, it has established the Amazon Environmental Research Center "Alexander von Humboldt" and has declared the world's largest biosphere reserve, which comprises 49% of the State (8,9 million hectares) and is jointly managed by its indigenous inhabitants.

53. Over the past five to ten years there has been a shift in all of the Amazon countries with respect to legislation and institutional structures designed to promote "sustainable development" in the region. In practice, this shift has meant greater concern with environmental and social factors in development planning, as well as the recognition that emphasis on short-term needs can greatly reduce the options needed for achieving long-term development goals.

54. In addition to these many governmental initiatives, there has been a multiplication of grassroots initiatives to promote more sustainable resource use in the region.\* These efforts are being established by local associations, indigenous communities, rural unions, small and large private business, and many other non-governmental groups, as well as by local government agencies, often at the municipal level.

55. The various indicators of the growing receptivity among senior policy makers, civil society, and development agencies worldwide to explore possibilities of seeking alternative directions for meeting the needs of the Amazon countries justify renewed effort to promote revision of perspectives and strategies for the region. The countries are, however, in the process of developing long-term development and conservation strategies for their national Amazon territories. The long-term planning, accompanied by investment in appropriate activities, institutional strengthening, and training, shall contribute to stop environmental degradation, reduce poverty indexes and, most importantly, promote the identification process of joint work for sustainable development.

56. Recent studies have shown that there is significant potential for implementing economic

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The Pro Tempore Secretariat of the Amazon Cooperation Treaty is in the process of publishing a ground-breaking series of technical reports with inventories and analyses of projects and investments in each of the eight national Amazon territories. These reports document the tremendous array of initiatives underway.



development based upon the use of forest resources in Amazonia compatible with conservation of the resource base.\* However, the wider implementation of promising resource management systems require appropriate policies and laws. These shall contribute on a short-term basis to the decision-adoption process and, on a long-term basis, to alleviate natural degradation, as well as to encourage investment by means of appropriate mechanisms in alternate production systems and the necessary support institutions.

### **C. Project Objectives**

#### **57. The objectives of this project are to:**

- Engage all ACT Member Countries interested in discussion on sustainable development for the Amazonia.
- Help develop the capacity of local, national and regional institutions to lead the Amazon countries toward sustainability.
- Prepare for implementation of specific actions identified as priorities to promote sustainability in Amazonia.
- Provide the Amazon countries with financial and technical support for immediate follow-up of the criteria and indicators on sustainability of the Amazon Forest, as contained in the "Tarapoto Proposal."

### **D. Activity Description**

58. Three sets of activities now form the core of this project: national consultations and policy reviews, selected case studies by regional task forces, and capacity building for sustainable development. These activities are described below.

#### **a. National Consultations and Policy Reviews**

Two sets of activities are proposed in each country:

First, assessment of the legal framework for environmental management and suggestions for its updating; and

Second, identification of initiatives and affairs of national priority through case studies based upon specific information on each location, collected through local participation, which will help to verify and illustrate the particular topics which are considered of priority.

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See for example, *Seminário Internacional sobre Meio Ambiente, Pobreza e Desenvolvimento da Amazonia (SIMDAMAZONIA)*. Governo do Estado do Pará & Secretaria de Estado de Ciência, Tecnologia e Meio Ambiente, 1992, and A. Anderson (Ed.), *Alternatives to Deforestation: Steps toward sustainable use of the Amazon Rain Forest*. Colombia University Press, New York, 1990

As a reference, the work methodology for each country could be as follows:

The national policy reviews will be implemented by the national-level coordinating agency. The National Coordinator will also:

- 1) facilitate and encourage the participation of other governmental and non-governmental institutions to collaborate in the overall execution of the project and review project materials;
- 2) develop and implement a national outreach strategy to disseminate the activities and products of the project; and,
- 3) convene a National Group composed of institutions to be determined by the Government of each Member Country.

#### **b. Selected Case Studies by Regional Task Forces**

The national policy reviews will be augmented and complemented by the work of three regional task forces (each with 8-12 expert members), which will examine, on a case by case basis and according to national priorities, strategically chosen and technically complex topics, as well as those of common interest to all Amazon countries. The task forces will be led by technical experts from the Amazon countries.

The three task forces will focus on:

##### **1. Development of a sustainability assessment method**

The primary objective of this task force is to develop an easy-to-use tool or set of tools for assessing the contribution of local initiatives to sustainable development. The tool will be presented in the form of an easy-to-use manual, and published in English, Spanish, and Portuguese.

Work of the task force will include reviewing existing tools, and developing a new decision-making tool that will integrate ecological, economic, and social criteria and can be used to establish principles and guidelines to orient future investments. The method will cover the whole project cycle, uniting ex-ante and ex-post analysis to provide guidance to local planners, project designers, governmental officials, and others on how to determine whether or not a proposal for conservation, forestry, agricultural, livestock, infrastructure, or other project holds promise for ecological, social/cultural, and economic sustainability, and how to plan projects accordingly.

## 2. Trade policy and sustainability.

As the hemisphere moves ever closer to complete removal of trade barriers an area that has received relatively little local attention is the relation between shifts in trade policy and efforts to implement Agenda 21 and related sustainability objectives. The task force will explore the potential implications of the creation of ecologically-oriented mechanisms of labelling exports of the ACT Member Countries, as well as the implications of environmental policies, norms and regulations of OCDE countries. Moreover, it will review the environmental and commercial impact on the Amazonia of the commercial provisions contained in the Multilateral Environmental Agreements (AAM).

## 3. Infrastructure development.

This task force will develop a series of policy recommendations aimed at maximizing the benefits and minimizing the negative impacts of infrastructure development, particularly highway construction.

Policy analysis will draw upon experiences in Amazonia and other parts of the world to identify a set of measures and formulate the policy recommendations and minimal institutional needs for their implementation.

## C. Capacity Building for Sustainable Development

59. A specially important objective of this project is to strengthen the capacity of regional institutions to develop and implement policies for sustainable management of forest ecosystems in the Amazonia.

### *Pro Tempore* Secretariat of the Amazon Cooperation Treaty

The institutional capacity of key institutions, such as State entities and the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty and its Special Commissions of the Amazon Region, including their own projects, activities and networks, will be strengthened, among others, through the following actions:

- 1) active participation in all stages of project development;
- 2) oversight of execution of case studies including case study design, use of field tools, analysis, compilation, and presentation of the results;
- 3) participation in a developing network of groups in different Amazon countries working together to implement the project; and,

- 4) greater harmonization, or at least compatibility of approach and understanding, between different groups.

As the lead project implementing agency, the *Pro Tempore* Secretariat will be strengthened in such key areas as policy analysis, data collection and storage, outreach, dissemination of results and information, and project design.

### **Other Institutions**

Under the coordination of the *Pro Tempore* Secretariat, specific activities have been designed to strengthen the capacities of other institutions in particular areas. These are described below.

#### **Association of Amazonian Universities (UNAMAZ)**

UNAMAZ has traditionally not been a strong player in policy debates on key Amazon issues. Through its participation in project management, the institution will become more aware of the importance of the policy dialogue and debate. A process of debate among UNAMAZ members, including a regional workshop, will be promoted to redesign regional research and teaching policies such that they better address key policy issues.

#### **Amazonian Business Coordination for Sustainable Development**

For Latin America as a whole and some of the region's countries (Colombia, Bolivia and Brazil), there are well-formed business associations whose members promote investment in more sustainable enterprises. At the regional level of Amazonia, however, there has not yet been a coordinated effort among business leaders to promote a more responsible set of business policies for sustainable development.

A regional workshop for business leaders in Iquitos, Peru (co-hosted by Peru's National Chamber of Commerce) will be convened with the following objectives:

To illustrate, through a set of prepared case studies, that investments in sustainable activities can be highly attractive commercial ventures.

To identify areas of consensus among private sector representatives as to key policy shifts needed in the Amazon countries to promote greater private investment in sustainability of economic activities in the Amazon Region.

Prior to the workshop, case studies of promising private sector initiatives will be prepared, together with overviews for each country of national policies which create incentives and disincentives to such investment.

Commercial representatives of the Amazon Region will be identified and a work forum will be created, in an effort to integrate them into project activities.

#### Amazon Electronic Communication Network

Efficient implementation of a project of this type can be achieved only through use of modern communications systems, particularly electronic mail and related tools. A key component of the project's capacity building focus is therefore the strengthening of the electronic communications network of the key implementing institutions. Greater use of e-mail and associated tools will also help to reduce costs of project implementation, for this initiative as well as others.

Communications networking will be improved with assistance from a group of regional experts to be identified by the Program Coordinating Group.

#### Regional Parliaments

A series of national workshops with parliamentarians or legislators in each of the Amazon countries shall be carried out, followed by a regional workshop, in order to exchange points of view, information and experiences on national legislations for sustainable development in each country and regionally.

#### Workshops

A series of workshops, meetings and forums shall be convened during the entire project in order to spread the project and its specific products.

Before publishing the document Bases for Action for Amazonia, a regional workshop will be convened in order to encourage broad participation in reviewing the draft thereof. Participants will consist of national work teams and other groups invited by the Governments, including experts from the region and representatives of the project's target public, such as advisors and policy-makers of the local and national government, authorities on duty and appointed, indigenous communities, NGO's, business leaders, and representatives of international donor organizations.

### **E. Maximizing Participation and Transparency**

60. At the regional level, the project is to be coordinated by the Program Coordinating Group, led by the *Pro Tempore* Secretariat of the Amazon Cooperation Treaty, with the coordinating institutions from each of the Amazon countries. Other regional organizations and international cooperating institutions would also participate in providing technical support as established by the Member Countries.

61. In each country, the National Coordinator institutions will convene representatives from the cross-section of interests to participate as members of the National Groups.

62. The implementation of an electronic communication network for the Amazon region for use in project management will help to establish an open and transparent form of project administration and participation.

## **F. Outputs**

63. The outputs of the project are designed to strengthen the sustainability criteria and indicators for the Amazon ecosystem and related policy goals of the ACT Member Countries.

64. The regional and national policy analyses and proposals, case studies, and task force reports will be synthesized into a major report to be entitled Bases for Action for Amazonia. The report will highlight the priority actions needed for promoting sustainable forest ecosystem management in Amazonia, and will be widely circulated throughout the region in English, Portuguese, and Spanish language versions. A brief "Policymakers Guide" will also accompany the main report. In addition, a "Sourcebook," providing greater detail from the case studies and policy reviews, will also be published for more limited circulation to a technical audience.

65. The findings of the task force on sustainability assessment methods will be published in the form of a user-friendly manual for use by local planners and others, and will be periodically updated and refined.

66. The most important product of the project will be foundations upon which to build further actions and activities designed to promote the implementation of the findings and conclusions. Expected actions would together contribute to meeting the socio-economic needs of the inhabitants of the Amazon countries and reduction in loss of forest cover and biodiversity. They include:

Technical refinement and adoption by the Amazon countries of the Tarapoto Proposal for Criteria and Indicators of Sustainability of Amazonian Forests. This will facilitate further regional analysis of opportunities for harmonizing policy among the Amazon countries.

Definition and adoption by leaders in the private sectors of the Amazon countries of corporate investment guidelines to promote sustainability.

Periodical adaptation of national policies to the objectives identified by the Member Countries.

Greater communication among and between the various interest groups, facilitating consensus building on key policy issues

Strengthened capacity of regional and national, public and private institutions to analyze policy, engage in debate, disseminate information and promote options for sustainability in

### Amazonia.

Greater cooperation among and between the Amazon countries in order to encourage sustainability and harmonize their points of view in international debates on forestry and biodiversity policies, including joint research and training programs, and creation of combined institutions.

Presentation to international cooperation institutions of joint programs of the Amazon countries for improvement of institutional capacities and investment in sustainable development.

Orientation to programmes of private sector for investment in sustainable industries in the Amazon region and development of innovating financial mechanisms.

Greater harmonization in the sustainable development of the Amazon region.

### G. Long-term Project Results

67. There are several important long-term results expected from this project. First, the project will put in place a set of national processes of participatory policy review, with the aim of laying the foundation for continued participatory policy development in the region.

68. Also, the project should result in increased donor support for the implementation of an Bases for Action for Amazonia which will present a series of priorities for investment and donor focus, developed by and built upon a more consensual process of analysis, dialogue, and discussion throughout the region than has been seen to date. Such priorities, if seriously addressed, are more likely to result in significant reductions in biodiversity loss, deforestation, and related trends than priorities prepared in a more traditional, less participatory manner.

### H. Follow-Up Activities and Programs

69. Prior to implementation of the project it is difficult to specify follow-up activities as this will depend upon the interests of the various governments, as well as the evolving political, economic and social context. Tentatively, it is expected that this initiative will lead to greater preparedness for a number of actions that would further contribute to reducing rates of biodiversity loss and deforestation and meeting the socio-economic needs of the inhabitants of the Amazon countries.

70. The Pro Tempore Secretariat could prepare, in consultation with the Member Countries a scheme draft to provide the project with a Follow-Up Fund in order to ensure continuity and deepening thereof as well as a greater development of specific actions which have been identified by the ACT Member Countries during the first stages of the execution of the project.

## **I. Justification for GEF Support**

71. GEF support is essential for funding of the project, which is distinct due both to its various ground-breaking characteristics and the cost of implementing activities simultaneously in all eight countries.

Some of these characteristics include:

The project addresses critical environmental issues of biodiversity loss and global warming;

It utilizes an innovative multi-stakeholder approach, including extensive national participation in project design, consensus building methods, and community participation and academic fora;

It devotes special attention to private sector involvement;

Regional dimensions of cooperation and shared interests are addressed;

The project aims to develop a long-term strategy to address the root causes of environmental degradation in the region; and,

It aims to have a long-term impact by promoting institution building and sustainable processes.

## **J. Analysis of Complementarity to the Existing GEF Regional Amazonia Project and other Initiatives.**

72. The effort of the *Pro Tempore* Secretariat to inventory existing initiatives to promote sustainable development in Amazonia has identified over 2,000 activities in implementation or completed. A clear priority is bring some coherence to this extensive experience, learn from mistakes and successes and build upon this history to identify priorities for future investment and policy. This project, drawing upon the data base of the *Pro Tempore* Secretariat and other sources of information, in conjunction with up-to-date policy reviews, will provide the "umbrella" for past and ongoing efforts and build a consensus-based route map to sustainability for the region.

73. The execution of the project seeks to complement other existing projects strengthening reciprocally the efficiency of each one.

74. This proposal complements the ongoing GEF programme (projects RLA/92/G31/G32/G33), and projects implemented by FAO, the G7 and others, in the following ways:

Focuses on policy, identifying the obstacles, opportunities, and needed reforms within the broad range of policies which affect attainment of sustainability.



Includes in-depth research in some key complementary issues including sustainability assessment, trade policy, and infrastructure and provides assistance for the implementation of policies.

Strengthens institutional capacities, particularly in the areas of national and regional policies.

#### **K. Timetable**

- |     |                         |  |
|-----|-------------------------|--|
| 75. | December-January 1996:  | Establishment of regional and national partnership agreements.             |
|     | January 1996:           | Constitution of Program Coordinating Group, to meet each 6 months.         |
|     | January-May 1996:       | Creation of National Working Groups for implementation of activities.      |
|     | September 1996:         | Workshop for discussion of draft Sustainable Assessment Method manual.     |
|     | January 1997:           | Publication of assessment method manual.                                   |
|     | May 1997:               | Workshop to discuss draft report and Action Agenda.                        |
|     | May-October 1997:       | Consultation and preparation of final draft and publication of report.     |
|     | November-December 1997: | Launch of report and outreach in the Amazon countries and internationally. |
|     | January 1998 onwards:   | Start of follow-up.  |

#### **Technical Support for Project Implementation**

76. Technical support for project implementation will be provided primarily by the United Nations Development Programme. Other international organisations and institutions could support the implementation of the project.

**2-Year Project Budget**

77. The total costs for the project over the next two years are approximately \$3.8 million. A detailed budget is attached as Appendix 3.

## Technical Review on Regional Project Proposal Entitled: Action for a Sustainable Amazonia

This is a splendid proposal insofar as it is regional and transnational, and inclusive in the incorporation of government, private sector, and NGO community participation. I recommend this project without reservation and applaud the realistic thinking which went into its creation. The project aims at the two most salient issues which assure success: engagement of ALL parties concerned and emphasis on institution building. The inclusion of the private sector is essential; to conceive of, for example, policy without investment is foolhardy.

### 1. Justification

The project is extremely sound in design and conceptualization in that it includes the variables of environmental protection and sustainable development, a clear recognition of social and cultural factors, attention to the human rights of indigenous populations, and a clear-eyed realization that national and regional policy-makers, private sector investors, and the NGO community have a role to play in the furtherance of a coherent Amazonia policy. The appeal of the project lay in its broad-based search for and recognition of an inclusive constituency who must be included if a functioning policy is to be effectuated.

### 2. Technical Feasibility

The time table of activities, although ambitious, is realistic and supported by the requisite institutions and support groups to make the project's goals attainable. The vertical integration of institutions, from grass roots, through national and regional, and coupling with international organizations assures the foundations for success. Without the linkage of national/regional policy makers, private sector, university, and others a project such as this would lack stability. As it now stands, the design is solid.

### 3. Enabling Activities

Training and monitoring facilities are key to the sustainability and success of the project as is the emphasis on providing regularly scheduled "outputs" for dissemination of information to provide both a self-monitoring function as well as to promote and advertise project activities. The project concept is realistic in that it focuses on short-term implementation goals; middle-term monitoring goals; and long-term problem solving goals in an integrated fashion which recognizes the interdependency of each step with the goals of the next.

### 4. Incorporation

The strength of the project lies here in that the proposal recognizes and integrates the roles and interests of the public sector, the private sector, and the NGO community in a highly participatory forum. Rather than having many voices talking at once, this proposal calls for

collectivity and coherence and the sharing of experiences and policies. In that respect, this proposal is in advance of all others I have seen.

#### 5. Demonstration Value

The production of case studies and outputs will in themselves generate information and enthusiasm. However, the realism of the project, recognizing the many and varied interests of all the "players" in the Amazon, will attract the interest of other world area leaders who may have grown disenchanted with the concerns of more narrowly defined environmental groups. Also, the nature of the global economy with its emphasis on free trade and open borders will provide an environment more receptive to regional collaboration based on shared government and business interests that has heretofore been the case. The proposal thus is ground breaking.

#### 6. Sustainability

The critical mass of institutional and sectoral interests will provide an internal dynamic to keep the project going as all interests are involved in some respect. Institutions are varied and interconnected horizontally and vertically; concrete issues are addressed; trade and commerce are not neglected; university goals are incorporated; indigenous interests are recognized; and transparency is promoted. These are the ingredients of wise project design.

#### 7. Costs

The proposal seems modest and realistic in design and, if the institutional energy and interest can be maintained, should be sufficient to carry the project through to short, medium and long term fruition. The time table is sound and the international agencies have proven their interest over time. The demonstration value of the project, which I think is strong, should serve to attract support and endorsement from other sources.

# ANNEX # 3 - BUDGET

COUNTRY	: Regional Latin America	DATE PRINTED:	03/10/95	PAGE	1
PROJECT NUMBER	: RLA/95/G32/A/95/99	SHADOW BUDGET		LAST REV:	31/08/95
PROJECT TITLE	: Action for a Sustainable Amazonia				
PROJECT BUDGET COVERING UNDP CONTRIBUTION (in U.S. dollars)					

PROJECT COMPONENTS	TOTAL AMT M/M	1995 AMT M/M	1996 AMT M/M	1997 AMT M/M
*010 PROJECT PERSONNEL				
*11 Experts:				
011-001 Regional Coordinator	240,000		120,000	120,000
	24.0		12.0	12.0
011-002 International Experts	128,000		64,000	64,000
	16.0		8.0	8.0
011-051 National Coordinators (7)	504,000		252,000	252,000
	168.0		84.0	84.0
011-052 National Consultants	114,000	6,000	54,000	54,000
	76.0	4.0	36.0	36.0
11-99 Subtotal (*)	986,000	6,000	490,000	490,000
	284.0	4.0	140.0	140.0
*13 Admin support personnel:				
013-001 Administrative Support	120,000		60,000	60,000
13-99 Subtotal (*)	120,000		60,000	60,000
*15 Official travel:				
015-001 Official Travel	72,000	2,000	35,000	35,000
15-99 Subtotal (*)	72,000	2,000	35,000	35,000
*16 Mission costs:				
016-001 Mission Costs	52,000	2,000	26,000	24,000
16-99 Subtotal (*)	52,000	2,000	26,000	24,000
019 COMPONENT TOTAL (**)	1,230,000	10,000	611,000	609,000
	284.0	4.0	140.0	140.0
*020 SUBCONTRACTS				
021 001 National subcontracts	600,000		300,000	300,000

# ANNEX # 3 - BUDGET

COUNTRY	: Regional Latin America	DATE PRINTED:	03/10/95	PAGE	2
PROJECT NUMBER	: RLA/95/G32/A/95/99	SHADOW BUDGET		LAST REV:	31/08/95
PROJECT TITLE	: Action for a Sustainable Amazonia				
PROJECT BUDGET COVERING UNDP CONTRIBUTION (in U.S. dollars)					

PROJECT COMPONENTS	TOTAL AMT	1995 AMT	1996 AMT	1997 AMT
	M/M	M/M	M/M	M/M
021 051 SPT/ACT	460,000		230,000	230,000
021 052 International Subcontracts	84,000		42,000	42,000
029 COMPONENT TOTAL (**)	1,144,000		572,000	572,000
*030 TRAINING				
032 001 TRAINING	90,000		45,000	45,000
034 001 National Working Groups	270,000		135,000	135,000
034 002 Regional Workshop	240,000		120,000	120,000
034 004 SUBREGIONAL WORKSHOP	170,000	14,000	78,000	78,000
039 COMPONENT TOTAL (**)	770,000	14,000	378,000	378,000
*040 EQUIPMENT				
041 001 EXPENDABLE EQUIPMENT	30,800	800	15,000	15,000
042 001 Non-expendable equipment	460,000		230,000	230,000
049 COMPONENT TOTAL (**)	490,800	800	245,000	245,000
*050 MISCELLANEOUS				
052 001 Reports	84,000		42,000	42,000
053 001 Sundries	3,176		1,588	1,588
054 001 Support Costs	115,024	744	57,180	57,100
059 COMPONENT TOTAL (**)	202,200	744	100,768	100,688
099 BUDGET TYPE TOTAL (***)	3,837,000	25,544	1,906,768	1,904,688
	284.0	4.0	140.0	140.0
999 UNDP TOTAL (***)	3,837,000	25,544	1,906,768	1,904,688
	284.0	4.0	140.0	140.0

## **PROPOSAL FOR REVIEW**

<b>Project Title:</b>	<b>Biodiversity Enterprise Fund for Latin America</b>
<b>GEF Focal Area:</b>	<b>Biodiversity</b>
<b>Total Project Costs:</b>	<b>\$ 30 million</b>
<b>GEF Financing:</b>	<b>\$ 5 million</b>
<b>GEF Implementing Agency:</b>	<b>IFC/World Bank</b>
<b>Executing Agency:</b>	<b>FMC</b>
<b>Estimated Approval Date:</b>	<b>March 1996</b>
<b>Project Duration:</b>	<b>10 years</b>
<b>GEF Preparation Costs:</b>	<b>None</b>

**AUGUST 31, 1995**

## **GEF PROJECT PROPOSAL**

### **BIODIVERSITY ENTERPRISE FUND FOR LATIN AMERICA**

#### **REGIONAL/SECTOR BACKGROUND/CONTEXT**

Biodiversity is threatened by some forms of development but also protected or used sustainably by others. Forests and other natural habitats are under threat from increased population, logging, pollution, and expansion of cropland and urban settlement. Responses to the threat culminated in the signing of the Convention on Biological Diversity (the Convention). However, the problems recognized by the Convention will not be solved unless economic reasons for protecting biodiversity are found and unless the private sector contributes its vast technical, managerial, and financial resources and expertise. The Convention challenges signatory countries to seek and encourage new financial resources, including private sector resources, to implement the objectives of the Convention. The private sector can help prevent biodiversity loss by creating new value from intact ecosystems and genetic resources, diverting pressure from critical biodiversity resources, and practicing low impact methods for sustainable yields. Conservation activities, government policies, and consumer demands for products certified as "sustainable" by third party certifiers are expanding "biodiversity-linked markets" for businesses that sustainably use biological resources in agriculture, forestry, nontimber products from forests (NTFP) and wildlands, ecotourism, and other activities that restore or take development pressure off of biodiversity resource. These fast growing markets for biodiversity-linked products give the private sector an incentive to invest in sustainable uses of biodiversity.

The International Finance Corporation (IFC) conducted a market assessment of these biodiversity-linked sectors and a review of illustrative projects (the "deal flow"). The study indicated that numerous projects exist in South America in the sustainable agriculture and forestry sectors, and several in NTFPs and ecotourism. These businesses are selling goods and services into growing markets (15% average annually across all the biodiversity market sectors). While the volume of biodiversity products is still very small relative to the overall size of these markets, the production of these products is increasing rapidly. Demand for biodiversity products is driven primarily by consumer demands to convert markets from environmentally damaging to sustainably produced products. Biodiversity products are sold into segments of large, established markets. For example, sustainably harvested timber is sold into the US and European tropical lumber market which is valued at US\$1.3 billion annually, certified organic agricultural sales totaled US\$1.9 billion in the US and US\$4 billion in Europe in 1993, and NTFPs such as essential and edible oils are part of the natural products industry which reached US\$6.2 billion in sales in the US in 1993. Another factor is the transition in the US\$200 billion nature tourism market toward ecotourism.

IFC, the private sector affiliate of the World Bank Group, is the largest source of multilateral finance for the private sector in developing countries. IFC plays an active role in developing local financial institutions and capital markets and in mobilizing local savings and external investment flows. In this regard, IFC provides debt and equity finance to banks, leasing and insurance companies, and venture capital, emerging markets, and pension funds. IFC invests in venture capital to channel financing to small and medium sized projects that are too small for direct IFC financing.



## **PROJECT OBJECTIVES**

### **Global Environment Objectives and Benefits**

The Biodiversity Enterprise Fund for Latin America (the Fund) will respond to the challenge of the Convention to engage the private sector in financing biodiversity conservation. The Convention signatories and the Secretariat of the Convention are seeking new financial resources, including private sector resources, to implement the objectives of the Convention. The Fund will demonstrate a new financing method for sustainable uses of biodiversity. The Fund's projects will generate global environmental benefits by investing in sustainable uses or protection of biological resources.

### **Specific Project Objectives and Benefits**

The Fund's objective is to realize long-term capital appreciation through investments in companies and enterprises in Latin America that sustainably use or protect biodiversity in countries that are signatories to the Convention. The Fund will catalyze and encourage biodiversity-linked business opportunities by bringing together investment management expertise, advanced sector know-how, and both local and foreign investment capital and make these resources available to small and medium sized businesses that sustainably use, protect, or restore biodiversity. The investors in the Fund are unlikely to invest directly in projects of this size. The Fund will be the first institutional effort at investing in private sector biodiversity projects in the region. The success of this project will have an important demonstration effect with respect to the economic viability of such projects and is expected to be a catalyst for further investment in biodiversity-linked businesses.

## **PROJECT DESCRIPTION**

### **Introduction/Rationale for the Fund**

The Fund will be a venture capital fund to invest in sustainable uses of biological diversity in Latin America. The Fund, with a capitalization of up to US\$30 million, will receive investment funds from IFC (up to 20% of the investment in the Fund) and several potential local and foreign private sector investors, foundations, and institutions. The Fund will invest in projects with a total capitalization of about US \$100 million. The Fund will not be launched and the GEF funds will not be allocated unless a minimum of US\$15 million in capital is raised for the Fund. If the first US\$20-30 million is successfully invested, it is the intention of the Fund to raise significant additional investment to expand the size of the Fund.

The rationale for the Fund includes the following:

- **Business opportunity:** There are biodiversity business opportunities in Latin America and Latin American and other investors recognize these opportunities and have begun to invest in these projects.
- **Need for capital/leverage:** These ventures are seeking capital but funds available to finance these projects are inadequate because the projects are too small for standard IFC and other institutional financing, local bank debt is scarce and often at prohibitively high rates, bilateral agencies and foundations focus on NGOs and microenterprises, and project development costs and transaction risks are high. Capital from the Fund is needed to help these businesses obtain bank debt and equity investment.
- **Investors/Sponsors:** Private sector sponsors are interested in investing in the Fund.
- **Timing:** There are several reasons for creating the Fund now including a) the market transformations underway in forestry and other biodiversity-linked sectors are likely to accelerate and the Fund will

invest in companies that will lead these markets; and b) threatened biological resources are in danger of being lost and private capital is urgently needed to help protect and sustainably use them.

Latin America is proposed for the Fund because of the large number of medium-sized biodiversity projects in the region, the size and diversity of the Brazilian and neighboring country economies, and the interests of potential investors.

### **Types of Investments**

Examples of projects:

#### ***1. Sustainable and organic agriculture, aquaculture, preservation of crop varieties, and development of underused species or agricultural products***

Production and marketing of organically produced fruits, vegetables, coffee, and other produce, cottons, natural dyes, and other products; underutilized agricultural plant and animals species such as the oca (an Andean tuber), amaranth, palm oils, salt tolerant halophytes, and legume cover crops; integrated pest management; and culture of species using sustainable practices that are endangered in the wild or to ease overfishing of wild stock.

#### ***2. Timber from sustainable forest management***

Companies undertaking selective logging and plantations of local mixed tropical hardwoods and marketing and certification companies are candidate investments for the Fund.

#### ***3. Non-timber products from forests and wildlands***

Several enterprises and local communities in Latin America are extracting nuts, fruits, rubber, and oils from forest lands. Several products are transformed into value added food, clothing, and other products.

#### ***4. Ecotourism***

Some nature oriented tourism businesses follow ecotourism best practices linking travel in relatively pristine areas to low impact use, conservation of the areas' natural resources, and benefits to local communities. Projects are in development all over Latin America.

### **Fund Structure**

The Fund will have a term of ten years and make 15-20 investments. The operations of the fund will be contracted to a new fund Management Company (FMC). The Fund will have a Board of Directors designated by the principal shareholders. The Board, or its Investment Committee, will approve investments recommended by the FMC. The size of the Fund and number of investments will be expanded if the first US\$20-30 million is successfully invested. The interests of the GEF will be represented on the board of the Fund.

### **Investment Guidelines**

The Fund will operate under financial and biodiversity investment guidelines to be established by the founding shareholders. The financial guidelines will include general exposure guidelines such as limitations on individual investment size and sectoral and country concentration. Eligible projects will include existing

operations or start-up operations with experienced sponsors in the US\$300,000 to US\$10 million cost range. The Fund will limit its investment to about 25-40% of a project's costs and leverage its resources with other co-investors including local partners, banks and strategic, technology, or marketing partners. The Fund will exit its investments via share repurchase or put agreements with the investee company, initial public stock offerings, or sale to another company/investor.

### **Biodiversity and Environmental Guidelines**

Investments will be subject to biodiversity criteria to be established by the FMC, IFC, and the Fund's Advisory Board. These criteria will include for example, international standards or best practices for sustainable forestry, organic agriculture, and ecotourism and the World Bank's environmental policies and guidelines, including wildlands and forest policies. The biodiversity screening of projects and related project development work will include consultation or participation of local communities and stakeholders and review of local intellectual property rights, indigenous rights, and technology cooperation issues. Contractual covenants regarding environmental and biodiversity issues will be included in the investment agreements between the Fund and the Fund's portfolio companies. An Advisory Board of representatives of scientific research, broad-based and local NGOs, and business organizations and a member of the GEF Science and Technology Advisory Panel (STAP) will advise the Fund on biodiversity issues and screening of projects. The FMC will set up (with the advice of the Advisory Board) an environmental and biodiversity impact review procedure satisfactory to IFC to screen projects. The Fund will also be subject to the World Bank Group's environmental review requirements. IFC will assess the Fund's capability to carry out environmental and biodiversity reviews on each investee company and periodically review the Fund's activities as part of the supervision work that is undertaken for all IFC investments.

### **Monitoring and Evaluation**

The FMC (with the assistance of technical experts) will monitor and evaluate the financial, environmental, and biodiversity aspects of the Fund's investment projects and provide an annual report to shareholders (including IFC) and the GEF on biodiversity issues/benefits. Monitoring and evaluation criteria and methods will be established in consultation with the Fund's Advisory Board and IFC.

### **GEF Grant Funds**

US\$5 million in grant funds are requested from GEF because the risks and costs of satisfying both financial and biodiversity objectives will be higher than for a typical venture capital fund. These risks and costs include the unusual biodiversity-specific project development and supervision costs; the relatively small size, regional scope, and innovative nature of the Fund; and the uncertainties inherent in investing in new biodiversity-linked market sectors. Once projects are developed and screened, the Fund's investments will be made on commercial terms. The grant funds will not be part of or mingled with the Fund's investment funds, nor will the grant funds be used to make direct investments in companies or investment projects. Criteria for use of and the budget for the grant funds will be spelled out by IFC in the Fund's contract with the FMC. The FMC will keep a separate accounting of the uses of the GEF grant funds and provide suitable reports to IFC and GEF. See Project Financing and Budget section below for an explanation of the uses of the GEF funds.

### **Investors**

The Fund has been primarily developed by IFC with the advice and support of several potential investors. IFC is expected to provide up to 20% of the investment in the Fund. Other potential investors who have expressed a serious interest include Latin American and foreign investors and companies and several

foundations. Bilateral government and multilateral investment agencies have also expressed an interest. During late 1995, IFC and the FMC will approach potential investors to obtain investment commitments. Once the initial private sector investment is committed to the Fund, the Fund could consider a GEF equity investment in the Fund.

### **The Management Company**

The Fund is expected to be managed by a new company to be established by a Brazilian investment fund management group and IFC. The office of the FMC will be located in Brazil. The staff will include individuals with investment fund, venture capital, and environmental NGO experience. IFC will be represented on the FMC's board of directors to take part in policy decisions. The fee arrangements for the FMC are still to be decided.

### **Project Documents**

A draft feasibility study document is available from IFC's Environment Division. Contact: Michael Rubino; phone 202-473-2891; fax 202-334-8705.

## **RATIONALE FOR GEF FINANCING**

**Financial:** Without the GEF grant funds, the proposed Fund will not be created nor will it attract sufficient investor interest because of project development costs and risks that are higher than for a typical commercial fund. GEF grant funds will be used to cover the portion of operating costs that are over and above those of a normal or typical venture capital fund related to biodiversity screening, project review, monitoring and evaluation. The GEF grant will also be used to strengthen the biodiversity aspects of the projects that receive an investment from the Fund (e.g., by adding biodiversity considerations to project design, conducting monitoring and evaluation, providing technical assistance, including stakeholders and indigenous groups in project implementation, and drafting contracts to reflect indigenous rights, intellectual property, and technology cooperation issues).

**The Convention:** The Fund will respond to the challenge of the Convention and the guidance of the Conference of the Parties to engage the private sector in financing biodiversity conservation and to find new financial resources to implement the objectives of the Convention, and to support innovative measures to conserve and sustainably use biodiversity including economic incentives.

**The GEF Instrument:** The restructured GEF anticipated an active role for the private sector in the GEF. The Instrument spells out in paragraph 28 that GEF project execution by private sector entities may be supported.

**GEF operational strategy:** Several paragraphs of the draft strategy call for "leveraging additional finance through creative and innovative approaches to working with the private sector and activities which address biodiversity management within the productive sectors of an economy likely to lead to long term sustainability including non-timber forest products, wild relatives of domesticated species, agrobiodiversity, sustainable harvesting techniques, and sustainable wildlife-based tourism."

**Innovation, demonstration effect, replicability and sustainability:** The Fund will be the first institutional effort at investing in private sector biodiversity projects in the region. The success of this project will have an important demonstration effect with respect to the economic viability of such projects and funds and is expected to be a catalyst for further investment in biodiversity-linked businesses. The

project will also establish one of the few venture capital management companies in the region--and a company with the capability to screen projects for both investment and biodiversity objectives.

**GEF and the private sector:** The GEF Secretariat is preparing a paper for consideration by the GEF Council at its October 1995 meeting. The paper outlines options for greater involvement of the private sector in the GEF, different types of financing mechanisms (grants, concessional finance, participation in funds), and ways to define incremental cost in a private sector context (private sector projects face "financial" rather than the "economic" incremental costs faced by public sector projects; and, incremental costs can include incremental risks). The proposed Fund contains examples of and will be a demonstration of private sector approaches that might be used by the GEF in other future projects.

**Financial leverage:** US\$5 million in GEF grant funds will leverage US\$20-30 million in investment in the Fund. The Fund, in turn, will invest in projects with a total investment cost of US\$70-100 million leveraging the investment of entrepreneurs and co-investors in the projects. (The Fund's participation in any one project will average about 25-30% of project costs). If the first US \$20-30 million is successfully invested, it is the intention of the Fund to raise additional investment funds for the Fund up to about US\$100 million, further increasing the leverage.

## **PARTICIPATION**

The Fund will engage in a variety of communications, participation, outreach, and consultation activities:

- The Fund will engage small and medium sized enterprises by investing in their projects.
- Sponsors/investors include investment and business groups with interest in finding environmentally sensitive investment projects and private sector solutions to biodiversity challenges. The Fund will bring together local and foreign private sector investors, companies, banks, foundations, bilateral and multilateral agencies to invest in the Fund or to co-invest in projects.
- The Advisory Board will include representation from STAP and the scientific and NGO communities.
- Project reviews and implementation will include consultation of local communities and other stakeholders when appropriate.
- The design of the fund and the feasibility study conducted by IFC included consultations with the private sector, local and international NGOs, foundations, scientific and research organizations, agencies of local and GEF donor governments, and multilateral institutions.
- The status of the Fund's investments and a summary of the monitoring and evaluation activities will be described in an annual report of the Fund available to the interested public.
- The FMC, IFC, and the potential Fund sponsors have a well-established project referral network for biodiversity business projects that includes investors and companies, banks, NGOs, international and government agencies, and industry associations.

## **LESSONS LEARNED AND TECHNICAL REVIEW**

IFC's experience with GEF-eligible biodiversity projects during the Pilot Phase indicated that most such projects are too small for direct investment by IFC (less than US\$10 million in investment costs). IFC has been seeking ways to invest in SMEs through financial intermediaries such as banks, venture capital and investment companies, and NGOs. The IFC/GEF Small and Medium Scale Enterprise Program, approved by GEF during the pilot phase, is an example of this approach. The proposed Fund will co-finance projects (with total investment cost per project in the US \$300,000-US \$10 million size) that are larger than those targeted by the SME program (less than US \$300,000 in size). The lessons learned from IFC's extensive participation in venture capital and investment companies during the past 20 years will be incorporated in the design and supervision of the proposed Fund.

The Independent Technical Review of the proposed Fund is attached.

## **PROJECT FINANCING AND BUDGET**

The total annual operating or management budget of the FMC is expected to be up to US\$1 million (or up to 4-5% of the invested capital in the Fund). About half of these costs will be covered by the investors in the Fund in the form of the management fee charged to the Fund by the FMC. Therefore, about 2.0-2.5% per year (subject to final negotiation with the FMC and lead investors) of the US\$20-30 million fund will be used for the normal or typical management costs. The balance of the invested capital will be invested in portfolio companies. Staff, office/overhead, travel, legal, and other costs of managing and supervising the financial aspects of a Fund and investee companies within one region of a country would be in the range of US\$400,000 to US\$500,000 per year or about US\$5 million over the life of the Fund.

The other portion of the annual operating costs will be covered by the US\$5 million GEF grant (or about US\$500,000 per year). GEF grant funds will be used to cover that portion of the Fund's operating or management costs that are over and above those of a normal or typical commercial venture capital fund. Specifically the grant will cover the additional staff, consultant, travel, and other expense costs directly related to the biodiversity aspects of project review, technical assistance, monitoring, evaluation and reporting; and the Advisory Board. Undertaken to fulfill the biodiversity objectives of the Fund, these are activities that fund managers would not normally support from their administrative budget. The biodiversity-specific activities may include biological, risk, social, and legal assessments; additional technical review; preparation of special innovative contracts to address biodiversity, indigenous rights, and intellectual property issues; and stakeholder consultation. These are activities or transaction costs required to get projects and sponsors to the point where an investment decision can be taken using both financial and biodiversity objectives. Once the investment is made by the Fund, biodiversity-specific costs will include technical assistance provided to recipient companies to enhance the biodiversity benefits of the project and project supervision and evaluation.

Grant funds will be advanced to the FMC in annual installments over the life of the Fund from the World Bank GEF trust fund. IFC will closely monitor and approve the FMC's annual budget for biodiversity-related activities covered by the GEF grant.

The preparation of the Fund was conducted largely by IFC. IFC conducted a sectoral feasibility study, vetted prospective fund managers, and established contacts with potential lead investors. These preparatory costs were funded by IFC, the GEF, and a grant from the Heinz Endowments. The World Bank contributed advice during the Fund development.

## **INCREMENTAL COSTS**

A baseline or business-as-usual scenario is as follows: These ventures are seeking capital but investment funds available to finance these projects are inadequate because the projects are too small for standard IFC and other institutional financing, local bank debt is scarce and often at prohibitively high rates, bilateral agencies and foundations focus on NGOs and microenterprises, and project development costs are high. There are numerous commercial banks and a few investment funds in Latin America but these financial institutions do not consider biodiversity criteria in investment decisions. Therefore, capital from the Fund (combined with the entrepreneur's equity), is needed to help these businesses obtain needed bank debt and additional equity investment. And the Fund will not attract sufficient investment unless GEF grant funds are available to cover the higher than normal fund management costs and investor risks related to meeting

the biodiversity objective of the Fund. The GEF grant funds will leverage approximately US\$100 million in projects with biodiversity benefits, projects that would likely not have been financed or not financed until several years later.

The incremental costs for this project consist of the portion of the Fund's project preparation/development, technical assistance, stakeholder consultation, monitoring, and evaluation costs required to meet the biodiversity objectives of the Fund that are over and above those of a normal or typical commercial venture capital fund. These costs are further described in the Project Financing and Budget section above and are considered incremental costs by the GEF.

## **RISKS**

**Mobilization Risk:** While more than ten investors have indicated a serious interest in investing in the Fund, there is a risk that the amount raised from investors will be lower than the targeted amount. The Fund will require a minimum of US\$15 million to close. This risk is mitigated by the number and seriousness of investor interest, IFC's participation, and the potential availability of grant funds to reduce project development risks and management costs.

**Deal Flow Risk:** There is a risk that the number of projects in the US\$300,000 to US\$10 million size may be fewer than anticipated which could slow disbursements from the Fund and put pressure on the Fund to make lower quality investments.

**Management Risk:** Few fund management companies in Latin America have venture capital/equity fund management experience or biodiversity screening experience. However, the management team selected will have investment fund, banking, venture capital, and environmental NGO experience. IFC, through its seats on the Board of Directors of the Fund and the FMC will supervise the biodiversity and environmental screening, monitoring, and evaluation activities of the FMC.

**Public Relations Risk:** Many NGOs and donor governments are seeking private sector participation in biodiversity conservation. Within these circles, the proposed Fund will be a highly visible demonstration of a private sector initiative. Definitions of what constitutes an appropriate biodiversity investment and views on biodiversity impacts may differ from one group to another. Stakeholders, investors, and donors should keep in mind that the proposed Fund will be a demonstration, first of its kind, effort. Lessons learned from the experiences of the Fund will help the international community to define best practices, impacts, and sustainable uses.

**Biodiversity Risk:** There is a risk that investee/portfolio companies may engage in actions with funds received from the Fund that are harmful to biodiversity resources. As a risk mitigation strategy, the Fund will have potential investments reviewed by the Advisory Board and require that the investment projects follow international best practice and World Bank environmental policies and guidelines. Fund investments will be monitored and evaluated. Investments in companies that fail to meet the environmental and biodiversity covenants of the investment agreements will be terminated if corrective actions are not taken.

## **INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

The proposed GEF grant will be administered by IFC (within the World Bank Group). The monitoring and evaluation activities of the FMC and of IFC are described in previous sections.

## **APPENDIX**

### **PROJECT FINANCING AND BUDGET**

#### **BIODIVERSITY ENTERPRISE FUND FOR LATIN AMERICA (BEF)**

##### **Fund Capitalization:**

US\$20-30 million from IFC, private sector investors, foundations, and possibly other international financial institutions.

##### **Uses of the Fund's Capital:**

1. Management fee or operating budget of the fund management company (FMC). This fee is typically 2% to 2.5% annually of the capital in the fund, in this case, about US\$450,000 to US\$500,000 per year. This budget is for staff, office and travel expenses, and other costs of managing the fund (including project identification, screening, selection, structuring, supervision, technical assistance, and exit).
2. The balance is available to invest in up to a total of 15 to 20 projects.

##### **GEF Grant:**

The US\$5 million in GEF grant funds will be specifically for and restricted to the costs to the Fund of addressing the biodiversity aspects of project review, screening, supervision, and technical assistance and to fulfill the evaluation and reporting interests/requirements of the GEF. These are costs over and above the normal or typical costs of managing a fund (and included in the FMC's management fee) undertaken to meet the biodiversity objectives of the Fund. These are activities that a fund manager would not normally incur. The biodiversity-specific activities may include biological, social, legal, and risk assessment; additional technical review; preparation of special contracts to address biodiversity; indigenous rights, and intellectual property issues; and stakeholder consultations. These are all transaction cost activities required to get projects and sponsors to the point where an investment decision can be taken using both financial and biodiversity criteria. Once the investment is made by the Fund, biodiversity-specific costs will include technical assistance provided to recipient companies to enhance the biodiversity benefits of the project and project supervision and evaluation. Thus, the GEF funds will be used for the additional FMC staff, consultant, travel, and other expenses directly related to the biodiversity aspects of project review, monitoring, evaluation, technical assistance and reporting; and the Advisory Board. Grant funds will be advanced to the FMC in annual installments of US\$500,000 (approved annually by IFC) over the life of the Fund.

##### **Leverage:**

US\$5 million in GEF grant funds will leverage US\$20-30 million in investment in the Fund. The Fund, in turn, will invest in projects with a total investment cost of US\$70-100 million leveraging the investment of entrepreneurs and co-investors in the projects. (The Fund's participation in any one project will average about 25-30% of project costs). If the first US \$20-30 million is successfully invested, it is the intention of the Fund to raise additional investment funds for the Fund up to about US\$100 million, further increasing the leverage.



RE: Independent technical review of Biodiversity Enterprise Fund Proposal

Date: August 31, 1995

I have served on several GEF Review Panels over the course of the past three years. In my estimation, the proposal for the establishment of the Biodiversity Enterprise Fund is the best project that I have seen submitted to the GEF. Let me explain why.

Most of the projects I have either seen or heard about represent traditional approaches to conservation: set up a protected area and manage it. This type of conservation does not represent new paradigms that GEF could develop and implement. That is why I'm so supportive of the Biodiversity Enterprise Fund. Like any other movement, international conservation has its phases: endangered species, parks and protected areas, megadiversity, sustainable development, etc., etc. There has been much talk of late of using "the magic of the marketplace" for conservation, but this has not been tried on any scale approaching what is necessary to truly make a difference. Efforts have been haphazard and undercapitalized. The Biodiversity Enterprise Fund has been designed to change that.

Make no mistake - I do not see the BEF or any other private sector investment as the ultimate savior of the rain forest or the panacea for the problems inherent in economic development in the humid tropics. I strongly disagree with the belief (both widespread and fashionable in Washington) that conservation activities by the public sector have been a dismal failure and the private sector holds all the answers. At the same time, however, I feel that the private sector should play a bigger role in these activities. Yet I worry that some of these market-related conservation activities now being launched may have a disastrous impact on the species they are supposed to save because of the lack of adequate project design and/or long term monitoring.

This is where BEF comes in. I can see no higher priority right now than the establishment of this fund under the aegis of a major multilateral like IFC. The project design seems more than adequate, and the proposal clearly addresses the Convention on Biodiversity's call for the support of innovative measures to conserve and sustainably utilize biodiversity. The proposal is also right in line with the Convention's stated need to find additional resources (from the private sector, in this case) to finance biodiversity

conservation. As described in the proposal, BEF appears to have adequate project screening, monitoring, evaluation, and reporting capabilities and requirements to address GEF biodiversity concerns and objectives.

Clearly, the size of the fund - \$30 million - is not that large, especially given the enormity of the problems the fund is supposed to address (but worth bearing in mind is that this kind of money does dwarf the budget of many NGO's working in this field). What is infinitely more important than the size of the fund itself is that the multilateral community gives its imprimatur to this type of approach to conservation by establishing the fund in the first place.

There is a sea change now underway in most South American countries as the old statist models are being swept away. This has had a very negative impact on the natural resources of some of the countries because, in the rush to the global marketplace, these resources are being sold at a mere fraction of their value. Yet in Costa Rica, the value of ecotourism exceeds that of timber, cattle, and coffee. The world needs more examples like this. There is no reason that countries like Peru and Brazil, both richer in terms of both biological and cultural diversity, should not be able to outpace Costa Rica. With the establishment of BEF, these countries now have somewhere to go to receive the funding necessary to build their own successful models.

I believe that the project is well-designed but I have three particular concerns. The first is that of locating the Fund within the region. If the headquarters are in Rio, will applicants from non-Brazilian countries face a level playing field, or will we end up seeing all the money spent within Brazil? (Perhaps it might be worth stating at the outset that no more than half the funds could be spent on projects within Brazil). Secondly, the fund needs to be monitored very carefully to ensure that these monies are not used by predatory companies claiming to be conservationists but employing the funds to carry out business as usual (I'm particularly concerned with big ecotourism efforts). Finally, if projects can be as large as \$10 million, is BEF really ready to fund only three projects? I would suggest an upper ceiling of projects in the \$3 million range in order to launch enough different projects to get a feel for what does (and doesn't) work.

I am favorably impressed with the chosen areas of focus: alternate agriculture, sustainable forestry, non-timber forest products, ecotourism, and bioprospecting. Of course, \$30 million could be put into any one of these areas and still not fund all the good ideas that are out there. Nonetheless, I want to reiterate my warning that care must be taken that the money not go solely to the big players that are already in these fields and will use the monies to carry out activities which they will label as "sustainable" solely to have access to these funds. One of the best ways to avoid falling into this trap is to explicitly plan sponsor projects by small and medium scale enterprises (as the BEF proposes) and by community groups as well as NGOs, in addition to the larger companies that will (more than likely) be the most numerous applicants for these funds.

I'd also like to comment on two of these areas which are my special areas of expertise: NTFPs and bioprospecting. In terms of the NTFPs, most recent efforts have tended to fall into two camps: working with products which are already commodities in the international marketplace (e.g., rubber and Brazil nuts) or with products which are little known outside indigenous communities. Furthermore, the major thrust of many of these efforts has been to focus on international markets. I would strongly recommend focusing on NTFPs with strong local markets with an orientation on expanding these local markets into regional ones.

In terms of bioprospecting, the Fund has to proceed as cautiously as possible. This is a highly contentious, rapidly evolving field which can result in all sorts of negative repercussions if not managed extremely carefully. (I have just been told that the Venezuelans are so anti-bioprospecting that they are passing legislation forbidding all plant collection within their borders - even by local botanists who are engaged in taxonomic studies!). The difficulties of bringing a new pharmaceutical drug to the global marketplace are staggering. Once again, I would encourage the submission of proposals for developing new pharmaceuticals for regional markets which will prove much easier in the short term. This is not intended to give the impression that I don't believe that new drugs for western markets cannot be developed by local firms, just that this type of regional approach has seldom been tried and is well worthy of support as a complementary effort.

I hope that these comments prove useful. Please do not hesitate to contact me if I can provide additional information.

## PROPOSAL FOR REVIEW

**Project Title:** Jordan: Gulf of Aqaba Environmental Action Plan

**GEF Focal Area:** International Waters

**Country Eligibility:** Convention Ratified November 1993

**Total Project Costs:** US \$ 12,67 million

**GEF Financing:** US \$ 2.70 million

**Country Contribution:** US \$ 2.20 million

**Cofinancing/Parallel Financing:** Upper Gulf of Aqaba Oil Spill Contingency Plan  
(EU/Japan): US \$ 1.90 million - EU  
US \$ 5.60 million - Japan  
Egypt Sinai National Parks/Regional Aspects  
(EU): US \$ 32,500 - EU  
Jordan Marine Protected Area (USAID):  
US \$240,000 - USAID

**GEF Implementing Agency:** World Bank

**Local Counterpart Agencies:** Ministry of Planning/Aqaba Regional Authority

**Estimated Approval Date:** April 1996

**Project Duration:** 3 years

**GEF Preparation Costs:** GEF PPA US \$ 295,000

# JORDAN

## GULF OF AQABA ENVIRONMENTAL ACTION PLAN

### I. BACKGROUND

1. **Overview.** The Red Sea, which contains globally unique ecosystems and biodiversity, is being seriously degraded as a result of pollution, physical destruction and unsustainable exploitation of marine and coastal natural resources. The primary environmental "hot spot" of the region, the Gulf of Aqaba, is threatened by significant recent and planned developments at Aqaba that are leading to transboundary degradation of Red Sea ecosystems (paras. 11-19). As a result of its semi-enclosed nature, the Gulf of Aqaba is particularly susceptible to marine pollution and ecosystem degradation. Development and implementation of a comprehensive strategy and plan for environmental protection of the entire Red Sea will require a considerable gestation period. A framework for collaboration and cooperation among the littoral nations must be established, one which would demonstrate its replicability for integrated management and development of Red Sea natural resources appropriate for the region.
2. **Links with Regional Strategic Work.** The proposed project would address priority threats to the international waters of the Gulf of Aqaba and Red Sea in a comprehensive manner. It would facilitate development of an approach to halt and prevent marine pollution, and protect globally important coral reefs throughout the Red Sea area. As the primary "hot spot" activity it represents, this project is being prepared in parallel to the recently GEF-approved Strategic Action Programme for the Red Sea and Gulf of Aden Region, which supports the Programme on the Environment of the Red Sea and Gulf of Aden (PERSGA). The proposed project would also contribute to operationalizing the Regional Convention for the Conservation of the Red Sea and the Gulf of Aden Environment (Jeddah Convention).
3. The project complements ongoing and planned GEF projects which address broad development impacts on the Red Sea. These include: *a) Egypt Red Sea Coastal Zone Management*, focusing primarily on tourism impacts, and *b) Yemen Marine Ecosystem Protection*, targeted primarily at environmental monitoring and mitigation of oil-based pollution activities. Other current efforts designed to facilitate regional environmental cooperation between Red Sea littoral states at a policy level include UNEP's ongoing Regional Seas Programme and the recent signing by Jordan of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). In addition, coordination with the Bank's program in the region – including the Egypt Private Sector Tourism project, the proposed Jordan Second Tourism project, the proposed Jordan Aqaba Thermal Power II Project and the Rift Valley exercise – is ongoing. The proposed Aqaba program would provide an important sub-regional activity and an essential complement to ongoing activities, catalyzing the development of a more comprehensive and coherent system of resource management and ecosystem protection for the entire Red Sea region,
4. **National and Regional Actions in the Gulf.** In November 1991, the Jordanian Government requested that a proposal for a regional Gulf of Aqaba Environmental Action Plan be submitted to the GEF participants. The Jordanian Government asked the Bank to facilitate the preparation of the proposed Aqaba program. Subsequently, a World Bank mission assisted the Government in preparing a framework for an environmental action plan for the Jordanian portion of the Gulf of Aqaba. In May 1992, the Government of Jordan presented the framework for a proposed Environmental Action Plan to the Multilateral Working Group on Environment of the Middle East Peace Process (WGE), in Tokyo. In October 1993, the Government of Jordan, with GEF and World Bank assistance, prepared the "Gulf of Aqaba Environmental Action Plan, Jordan" (GAEAP). The plan was presented at the 4th meeting of the WGE in Cairo, in November 1993.

## **JORDAN**

### **GULF OF AQABA ENVIRONMENTAL ACTION PLAN**

Focal Areas:	International Waters
Country Eligibility:	Signed MARPOL, December 1994 Ratified Biodiversity Convention, November 1993 National Environmental Strategy Prepared
Total Project Cost:	US \$12.67 million
Proposed GEF Contribution:	US \$2.70 million
Government Co-financing:	US \$2.20 million
Associated Projects & Co-financing:	Upper Gulf of Aqaba Oil Spill Contingency Plan (EU/Japan): US \$1.90 million - EU US \$5.60 million - Japan Egypt Sinai National Parks/Regional Aspects (EU): US \$32,500 - EU Jordan Marine Protected Area (USAID): US \$240,000 - USAID
GEF Implementing Agency:	World Bank
Local Counterpart Agencies:	Ministry of Planning / Aqaba Regional Authority
Estimated Starting Date:	April 1996
Project Duration:	3 years
GEF Preparation Costs:	GEF PPA US \$295,000

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5. The GAEAP proposes 23 actions (investments and technical assistance) in six categories of activity, namely: legal and regulatory framework; institutional strengthening; infrastructure investments; protected area management; monitoring and applied research; and public awareness and environmental education. A number of crucial transboundary "priority 1" actions would be undertaken under the first phase of the proposed GEF project. The highest priority action is setting up the legal and regulatory framework for implementation of curative and preventive environmental measures addressing transboundary water issues.
6. During 1994 and 1995, Egypt, Israel and Jordan have taken a first step toward developing a regional approach to Gulf of Aqaba environmental protection through the preparation of an Upper Gulf of Aqaba Oil Spill Contingency Plan funded by the European Union (EU) and the Government of Japan. Under this plan, currently under implementation, emergency response centers in each of the three nations will coordinate in the event of a spill requiring a regional response. Moreover, components of a Jordanian Marine Protected Area strategy are being developed with USAID and US National Park Service funding. In parallel, Egypt has recently extended the area along the Egyptian coastline of the Gulf of Aqaba under protected status, an important step toward ensuring the protection of the coast's biodiversity while allowing for environmentally sustainable tourism development.
7. Jordan's commitment to pursuing a regional approach to Gulf of Aqaba environmental protection was further advanced by the signing of a peace treaty with Israel, in October 1994. Under Annex IV of that treaty, the two governments agreed to cooperate in developing legislative, regulatory, planning and emergency response measures to protect key areas including the Gulf of Aqaba. As a specific outgrowth of the peace treaty with Israel, Jordan has advanced a Binational Red Sea Marine Park Concept, involving cooperation between the two nations in developing and implementing a marine park management strategy for the upper Gulf of Aqaba. Building upon this regional model, the Government of Jordan has recently responded favorably to the Government of Egypt's offer of technical assistance in

marine park management, to be provided by Ras Mohammed National Park, under the auspices of the Egyptian Environmental Affairs Agency. Jordan's commitment to tackling the Gulf's marine pollution problems is further indicated by signature, and expected ratification in 1995, of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

8. **Geographic Characteristics and Global Biological Significance.** The Gulf of Aqaba, one of the two northward extensions of the Red Sea, is bounded by Egypt, Israel, Jordan and Saudi Arabia. The Gulf of Aqaba is 180 km long, 14-26 km wide, has an average depth of 800 m, and is connected to the Red Sea at the narrow (6 km) Strait of Tiran. Atypical oceanographic characteristics of this semi-enclosed portion of the Red Sea have resulted in the evolution of biological diversity that is unique to the Gulf of Aqaba, making the area a global priority for conservation. Many endemic species occur among the Gulf of Aqaba's coral reef communities. The Gulf's coral diversity, which includes over 192 scleractinian (reef-building corals) and 120 soft coral species, is higher than in other parts of the Red Sea. Twelve percent (80 known species) of mollusks and a similar proportion of echinodermata occurring in the Gulf may be endemic. Fifteen percent of the Gulf's amphipod species have only been recorded in the Gulf of Aqaba and adjacent neighboring Red Sea areas. Of the 268 species of fish that have been recorded, seven are recognized as endemic.

9. **Environmental Threats and Priorities.** The same semi-enclosed characteristics of the Gulf of Aqaba that have led to its rich and unique biodiversity also results in limited water exchange with the Red Sea and Indian Ocean. Based on preliminary observations made in the Strait of Tiran, the residence time for shallow water is one to two years, while the lower mass of water experiences a three-year average residence time. The Gulf's relatively small size, combined with the low rate of water circulation and renewal, reduces the potential for dispersion of oil and other water pollutants. The problem of confinement and concentration of pollutants is particularly acute in the Jordanian portion of the Gulf of Aqaba, whose relatively shallow waters lie at the Gulf's northern tip, furthest from the narrow strait of Tiran that separate the Gulf from the Red Sea.

10. Until the 1960s, the Gulf of Aqaba was relatively unaffected by development, with a coastline only sparsely populated by Bedouins. Since then, the Gulf has become a strategic international resource, with major industrial facilities, shipping activities and rapidly expanding tourism. These developments have already caused severe disturbance and damage to the Gulf's coastal and marine ecosystems. Phosphate deposition from ship loading operations, frequent small to moderate oil spills, sewage discharges, and thermal pollution from coastal industries have severely eroded coral life, particularly in the Gulf's intensively developed northern reaches. Transboundary movement of pollutants is a priority issue. Moreover, poorly regulated resort development and over-fishing have transformed coastal and marine ecology in many areas, causing particular devastation to near-shore reefs in a number of popular diving areas.

11. **Focus on Aqaba - the Red Sea Primary Environmental Hot Spot.** Jordan's Gulf coastline has been modified by a variety of developments which accompanied the nation's economic growth from the mid-1970s to the mid-1980s. The Port of Aqaba gives Jordan its only outlet to the Red Sea and is of crucial importance to the Jordanian economy. Since the 1970s, the port has changed from a modest complex servicing Jordan's local needs to a regional transportation hub through which diversified cargo has moved at a rate of 11.6 to 18.7 million tons per year since 1989. The increase in shipping activities through Aqaba over the past decade has made it, in times of political stability, the busiest Red Sea port after Suez in Egypt and Jeddah in Saudi Arabia.

12. Along Jordan's northern Gulf shoreline lies the city of Aqaba, whose population has grown from 10,000 in 1972 to 65,000 today. Aqaba's existing hotel district has developed along a half-kilometer



stretch of sandy beach front in this area, to the immediate north of Aqaba's main port area where 3.6 to 6.4 million tons of phosphate rock have been exported annually since 1989. South of the main port are specialized berths for rice, cement livestock, and containers, as well as a ferry terminal serving some 1.26 million passengers and 87,000 motor vehicles per year. South of the ferry terminal begins Jordan's only stretch of undeveloped shoreline - a 6-kilometer expanse that the Government has slated for hotel and resort development. Between this proposed "South Coast Tourism Zone" and the Saudi Arabian border lies Jordan's South Coast Industrial Zone, featuring a 260 megawatt oil-fired power station (soon to be doubled in capacity), major fertilizer manufacturing and storage facilities, storage tanks for chemical solvents and vegetable oil, and a petroleum export jetty. Ready access to large quantities of cooling water, unavailable elsewhere in Jordan, is a major inducement to industrial development in this zone.

13. The rapid pace and intensive scale of development along Jordan's Gulf of Aqaba coastline are reflective of broader threats to Gulf ecosystem stability that call urgently for regional and sub-regional solutions. Pollution prevention and resource conservation measures are urgently needed to prevent irreversible loss to the biodiversity and overall ecosystem functioning of the Gulf of Aqaba and Red Sea environments. However, since port and industrial activities along Jordan's Gulf coastline which impact international waters far exceed the scale of such activities in other Gulf-bordering states, it is both appropriate and necessary that Jordan take this vital first step toward facilitating an overall marine pollution action plan for the Gulf of Aqaba.

14. **International Waters Impacts.** The enclosed nature of the environment of the Gulf of Aqaba, which has given rise to its unique biodiversity, causes the sea to be particularly susceptible to pollution. Marine pollution sources include oil spills originating from both shipping and road haulage activities, discarded solid waste, and spills of minerals (e.g., phosphate, sulfur) and of organic matter (such as grains) resulting from bulk cargo loading operations.

15. With intensive port, industrial and tourism development activities concentrated along Jordan's 29-kilometer shoreline, environmental protection measures advanced under the proposed GEF project would have a profound beneficial impact extending beyond Jordan's territorial waters. Oil pollution and discarded garbage from land-based recreational activities and from ships traveling to and from the Port of Aqaba have tangible adverse impacts on coastal and marine habitats in all adjacent littoral states. The introduction of non-indigenous species into the Gulf's marine waters through ballast water discharges may also threaten the delicate balance of marine organisms in reef areas throughout the Gulf.

16. Other transboundary environmental impacts affecting all four Gulf-bordering states include pollution from mineral-loading operations in the adjacent ports of Aqaba (Jordan) and Eilat (Israel). Phosphate deposition on marine waters, a continuing problem despite the recent installation of choke feeders in the Port of Aqaba, inhibits coral growth in adjacent waters and may have a broader adverse impact on overall rates of coral reproduction in the Upper Gulf region. Chemical and thermal discharges from fertilizer factories, power generation facilities and chemical tank farms in Jordan's South Coast Industrial Zone endanger marine life not only within Jordan but in immediately adjacent Saudi Arabian waters.

17. Over-fishing of Jordanian coastal waters poses an immediate threat to the diversity and abundance of fish life throughout the Upper Gulf. The widespread use of cage traps and small-aperture nets in fragile reef areas has caused direct damage to reefs and has all but eliminated larger fish species from Jordanian waters. Poorly regulated fishing in adjacent coastal areas of Egypt and Israel further contribute to depletion of this resource.

18. Major plans for tourism development along the Egyptian, Israeli and Jordanian coasts further threaten marine water quality and ecosystem stability, unless effective coastal zone management guidelines and marine protected area plans are effectively implemented. In Jordan's South Coast Tourism Zone, construction of marinas and beachfront accommodations may result in the direct destruction of near-shore reefs; inadequate flood control measures may result in damaging siltation and nutrient deposition in highly sensitive reef areas; and anticipated large numbers of snorkelers, divers and tour boats may cause further direct damage to near-shore reefs. Effective coastal zone management and marine protected area initiatives in Jordan will be an essential counterpart to parallel, coordinated measures addressing present and potential tourism impacts in Egypt and Israel.

19. Pollution of the shallow, brackish water aquifer immediately underlying the coastal towns of Aqaba and Eilat is another important area of international waters concern. Sewage from the Aqaba municipal sewage treatment ponds infiltrates this aquifer, whose depth averages only 1.5 to 2 meters below the land surface. Waste oil from truck repair facilities in Aqaba is a further identified threat to this shallow groundwater resource. Given the region's extreme water scarcity and the increasing use of desalination as a necessity to meet mounting water demand, brackish water from the Aqaba-Eilat transboundary aquifer is a valuable resource, offering a less costly alternative to the treatment of highly saline Gulf marine water. Current pollution of this aquifer may render it unusable in future years.

## II. PROJECT OBJECTIVES

20. **Background.** The proposed GEF project is part of the broader Environmental Action Plan for the Gulf of Aqaba (GAEAP) (paras 4-5). The primary objective of the GAEAP is to contain existing damage and prevent further environmental degradation of the Gulf of Aqaba's coast, coral reefs and marine ecosystems through the implementation of environmental management activities accompanied by required investments. The GAEAP was presented at the 4th meeting of the Multilateral Working Group on Environment of the Middle East Peace Process in November 1993. Implementation of the GAEAP is currently underway and includes: (a) preparation and implementation of an oil spill contingency plan for Egypt, Israel and Jordan (funded by the EU and Japan); (b) installation of two choke feeders to reduce phosphate dust pollution from shiploading operations at the Port of Aqaba (funded by the Aqaba Ports Corporation); and (c) as part of the GEF PPA activities related to coral reef protection, development of transboundary components of the marine protected area (with partial USAID funding) (see para. 25E).

21. **GEF Project.** The proposed GEF project specifically targets those components of the GAEAP which address international waters issues from which expected additional global benefits will only be attained through joint action. The primary objective of the proposed GEF project is to enable Jordan to take the lead in establishing and implementing a regional collaborative framework for sustainable management and protection of the Gulf of Aqaba and the conservation of its unique coral reefs. The project utilizes the comprehensive approach outlined in the GEF Council strategy for international waters to develop mechanisms for control of transboundary pollution, and addresses environmental issues that constitute regional and global priorities. A related international waters issue addressed by the proposed project is the prevention of further degradation of the transboundary aquifer in the Aqaba coastal zone (see para. 25C).

22. Specific project objectives would be to: (a) develop regional collaborative mechanisms for environmental management to strengthen capacity for the protection of the coastal zone and marine biodiversity; (b) develop and enforce the legal framework and regulations for control of transboundary pollution; (c) provide for safeguards against oil pollution of aquifers and the marine environment; (d) establish and implement guidelines for the sustainable development of the coastal zone; (e) assess the effects of wastewater seepage on the quality and level of the transboundary groundwater table; (f)

implement a plan to control transboundary solid waste impacts on the marine and coastal water resource systems; and (g) implement a marine protected area.

### III. PROJECT DESCRIPTION

23. Under the proposed GEF project, the Government of Jordan, in concert with Egypt and Israel, would develop and implement priority measures to halt and prevent pollution of the marine environment and the transboundary aquifers in the Aqaba coastal zone.

24. Important groundwork for this project has been laid by the GEF PPA for the Gulf of Aqaba, which has been implemented by the Aqaba Region Authority (ARA) under the supervision of the Ministry of Planning. Under the PPA, Jordanian and foreign engineers, lawyers and planners have worked together to produce recommended regulations addressing priority Gulf of Aqaba environmental protection concerns. Primary documents produced under the PPA include environmental impact assessment procedures for new developments in the Aqaba region; coastal zone management guidelines for Jordan's planned South Coast Tourism Zone as well as other development areas; environmental auditing procedures applicable to existing industries in the Aqaba region; performance and discharge standards for industries located along or near Jordan's Aqaba coast; a management plan for a Jordan marine protected area strategy; and a report on marine vessel pollution prevention and port reception facility needs. A report on marine vessel pollution prevention and port reception facility needs, prepared under the PPA by the International Maritime Organization's leading expert on MARPOL implementation, was submitted to the ARA and the Aqaba Ports Corporation in May 1995. Since that time, both the ARA and the Ports Corporation have invited further IMO involvement in carrying these recommendations forward. In July 1995, the PPA team presented EIA and environmental auditing procedures to the ARA, which is now preparing final guidelines in these areas. Coastal zone management guidelines prepared under the PPA will be presented to the ARA in August 1995, and recommended pollution standards for coastal industries will be submitted to the ARA in September 1995.

25. Project components are the following:

(A) **Development of Regulatory and Institutional Framework for Gulf of Aqaba Environmental Protection.**

(i) **Definition of Overall Goals, Policies and Guidelines for Environmental Management of International Water Transboundary Issues of the Aqaba Region, and Establishment of Collaborative Mechanisms for Coordination of Relevant Institutions and Regional Partners, i.e., Egypt and Israel (\$150,000):** A priority feature of the proposed project is the development of collaborative mechanisms to foster Gulf-wide cooperation in addressing priority environmental concerns. The EU-sponsored Upper Gulf of Aqaba Oil Spill Contingency Project, forging important ties between Egypt, Israel and Jordan in responding to oil spills, provides an important beginning that the GEF project would build upon and expand to embrace the broader sphere of marine water quality and coral reef protection concerns. Direct consultation, coordinated planning and information exchange would be promoted through enhanced communication between national ministries, local government entities, port authorities, coast guard officials, and marine research institutions in the Gulf-bordering states. In Egypt, the main counterpart institutions are the Ministry of Foreign Affairs and the Egyptian Environmental Affairs Agency. In Israel, key partner institutions include the Ministry of Environment at the national level and the Eilat Municipality at the local level.

(ii) **Implementation of a Legislative and Regulatory Framework for the Control and Management of Transboundary Pollution (\$150,000):** Building on the pollution control and pollution prevention guidelines developed under the PPA, this component would implement performance and discharge standards to control pollution from industries, port facilities and ships. Priority targets for pollution prevention and control guidelines will be preservation of marine water quality, promotion of coral reef ecosystem stability, and prevention of further erosion of water quality in the transboundary Wadi Araba aquifer. Active consultations with neighboring states will be undertaken to ensure that standards and guidelines developed under this element are a harmonious component of a broader Gulf of Aqaba environmental protection regime.

(iii) **Coastal Zone Management and Implementation of EIA Guidelines (\$200,000):** Building upon the coastal zone management (CZM) and environmental impact assessment (EIA) guidelines developed under the PPA, this component would help strengthen the ARA's capacity to minimize the adverse transboundary environmental impacts associated with hotel and resort development, tourist services, and recreational facilities, particularly in the South Coast area. This component would include, in close consultation with neighboring states: (i) assistance to ARA in finalizing and proceeding with adoption proposed CZM and EIA guidelines; (ii) training of ARA staff in implementing CZM and EIA guidelines; and (iii) assistance to ARA in preparing project-specific EIA requirements and in reviewing environmental impact statements prepared during the initial period following adoption of EIA guidelines.

(iv) **Transboundary Environmental Management, including Monitoring (\$700,000):** Institutional needs assessment for strengthening the capacity of the Aqaba Regional Authority Environmental Unit would include: (a) preparation and implementation of a marine water quality management and implementation strategy including program elements for water quality monitoring; a program for pollution prevention in recharge zones; preparation and implementation of a coral reef ecosystem monitoring program; (b) preparation and implementation of a strategy for managing phosphate dust emissions otherwise blown into the sea to settle on transboundary seabed and coral reef communities<sup>1</sup>; (c) provision of training to support environmental planning, implementation of monitoring programs, and for inspectors of regulated facilities; and (d) establishment of information technology systems including GIS and database records to support planning, monitoring and enforcement in collaboration with neighboring states.

(B) **Emergency Assessment of Oil Pollution Hazards and of Pollutants Contained in Ballast and Bilge Water and Measures to Promote Waste Oil Recovery and Reuse (\$150,000):** While the Upper Gulf of Aqaba Oil Spill Contingency Plan, developed with EU and Japanese assistance, addresses risks

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<sup>1</sup> Phosphate dust resulting from shiploading activities settles on all surfaces in the loading terminal and environs. Most, however, is blown into the adjacent sea where it sinks and settles on the seabed and coral reef communities. Environmental concerns relate primarily to the detrimental effects that the dust has on marine and coral reef resources. Coral reef ecosystems in the immediate vicinity of the phosphate loading terminal have been killed or substantially altered due to the physical effects of dust settling on the polyps, which inhibits exchange of metabolites and blocks out light. Divers report that this effect may be spreading to neighboring reefs as the dust is progressively dispersed through the marine environment by wind and water currents. In addition, some of the inorganic phosphate dust from the phosphate loading terminal is converted through biological processes in the marine environment to organic phosphorous, which in turn may be a cause of eutrophication in nearby coastal waters. In the case of the enclosed water body of the Gulf of Aqaba, where natural seawater phosphorous levels are relatively low (0.2 micrograms/liter), a small increase in the available phosphorous content of sea water could have a relatively large impact on ecological systems, especially coral reefs.

associated with small to moderate Gulf oil spills, there is an urgent need to develop adequate measures to minimize the risk of potentially catastrophic oil spills.<sup>2</sup> Measures to promote environmentally responsible management of ship operations, including the provision of adequate port reception facilities for bilge and ballast water, are also needed.<sup>3</sup> In addition to developing proposed measures to address these hazards, this component would assess the hazards to transboundary aquifers and marine waters caused by waste oil from land transport vehicles.<sup>4</sup> Factors to be examined include possible leakage from underground fuel storage tanks, the use of waste oil as a dust suppressant at transportation repair facilities, and the roadside dumping of waste oil. Based on this assessment, the component would help develop a strategy and plan for collection and recycling of waste oil from ships as well as transport vehicles. Enforcement tools and financial incentives to promote waste oil recovery and reuse also would be developed under this component, with a particular emphasis on promoting private sector investment in waste oil recovery, transportation and reuse.

**(C) Safeguarding Transboundary Groundwater Resources through Groundwater Monitoring and Assessment of the Effects of Wastewater Seepage on the Quality and Level of the Groundwater Table in the Gulf of Aqaba Region (\$100,000):** To control transboundary pollution of the Wadi Araba aquifer, the quality of the groundwater around the transboundary periphery of the Aqaba municipal wastewater treatment plant would be assessed and mitigation measures would be defined. Under a second phase, a water resources assessment would be undertaken with the objective of establishing sustainable future rates of usage and management of wastewater effluent. The water resources assessment would include a multi-sector analysis of current water resource uses, an evaluation of water quality applied to these uses, and projections as to future water supply and demand. The potential for deterioration or depletion of groundwater resources under different development scenarios would be given priority focus, and measures to mitigate or avoid these negative impacts would be proposed in the form of a prioritized action plan, including management practices for pollution prevention in the recharge zone. Specific attention would be given to present management and potential uses of sewage effluent (e.g., agricultural irrigation, a proposed golf course development and landscaping in the South Coast Tourism Zone), the preparation of a plan to control potential adverse impacts on nutrient-sensitive coral reefs in nearby marine waters and transboundary pollution of the Wadi Araba aquifer.

**(D) Development of an Integrated Marine and Land-based Transboundary Solid Waste Management Strategy (\$300,000):** Large quantities of solid waste (plastic bags, foam cups, animal

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<sup>2</sup> Under the Upper Gulf of Aqaba Oil Spill Contingency Plan, emergency response centers are to be established in Egypt, Israel and Jordan, each with a capacity to handle spills of up to 200 metric tons of oil. As tankers now plying the Gulf's waters carry 100,000 to 150,000 tons of oil, measures to maximize tanker safety are urgently needed. The project would explore the possibility of promoting regional agreement on tanker design and operational requirements, and other measures to reduce the likelihood of a major oil spill in the Gulf.

<sup>3</sup> In the enclosed waters of the Gulf of Aqaba, the cumulative effects of oil contamination caused by bilge and ballast water discharges can cause serious environmental degradation. The Port of Aqaba does not have facilities for the reception and treatment of ballast or bilge water

<sup>4</sup> Trucks servicing Aqaba's port and industrial facilities, numbering well in excess of 300,000 per year, are a major source of oil contamination in sensitive coastal areas as well as in areas overlying the shallow brackish water aquifer that straddles the Jordan-Israel border in the Araba valley. Poorly managed repair facilities and transport depots, combined with the uncontrolled roadside dumping of waste oil, pose major hazards. Following Jordan's signing of a peace treaty with Israel, commercial road traffic around the coast of the Gulf of Aqaba is due to escalate dramatically with the anticipated increase in commercial exchange between littoral states.

carcasses, glass, metal, etc.) pollute the Gulf's international waters. Sources include recreational beach waste, litter generated by passengers aboard the Aqaba (Jordan) - Nuweiba (Egypt) ferry and the discharge of dead livestock from cargo ships. This component would ensure control of litter and transboundary garbage contamination of coral reef and the marine environment. The following activities would be included: (i) the development of consultative mechanisms to promote the development of an effective regional action plan for transboundary solid waste management for waste originating from marine and land-based sources; (ii) the improvement of port reception facilities for ship-generated solid waste; (iii) the strengthening of current mechanisms to ensure that ship operators strictly enforce anti-litter provisions against passengers and crew; (iv) the development of a solid waste collection, recycling and disposal plan that ensures reliable collection of domestic garbage, effective sorting of recyclable materials, and environmentally sound disposal (containment) of non-recyclable waste; (v) development of strong anti-litter and anti-dumping provisions to be adopted by the Aqaba Regional Authority; and (vi) the hiring and training of staff and the purchase of equipment for patrolling beach areas and coastal waters to enforce anti-litter provisions.

**(E) Protection of Globally Important Coral Reefs - Development and Implementation of a Managed Resource Marine Protected Area (\$700,000):** This component would be undertaken within the framework of a tri-partite collaboration between Egypt, Israel and Jordan. This would entail updating and implementing the marine reserve proposal prepared by IUCN, specifically including: (i) establishment of a multi-use protected area incorporating detailed zonation and numerical and spatial limitations on different user activities (including commercial and recreational fishing regulations); (ii) installation of mooring buoys, the marking of boundaries, user zones and reef crossovers points; (iii) hiring and training of marine protected area staff engaged in controlling park entry, enforcement of zoning regulations, interpretation and visitor education, and implementation of monitoring and public awareness programs; (iv) in collaboration with ARA, the Port Corporation, NGOs, and the private sector, development and implementation of a public awareness campaign targeting hotel visitors, dive center customers, park visitors, and the general public.

#### **IV. RATIONALE FOR GEF FINANCING**

26. **Urgent Global Priority.** The proposed project meets GEF eligibility criteria by addressing critical transboundary threats to the ecological viability of a globally significant waterbody, and urgent biodiversity conservation needs that, if not addressed, would result in irreversible damage to globally important coral reef biodiversity. The Gulf of Aqaba is identified as a globally significant biogeographic zone in the 1995 World Bank/IUCN report "A Global Representative System of Marine Protected Areas." Pollution resulting from development on the coast of the Gulf of Aqaba is endangering the balance of marine ecosystems. Biological and economic value of these unique marine ecosystems may be lost as a result of poorly planned or managed coastal developments which are established without due regard for environmental consequences. The comprehensive approach of this project, addressing multi-sectoral issues, has direct application to development pressures being placed upon threatened coral systems worldwide.

27. While some elements of the project would be focused on addressing regional priority hot spot issues at a national level, the benefits would be global due to their transboundary nature, both in terms of the significance of Red Sea biodiversity, and also as a demonstration of the successful establishment of mechanisms for regional pollution management that could be replicated in other parts of the world. The proposed project would strengthen basin-wide pollution monitoring and management efforts in cooperation with the other projects in the region, and would establish the basis for further regional cooperation.

28. In addition, GEF support to implement the GAEAP, in particular the marine pollution component and the coral reef conservation strategy, is expected to leverage supplemental assistance from the European Union, Japan, the U.S. Agency for International Development, other donor agencies, and environmentally friendly private tourism developers.

## V. PARTICIPATION AND SUSTAINABILITY

29. **Participation.** Preparation of the GAEAP, including its proposed GEF components, has involved extensive and broad-based participation by representatives of national and local Government, the ARA, academic and research institutions, private sector interests and non-governmental organizations. Ongoing dialogue with potential private sector investors in the tourism industry is currently being enhanced through the sharing of experience gained from Egypt. The participation process was facilitated through a series of consultative meetings conducted in Amman and Aqaba both in Arabic and English. At the regional level, similar meetings were held in Egypt and Israel. An element of the participatory process included the preparation and distribution of GAEAP-related documentation in Arabic and English in the cooperating countries. Preparation of the GAEAP within Jordan directly involved the Royal Scientific Society (RSS), the leading applied research institute, and the Royal Society for the Conservation of Nature (RSCN), a major Jordanian non-governmental organization, both of which will be involved in implementation activities.

30. **Sustainability.** Project activities and implementation are designed (including the participation process) to achieve sustainability. Wherever possible the project would develop opportunities for the establishment of financial incentives, private sector investment, and cost recovery in environmental management (e.g., waste oil recovery, solid waste recycling and marine reserve entrance and concession fees). Project appraisal will fully address the issue of ARA's sustainability and its financing mechanisms.

31. The Government has also committed itself to the proposed project by preparation of the GAEAP. In addition, the Government is contributing \$ 1.4 million for the funding of a priority component of the GAEAP, i.e., installation of two choke feeders at phosphate loading terminals to reduce airborne phosphate. The Government is also committed to contribute an additional estimated \$800,000 in cash or kind to support environmental management and capacity building, as well as the financing of environmental audits for the major industries in the Aqaba region, notably the power plant and fertilizer factory. Finally, the regional parties (Egypt, Israel and Jordan) have requested, within the context of the Regional Economic Development Working Group in Amman in June 1995, that coordinated environmental action plans be developed for the Egyptian and Israeli portions of the Gulf of Aqaba. The World Bank has agreed to assist in the preparation of the plans for Egypt and Israel.

## VI. LESSONS LEARNED AND TECHNICAL REVIEW

32. **Lessons Learned.** Lessons learned from previous international waters projects in the region indicate that a programmatic approach to country-based international waters projects is required. The proposed project would provide linkages with ongoing regional seas initiatives, and would ensure a concerted international approach to achieve global benefits through linkages with the Strategic Action Programme for the Red Sea and Gulf of Aden Region.

33. **Project Monitoring and Evaluation.** Utilizing key process and status indicators would be an intrinsic process of the project through the establishment and integration of monitoring tools into project components. A monitoring and evaluation plan will be prepared during appraisal. The objective of this

monitoring is to contribute to improving and, if needed, adapting management of program activities as well as creating the basis for project evaluation. A project implementation review would be undertaken jointly by the Government and the World Bank after two years.

34. **Technical Review.** The initial project brief was subject to a STAP review in August 1992. It was also reviewed by UNDP and UNEP, both of which supported the project. Subsequently a PPA was awarded in September 1994 to the Government of Jordan for further preparation of the project. The revised project brief, which built upon the results of the PPA, was subjected to external technical review in July 1995. Overall there was strong support for the concept and design of this international waters "hot spot" project prepared in parallel to the Strategic Action Programme for the Red Sea and Gulf of Aden Region. The reviewer deemed the project a worthwhile activity, likely to yield positive benefits to Jordan and the region, and recommended emphasizing a long-term approach to personnel investment and environmental monitoring and stressing the project's important potential role as a catalyst to parallel efforts in other littoral states. Attachment 1 summarizes the technical reviewer's comments and describes how they have been incorporated into the subject project document.

## VII. PROJECT FINANCING AND BUDGET

### 35. Preliminary Project Financing Plan (in US\$ million)

<b>Component</b>	<b>Total Cost</b>	<b>GEF</b>	<b>Government</b>	<b>Other Donor</b>
A(i). Collaborative Mechanisms for Regional Coordination	.15	.15		
A(ii). Legislative and Regulatory Framework	.15	.15		
A(iii). Coastal Zone Management and EIA Guidelines	.20	.20		
A(iv). Transboundary Environment Management/Monitoring	1.5	.70	.80	
B. Oil Pollution Hazards	7.65	.15		EU 1.90 / Japan 5.60
C. Transboundary Groundwater Resources	.10	.10		
D. Transboundary Solid Waste Management	.30	.30		
E. Marine Protected Areas	.97	.70		EU .03 / US .24
Industrial Pollution Control	1.40		1.40	
Contingencies	.25	.25		



<b>Total:</b>	<b>12.67</b>	<b>2.70</b>	<b>2.20</b>	<b>7.77</b>
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A detailed budget of the GEF outputs is contained in Attachment 2.

36. The total cost of the project is estimated at \$12.67 million, representing \$ 2.2 million supported by the Government of Jordan, \$7.77 million of bilateral assistance and GEF financing of \$2.7 million. The Jordanian contribution includes nominal funding of about \$100,000 annually (or \$300,000 over the life of the project) to address environmental issues in Aqaba which are of significance to Jordan, together with \$1.4 million to reduce phosphate dust pollution negatively affecting water quality and a commitment by the ARA to reallocate \$500,000 toward the institutional framework of the proposed project. The GEF PPA has been instrumental in catalyzing funds from bilateral donors. The EU and Japan are financing \$7.5 million for the oil spill contingency planning and implementation component of the GAEAP, and USAID and the EU are assisting the Government of Jordan in the development of a marine park with a contribution of \$272,500.

### **VIII. INCREMENTAL COSTS**

37. The incremental costs of the project, set out in Annex I, have been calculated on the basis of a component-by-component analysis of reasonable project baseline costs, taking into account the relative government commitment to finance environmental management and protection measures as part of its established or expected sustainable development plans. The incremental costs to be borne by GEF financing have been estimated at \$2.7 million.

38. Domestic benefits accruing to Jordan, as well as the other littoral states of the Gulf of Aqaba, would be (a) an increase in water quality through reduction of oil, industrial pollution and solid waste, and (b) potential tourism revenue from the marine protected area. Although these benefits cannot be readily calculated due to their uncertain distributive characteristics as well as the speculative nature of tourism development in the region, it should be noted that 87% of project costs associated with the components supporting these potential benefits (oil pollution hazards, transboundary solid waste management and marine protected areas) will be borne through identified bilateral financing. The remaining 13% of these costs, covering other transboundary benefits, would be funded by the GEF.

### **IX. ISSUES, ACTIONS AND RISKS**

39. The major issue is the need for a strengthened institutional framework. By providing a proper institutional, regulatory and enforcement system, as proposed under the project, the risks of continued environmental degradation and failure to achieve the project's objectives would be minimized. While the ARA has legal authority to introduce new regulations for the Aqaba Region, there is also a risk associated with the possible delay in enforcement of those regulations. Toward this end, the ARA environment unit should be strengthened to allow for effective management with enforcement authority. At a minimum, provision of incentives for career development and the elaboration of management enforcement authority is required.

### **X. INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION**

40. The Government of Jordan has requested that the Bank continue its leading role in facilitating the GAEAP. The Bank would continue to support Egyptian, Israeli and Jordanian cooperation under the GAEAP which would be linked to initiatives in other sectors to promote the development of the area as

part of the Middle East Peace Process (para. 4). The GAEAP is an integral element of the Bank's regional environmental strategy and is a priority action of the Environmental Business Plan of the Middle East and North Africa Region. As in the preparation phase, the project would be closely coordinated with Bank activities in the region. This would include development of linkages with the Private Sector Tourism Project in Egypt, the proposed Second Tourism Project in Jordan, and the proposed Aqaba Thermal Power II Project, as appropriate. It would also be coordinated with studies being prepared for potential cooperative activities between Israel and Jordan in the Jordan Rift Valley.

41. Project implementation would be undertaken by the Aqaba Regional Authority under the supervision of the Ministry of Planning, and in collaboration with the agencies and NGOs that currently play a significant role in the management of Aqaba's environment and natural resources (para. 29). The Aqaba Regional Authority was established in 1984 under the authority of the Prime Ministry in order to ensure coordination and integration of all development taking place in the Aqaba region. Annex II describes the ARA.

42. In order to enable ARA to perform its mandate for overseeing the integrated development of the region, the Government issued a special law, which identifies the organization's goals and guides its activities. The law states that the ARA is responsible for the coordination of social and economic development of the region and the formulation of necessary policies, plans, regulations and programs in collaboration with the concerned public and private agencies. This law also enables ARA to introduce rapidly, and enforce, environmental regulations for the Aqaba region. While ARA currently lacks the capacity to fully address environmental issues, ARA would be strengthened to that effect through this project.

### INCREMENTAL COSTS

Project Component	Reasonable Baseline Analysis & (Cost/\$ mil)	Total Cost (\$ mil)	Incremental Cost (\$ mil) [Funding Source]
A(i). Regional Coordination Mechanism	The objectives of this component consist of regional environmental management and coordination among the regional actors which the Government of Jordan cannot reasonably be expected to bear. (0)	.15	.15 [GEF]
A(ii). Legislative & Regulatory Framework	The legislative and regulatory framework needed for transboundary pollution control and management falls beyond the scope of provisions established by the Government for national environmental management. (0)	.15	.15 [GEF]
A(iii). Coastal Zone Management & EIA Guidelines	Although the Government of Jordan is committed to developing EIA guidelines to address national environmental concerns, the objective of this component is to minimize adverse environmental impacts of a transboundary nature and, as such, is an eligible incremental cost. (0)	.20	.20 [GEF]
A(iv). Transboundary Environment Management & Monitoring	The Government of Jordan is committed to providing funding of \$100,000 annually, or \$300,000 over the life of the project, to address environmental management issues in the Aqaba area which are of significance to Jordan. In addition, the ARA is committed to reallocating \$500,000 toward the institutional framework underlying this component. However, the Government cannot reasonably be expected to finance the preparation of a regional coral reef and water quality management strategy or the establishment of regional monitoring systems and requisite capacity. (.80)	1.50	.70 [GEF]
B. Assessment of Oil Pollution Hazards	The objectives of this component -- to minimize the risk of potentially catastrophic transboundary oil spills and to assess the oil pollution hazards to transboundary aquifers and marine waters -- requires a coordinated regional response. (0)	7.65	7.65 [GEF .15; EU 1.90; Japan 5.60]
C. Safeguarding Transboundary Groundwater	The cost of controlling transboundary pollution of the shared aquifer and to undertake, as proposed under this component, a water resources assessment of sustainable future rates of transboundary usage qualifies as legitimate incremental expenditures. (0)	.10	.10 [GEF]

<b>Project Component</b>	<b>Reasonable Baseline Analysis &amp; (Cost/\$ mil)</b>	<b>Total Cost (\$ mil)</b>	<b>Incremental Cost (\$ mil) [Funding Source]</b>
<b>D. Transboundary Solid Waste Management</b>	Inasmuch as this component seeks to control transboundary solid waste contamination of the Gulf's coral reefs and marine environment, the Government cannot adequately address this issue in the absence of regional commitment for, and coordinated implementation of, a transboundary solid waste management plan, as proposed under this component (0)	.30	.30 [GEF]
<b>E. Marine Protected Areas</b>	This component will be undertaken within a tri-partite collaborative framework among Egypt, Israel and Jordan. The close geographic proximity of the three countries and the concentration of their industrial and urban developments at the head of the Gulf where the MPAs are proposed accentuates the need for a collaborative, transboundary framework to address threats to the protection of the proposed MPAs. This fact, combined with the globally significant nature of the coral reefs, makes it a legitimate incremental expenditure. (0)	.97	.97 [EU .03; US .24]
<b>Industrial Pollution Control</b>	The Government has committed \$1.4 to reduce phosphate dust pollution negatively affecting water quality. (1.40)	1.40	0
<b>Contingencies</b>	Contingencies for Government and other donor-financed component costs have been included in the respective component cost calculations. GEF cost contingencies are provided for separately.	.25	.25 [GEF]
<b>Total</b>	<b>(2.20)</b>	<b>12.67</b>	<b>10.47</b> [GEF 2.7; EU 1.93; Japan 5.6; US .24]

### **Brief Description of The Aqaba Regional Authority**

1. The Aqaba Regional Authority was established in 1984 under the authority of the Prime Ministry in order to ensure coordination and integration of all development taking place in the Aqaba region. The Secretary General of the Ministry of Municipal, Rural Affairs and Environment (which has a small department of environment) is a member of the board of ARA, and ensures coordination of environmental activities of the Aqaba region at the national level.
2. Composition of the 12 member Board of Management of the Aqaba Regional Authority represents the principal parties concerned with the development of the region. The ARA President is chairman of the board, eight members of the Board represent governmental institutions (including the Secretary General of the Ministry of Municipal, Rural Affairs and Environment) and the remaining three positions are occupied by representatives of the people of the Region. The President of ARA, who has the authority of a minister in running ARA, is appointed by the Cabinet of Minister and the appointment is endorsed by Royal Decree.
3. ARA responsibilities include: (a) design and execution of industrial, tourism, agricultural and infrastructure development projects in the region; (b) planning and design of other projects related to ARA objectives, and supervision of the execution of works carried out by the concerned public and private agencies in accordance with the responsibilities entrusted to them; (c) control and modification of the unbalanced growth of Aqaba town; and (d) ensuring the Aqaba Region's ability to absorb large investments and permit optimal use of resources in a variety of fields including: air, road and sea transportation; transit, free zone and services activities; medium and large scale industries; and local, regional and international tourism.
4. To date ARA has accomplished work in various sectors affecting the environment. ARA has coordinated the construction of a sewage treatment plant and a lower impact back road to divert heavy truck traffic away from coastal areas, upgraded cleanliness of the port, identified three coral reserves, and established a diving center. While an environmental committee has recently been established within ARA, as yet there are no formal mechanisms to handle environmental matters, particularly those affecting the transboundary waters of the Gulf of Aqaba.

**PROPOSAL FOR REVIEW**

<b>Project Title:</b>	<b>Small Grants Programme</b>
<b>GEF Focal Area:</b>	Multi-focal
<b>Total Project Costs:</b>	US \$ 29 million
<b>GEF Financing:</b>	US \$ 29 million
<b>GEF Implementing Agency:</b>	UNDP
<b>Estimated Approval Date:</b>	January 1996
<b>Project Duration:</b>	2 years

# **THE GEF SMALL GRANTS PROGRAMME**

## **OPERATIONAL STRATEGY AND TWO-YEAR FUNDING PROPOSAL (1996-97)**

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**COUNTRIES REQUESTING PARTICIPATION IN THE GEF/SGP AND SELECTION CRITERIA**

## EXECUTIVE SUMMARY

1. The Pilot Phase of the Global Environment Facility Small Grants Programme (GEF/SGP) was completed in June 1995 following an evaluation by a team of independent consultants. At its meeting in July 1995, the GEF Council approved an interim "transition" programme, including funding, through December 1995 (see . This action was taken in preparation for consideration, at the October Council meeting, of plans for the longer-term operation of the GEF/SGP and funding replenishment for 1996 and 1997.

2. While the GEF/SGP was originally conceived as a funding "window" into the GEF for small-scale activities to complement the larger GEF work programme, the results of the Pilot Phase, as highlighted in the Independent Evaluation, point to a much more significant strategic role in the future.

3. In addition to being a global vehicle for awarding grants to community-based micro-projects addressing the GEF focal areas, the Small Grants Programme is also a means of engaging local people and critical national actors with the issues and challenges the GEF was created to address. The experience of the Pilot Phase demonstrates that the GEF/SGP has an important role to play in the GEF focal areas in making the link between local environmental concerns and livelihood issues on the one hand, and global environmental benefits on the other. This engagement, when coupled with enhanced awareness, investment, and capacity on the part of community-based organizations, NGOs and other stakeholders in society, can contribute to *creating an enabling environment within countries for addressing global environmental issues*.

4. Realizing this vision will require a broader view of the SGP and a commitment to *leveraging the impact of the individual projects beyond their particular settings* in order to strengthen the capacity of the GEF/SGP to broadly impact sustainable development, broaden the policy dialogue and contribute to achieving global environmental benefits.

5. This proposal outlines a longer-term GEF/SGP operational strategy and priority activities for 1996 and 1997 which aim to enhance the programme's effectiveness and impact within the GEF by:

- Bringing the GEF/SGP to operational scale by building on the solid foundation laid in participating countries during the Pilot Phase, scaling-up successful micro-projects, and extending participation in the programme to selected new countries over the next two years.

- Ensuring programme quality and impact by strengthening programme planning, management and technical support; building NGO and community capacity to address local environmental and livelihood issues that have an impact on the GEF focal areas; learning and effectively communicating lessons from community-based experience; and developing strong in-country operational ties to regular GEF projects where appropriate.

- Planning for and beginning to implement necessary actions to ensure the sustainability of programming capacity within countries, including exploring possible co-funding at global, national and project levels.



6. The budget projections for 1996 and 1997 are based on experience from the Pilot Phase and, in part, the recommendations of the Independent Evaluation for enhancing the effectiveness of the programme in achieving global environmental benefits. The two-year budget for this effort is US \$28.6 million, of which \$26.7 million (94%) is allocated directly to support of country programmes in the 32 currently participating countries and 10 projected new countries.

7. Under the two-year budget presented in this proposal, the average funding allocation for extending the Pilot Phase country programmes will increase by about 20% over Pilot Phase levels to US\$300,000 per year. New countries will be funded at Pilot Phase levels, or about \$250,000 per year.<sup>1</sup> The average level of project funding during the Pilot Phase was approximately \$21,000 per project, and it is envisioned that the average level over the next two years will be somewhat higher. Therefore, the number of projects funded per country in 1996 and 1997 is expected to remain at Pilot Phase levels, or an average of about 10 grants per country per year.

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<sup>1</sup> Independent Evaluation of the Pilot Phase recommends ".....increasing the GEF/SGP activity budget so it can both fund projects and undertake management activities in support of GEF themes. The recommended level is US\$500,000 per programme per year for existing operations, and US\$300,000 per GEF/SGPs in their set-up phase."

## INTRODUCTION

8. The GEF/SGP was launched by UNDP in late 1992 as a pilot initiative of the Global Environment Facility (GEF). The three-year Pilot Phase was funded by the GEF Trust Fund (US\$13,000,000), the United States Agency for International Development (US\$3,000,000) and the MacArthur Foundation (US\$300,000).

9. The GEF/SGP was created to complement the larger GEF work programme by focusing specifically on community-based activities, often implemented through NGOs, to address local aspects of global environmental challenges. It recognized the essential role that communities, applying locally appropriate solutions, can play in conserving biodiversity, protecting international waters, reducing the likelihood of adverse climate change (and adapting to such change as it occurs), and, to a lesser degree, reducing the rate of atmospheric ozone depletion.

10. The programme's design was based on the GEF's appreciation of the fact that environmental degradation and poverty are mutually reinforcing, and that the mix of available rural livelihood options in many developing countries is decreasing, causing additional pressure on fragile ecosystems. The programme operates on the premise that where communities and individuals are organized to take action, have a measure of control over access to the natural resource base, have the necessary information and knowledge, and believe that their social and economic well-being is dependent on sound long-term resource management, they will act accordingly and conserve their valuable environmental resources.

11. The core challenge in the Pilot Phase was finding ways of engaging local communities to make the link between local natural resource use issues, sustainable livelihoods, and global environmental concerns. After consultations with government, NGO, and UN agency representatives, programme objectives and a structure were established. The principal objectives were: (1) to set up an effective, efficient, transparent system to decentralize small grants-making to the field, and (2) to support promising GEF-connected community-based initiatives that respond to local environmental and livelihood needs and which, if scaled-up, could contribute to reducing global threats to the environment. Related purposes included determining the most effective means to: (1) strengthen the capacities of organizations needed to assist community-based initiatives; (2) share successful approaches and strategies; and (3) draw lessons from community-based activities of value to agencies charged with protecting elements of the global environment. Of eight Pilot Phase activity selection criteria, the most pronounced were: (1) that affected communities participate in the identification, design, management, monitoring, evaluation and design adjustment of GEF/SGP-funded projects; and (2) that women and indigenous groups contribute to project design and benefit from achievement of project objectives.

12. The basic GEF/SGP implementation structure included: (1) the formation of a National Selection Committee in each country, usually made up of about 12 well-regarded individuals, to establish a country strategy, select projects for awards, and guide GEF/SGP implementation; (2) the appointment of a National Coordinator; (3) locating the National Coordinator's office within an NGO or at the UNDP Country Office; (4) in-country oversight and support by the UNDP Country Office; (5) programme execution support from the UN Office of Project Services (UNOPS); and (6) overall management and technical support from the GEF/SGP Coordinator's Office at UNDP headquarters.

## **THE INDEPENDENT EVALUATION OF THE PILOT PHASE: ACCOMPLISHMENTS, FINDINGS AND RECOMMENDATIONS<sup>2</sup>**

13. In June 1995, an Independent Evaluation of the GEF/SGP Pilot Phase was completed. The four-member evaluation team visited nine countries and spent three months reviewing documentation and interviewing programme participants and stakeholders. Their findings and recommendations, summarized below, are incorporated in a detailed report, copies of which have been provided to the Council.

### **PILOT PHASE ACCOMPLISHMENTS**

14. The GEF/SGP Pilot Phase established functioning country programmes in 33 countries in Africa, the Middle East, Asia and the Pacific, Central Europe, and Latin America and the Caribbean.<sup>3</sup> According to the Independent Evaluation....“an effective, prototype foundation is being laid for expanded support of community-based activities related to GEF focal areas.”

15. More than 500 grants of up to US\$50,000 were awarded for community-oriented activities related to the GEF's focal areas. The vast majority of these activities (95%) addressed biodiversity conservation and climate change. Average grant size worldwide was approximately \$21,000.

16. Overall, approximately 45% of the project portfolio directly and clearly address GEF focal areas, 42% indirectly or as part of organizational strengthening strategies, 12% are applied research or technical assistance support activities, and 1% appear to be outside the GEF/SGP mandate.

17. Approximately 80% of funded projects were reported as successfully completed or on track to achieving their objectives, 8% as experiencing moderate, but recoverable difficulty, and 9% as requiring redesign or reconsideration.

### **KEY FINDINGS**

#### ***Programme Rationale***

18. In conducting its evaluation, the independent evaluation team reviewed and reconsidered the underlying assumptions about the importance of focused work with NGOs and community-based organizations (CBOs) through the GEF and the Small Grants Programme, and concluded that the programmatic concerns and arguments which led to the creation of the GEF/SGP pilot remain valid today. Engagement of NGOs and local communities is a long-term effort that begins with a structure to channel financial and human resources to small-scale local environmental initiatives. The evaluation team found

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This section is based on the published Independent Evaluation Report and original source materials gathered during the course of the evaluation exercise.

A listing of GEF/SGP Pilot Phase participating countries can be found in Annex 1.

that in the GEF/SGP Pilot Phase an effective foundation was laid for expanded support of community-based activities related to GEF focal areas.

19. The basic premise is that GEF focal area objectives cannot be achieved without the endorsement and active participation of communities, community-based organizations, NGOs and other local stakeholders. Consequently, the evaluation team focused on the following question -- how, and to what extent, can NGO activities powerfully support the broader objectives and programme of the GEF? A number of points were identified:

- NGOs and CBOs invest the time and energy required to build relationships and trust with poor people that is seldom matched by government agencies.

- They often catalyze the emergence of local institutions through which the poor can more fully participate in their own development and natural resource management -- it is NGOs' role in helping mobilize the "social or voluntary energy" of organized collective action towards the underlying causes of poverty and environmental degradation, rather than to its symptoms, that is most critical and valuable.

- The voluntary commitment of many NGOs makes available expertise and energies that would be much more expensive to provide through other agencies.

- They create innovations to solve complex problems typical of GEF focal areas. NGOs can use their small size, administrative flexibility, and relative freedom from political constraints to experiment with solutions that respond to local needs.

- They can organize networks of diverse organizations around shared environmental threats.

- NGOs can advise GEF-related government agencies on GEF project planning and implementation, and NGO awareness of local concerns and resources could be used to improve decisions about project feasibility and strategy;

- NGO capacities for innovating and for reaching the poor can be used to generate alternative policy options that integrate development needs with GEF focal area objectives. Further, NGOs can provide a voice for grassroots interests in GEF-related national policy-making. NGOs may enable more grassroots participation in policy-making by providing access to technical resources, mobilizing information, involving the media, and using international contacts.

#### *Country infrastructure*

20. The National Selection Committees, supported by National Coordinators, proved to be an effective means to review, select and support community-oriented environmental projects. The mechanism is generally recognized as innovative because of its decentralized, participatory and transparent operating characteristics. It has been an important forum for developing the strategies needed to link local natural resource management issues with GEF's global environmental concerns and, in some cases, has been the forum where the broadest representation has assembled for debate about policy and programmes affecting

**GEF objectives. Further, the National Selection Committees can be an important in-country mechanism for communications and outreach with respect to the GEF at large and the Biological Diversity and Climate Change Conventions.**

21. The National Coordinators play the pivotal role in GEF/SGP operations, serving as both managers and chief technical advisers of the country programmes. They are the focal point for interaction with community-based organizations and NGOs, raising awareness of the GEF/SGP's objectives and procedures, assisting in the development of project proposals, pre-screening proposals for the National Selection Committees, and monitoring and supporting GEF/SGP-funded projects.

22. Given the pivotal roles played by the National Coordinators and the National Selection Committees, empowering these key players with better guidance and tools, and a more deep-seated understanding of the strategic direction of the programme and of the GEF overall, is essential to further success.

23. The highly decentralized network of UNDP Country Offices in 135 countries provided a unique niche to launch the GEF/SGP. UNDP Country Offices have supported the programme in a number of significant ways. The Country Offices, including the Resident Representative, have helped facilitate the programme start-up process, including recruitment of the National Coordinators and formation of the National Selection Committees, and provide ongoing oversight and administrative support. Many National Coordinators are based at UNDP, and have benefited from the extensive networks, strong government relations, and "neutrality" of UNDP. UNDP also manages other small grant programmes which have provided a valuable source of experience in community-based development and small grants management.

#### *Country strategies and project portfolio quality*

24. Despite the challenges inherent in relating global environmental concerns to community-based natural resource management needs and development objectives, a strong effort was made to link grants to the GEF focal areas. Of approved projects, 76% focused on biodiversity, 19% on climate change, and 4.5% on international waters.

In the area of **biodiversity protection**, for example, GEF/SGP Pilot Phase projects focused on:

- promoting the sustainable use of biological resources at the community level;
- catalyzing community involvement in, and benefit from, biodiversity protection activities, particularly with respect to the management of protected areas; and
- raising community awareness and understanding of biodiversity conservation issues and their links to livelihood concerns through education and training.

With regard to **climate change**, the main thrusts of GEF/SGP activity aimed at:

- promoting the demonstration of community-level renewable energy technologies;
  - supporting energy conservation at the household level and within small-scale enterprises;
- and
- raising awareness and understanding of climate change and sustainable energy issues and their links to livelihood concerns through education and training.

25. Overall, however, there is a need for more clearly defined country strategies to provide a framework for project selection and other programme activities. There is also a need to strengthen the

overall technical quality of country portfolios, and to develop and monitor indicators to measure portfolio impacts.

### *Community participation*

26. Though difficult to achieve, community participation in project design, implementation, monitoring and evaluation has been a portfolio priority. Project beneficiaries were typically low-income rural people whose livelihoods depend directly on the natural resource base.

27. GEF/SGP activities have had significant local impacts on community awareness of environmental issues. Nevertheless, in order to strengthen the depth and quality of participation, there will be an ongoing need for tools and other resources to help build public awareness and understanding about GEF focal areas as they relate to local environmental problems and livelihood concerns. This need will become even more significant as the programme expands within existing countries and to new countries.

### **RECOMMENDATIONS**

28. Key recommendations from the Independent Evaluation for making the shift from pilot to operational status include:

- **Increase the scale of the programme** to create a worldwide network of activity sufficient in size and scope to unambiguously support GEF focal areas.

- **Increase the GEF/SGP activity budget in participating countries** so it can both fund projects and also undertake strategic activities in support of GEF themes. The recommended average level is US\$500,000 per programme per year for existing operations, and \$300,000 for new country programmes in their set-up phase.

- **Invest in capacity building** to raise awareness and understanding of the purposes and operating practices of the GEF/SGP so that community-based organizations and NGOs can effectively participate in the GEF/SGP and the GEF at large. Also, invest in training and professional development for GEF/SGP National Coordinators and, in some instances, members of the National Selection Committees. Increase the number of regional NC meetings to promote cross-fertilization and the transfer of lessons from programme experience.

- **Create and support mechanisms at the country level to enable the GEF large and small grants programmes to be effectively linked and mutually supportive.**

- **Establish means to better coordinate the activities of the GEF/SGP with other environmentally-related small grants programmes** (of UNDP, as well as those of international NGOs, bilateral agencies, etc.) to increase their complementarity and impact.

- **Consider shifting the GEF/SGP to national execution** to further decentralize programme management and operations, and to empower local accountability.

- **Enhance the capacity of the GEF/SGP management unit** at UNDP headquarters to effectively coordinate and support the country programmes.



# THE GEF/SGP OPERATIONAL STRATEGY

## LONG-TERM VISION

29. The central purpose of the GEF/SGP is *to promote small-scale community-based initiatives which can contribute to the objectives of the GEF focal areas.*<sup>4</sup> Transforming the GEF/SGP from a pilot effort into a fully operational programme with the capacity to contribute significantly to the overall mission of the GEF will require a fundamental commitment to:

- ensuring that GEF/SGP activities, and the programme as a whole, contribute to achieving *significant and substantial global environmental benefits* related to the GEF focal areas; and
- ensuring that the investment in the GEF/SGP *builds local capacity in participating countries* to effectively address global environmental challenges on a sustainable basis.

30. During its Pilot Phase, the GEF/SGP developed important on-the-ground experience in linking community environmental and livelihood issues with global environmental challenges. However, the reality is that the number, scale and scope of the individual micro-projects which the GEF/SGP can fund -- even if all of the projects are aggregated together -- are insufficient to produce significant macro-scale global environmental benefits as measured by, for example, tons of carbon sequestered or numbers of species protected. While these individual projects are -- in and of themselves -- beneficial to the communities in which they are located, *for the SGP to make a major contribution to achieving global benefits it must assume a more strategic role in the future and focus on leveraging the impact of the micro-projects beyond their particular settings in order to more broadly impact sustainable development.*

31. While the lead activity and hallmark of the GEF/SGP has been and will continue to be supporting the flow of grant funding, technical assistance and other resources to community-based micro-projects addressing the GEF focal areas, the Small Grants Programme is also a means of broadly engaging people and other local and national actors with the issues and challenges the GEF was created to address. The GEF/SGP can fulfill this role in a number of ways: serving as a catalyst for the creation of new approaches and innovative solutions to local environmental problems in the GEF focal areas; bringing together key local stakeholders under a broad umbrella for sustainable development; shaping and broadening the agendas of NGOs, local authorities and policy makers by providing a network of ongoing communications and information linking local needs to global benefits; and disseminating programme lessons to the larger GEF and other settings.

32. This engagement, when coupled with enhanced awareness, investment, and capacity on the part of community-based organizations, NGOs and other stakeholders in society, can contribute to *creating an enabling environment within countries for addressing global environmental issues.* The result of this will

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proposed that the GEF focal area on ozone should not be included in the GEF/SGP Operational Phase. Given the GEF/SGP's focus on small-, community-based activities, there is very limited potential for impact in this area.

## **OPERATIONAL PRINCIPLES**

33. To fulfill this broader mandate, the GEF/SGP will adhere at all levels of the programme to the following basic operational principles:

*supporting community-based initiatives which address local environmental and livelihood needs and priorities as they relate to the GEF focal areas;*

*empowering people and communities, particularly women, by facilitating access to information and participatory processes;*

*emphasizing a country-driven approach to programming that balances the need to be both responsive and strategic;*

*ensuring that programme structures and operating procedures are flexible and transparent;*

*promoting a supportive institutional and policy environment.*

## **STRATEGIC OBJECTIVES AND PROGRAMME PRIORITIES FOR 1996-97**

34. Three strategic objectives will guide the long-term direction of the GEF/SGP. This strategic framework is built around, but also transcends, grantmaking directed at specific community-based projects. It is based on the recognition that to contribute to achieving global environmental benefits and to ensure sustainability, the GEF/SGP must become much more than the sum of its individual grants.

35. Within the context of each Strategic Objective, a number of activities to be undertaken during 1996 and 1997 will be critical to the success of the GEF/SGP. Several of these activities will build upon work underway as part of the ongoing transition work programme. Others will be phased in as part of a sequenced implementation and workplan.

### **OBJECTIVE 1: CREATE A CRITICAL MASS OF ACTIVITY SUFFICIENT IN SIZE AND SCOPE TO CONTRIBUTE TO ACHIEVING GLOBAL BENEFITS RELATED TO THE GEF FOCAL AREAS BY BRINGING THE GEF/SGP UP TO OPERATIONAL SCALE.**

36. In order to assume a more significant and strategic role in the GEF, the scale of the GEF/SGP must be expanded both in size and scope by increasing the number of participating countries; expanding the range and depth of country programme activities; and facilitating the spread and scaling-up of successful community-based innovations beyond the individual projects themselves. The expansion process will build on the experience of the Pilot Phase and will reflect the findings and recommendations of the Independent Evaluation.

### **1.1 Shift Ongoing Country Programmes from Pilot to Operational Status**

37. Priority will be given to strengthening and expanding the existing country programmes, in terms of both funding levels and range and depth of activities. The average programme budget level per participating country will be US\$300,000 per year, a slight increase (about 20%) over Pilot Phase funding levels.

#### **Grants**

The average level of project funding during the Pilot Phase was approximately US\$21,000 per project. Assuming that the average project size will increase somewhat, the number of projects funded per country in 1996 and 1997 is expected to remain at Pilot Phase levels.

In order to help strengthen community participation in project planning and development, and to produce better-quality project proposals, small amounts of grant funds will be allocated to support the preparation of promising project concepts. These project preparation funds will be available for carrying out community diagnostic and planning exercises through the use of participatory rural appraisal techniques, stakeholder and gender analysis, and other social assessment methods and tools.

#### **Programme support**

To enhance the scope and impact of country programmes, new country budget lines will be added for: (1) targeted capacity building activities, including the GEF Stakeholder Workshop; (2) monitoring and evaluation; and (3) communications and outreach. These budget lines will be managed by the National Coordinators in consultation with the National Selection Committees.

### **1.2 Demonstrate the Capacity to Effectively Scale-up Successful Pilot Initiatives**

38. To expand the impact of the GEF/SGP, a focused effort will be undertaken over the next two years to test and demonstrate the programme's capacity to support the process of scaling-up successful community-based innovations.

#### **"Scaling-Up" Projects**

Larger-size grants of up to US\$200,000 will be allocated in 10-15 countries. In most cases, these larger-size grants will support the scaling-up of a successful pilot activity. In a few cases, larger-size grants will be used to support strategic regional or inter-country activities which build on or directly support ongoing country-level activities (for example, support of cross-boundary protected areas, inter-country collaboration on common resource management problems such as coral reef protection, or regional training and exchange programmes). Procedures for screening and selecting projects for larger-scale support will be developed through a consultative process and submitted to the Council for approval.

### **1.3 Extend the GEF/SGP to New Countries**

39. A process has been initiated to identify priorities for expansion from among the more than 70 additional countries which have expressed interest in participating in the programme (see Annex 2 for list of

countries and selection criteria). Over the next two years, the programme will be established in up to 10 new countries at a funding level similar to that in the Pilot Phase, about US\$250,000 per year. The methodology for programme establishment will build on experience from the Pilot Phase.

### Preparatory missions

Visits to prospective new countries will be carried out to initiate the programme start-up process. Preparatory missions will focus on identifying and consulting with key local actors and on establishing a preparatory committee to ensure follow-up. GEF/SGP headquarters staff and, in some cases, National Coordinators from the region, will carry out the preparatory visits.

### Programme structure

Following the preparatory mission, the first priority will be to recruit a National Coordinator, identify an institutional base for the programme, and to activate a National Selection Committee. In each country, these critical steps will be carried out with the support of the UNDP Resident Representative and Country Office staff.

### Initiating workshops

In each country, the programme will be launched through a national workshop. The national workshops, which will be based on the GEF/SGP Stakeholder Workshop (see below) and will be led by the National Coordinators, will engage National Selection Committee members, NGOs, government officials and other local actors in a dialogue on the programme's objectives, strategies and operating procedures.

## **OBJECTIVE 2: ENSURE THE QUALITY AND SUSTAINABLE IMPACT OF COMMUNITY-BASED INITIATIVES BY STRENGTHENING AND EFFECTIVELY LEVERAGING GEF/SGP COUNTRY PROGRAMMES.**

40. Key structural, strategic and operational elements of the GEF/SGP must be strengthened in order to ensure that expansion leads to high-quality country programmes and the capacity to effectively leverage the impact of the project portfolios. This includes a more strategic approach to programme planning and management; more rigorous technical guidelines and eligibility criteria in project selection (while maintaining flexibility and portfolio diversity); greater emphasis on capacity building; support for learning and effectively communicating lessons from community-based experience; and developing linkages with macro GEF programming.

### **2.1 Strengthen Programme Planning, Management and Technical Support**

41. A more strategic approach to programme planning and management will be key to maximizing both programme efficiency and effectiveness.

### Global Advisory Group

A global advisory group is planned to provide overall strategic and technical guidance to the GEF/SGP, particularly with respect to linkages between community-based initiatives to address local environmental and livelihood needs and efforts to achieve global environmental benefits. Advisory group members will be invited from international NGOs, the GEF Implementing Agencies, the Biological Diversity and Climate Change Convention Secretariats, and other key constituencies.

#### Country-level strategic planning

A more strategic, country-driven planning process will be established to provide an integrated framework for programme development, budgeting, implementation, monitoring, and evaluation. In each country, the National Coordinator and the National Selection Committee will prepare a Country Strategy and project selection criteria to provide a framework for the allocation of grant funds. The planning process will generate a shared global vision of the strategic direction and programming strategy of the GEF/SGP within the larger context of the GEF Operational Strategy, and will lead to clearly articulated country priorities and a firmer relationship between GEF/SGP grantmaking and the GEF focal areas – and, therefore, clearer linkage to global benefits.

#### GEF/SGP National Coordinator training and networking

As indicated in the Independent Evaluation, the multiple roles played by the National Coordinators were key to the success of the Pilot Phase. Making the shift from pilot to operational status, as outlined in this proposal, will place even greater demands on the National Coordinators and National Selection Committees, increasing the need to provide training and opportunities to share programme experience. In early 1996, a global National Coordinator workshop will be held which will serve both as a training activity and as a catalytic capacity, leadership and team-building activity central to the launching of the next phase of the programme (preparations for the workshop are underway as part of the ongoing transition work programme). In 1997, three regional National Coordinator workshops will be held to share programme experience, provide training to new National Coordinators, and to begin planning for the next phase of the programme.

#### GEF/SGP Operations Handbook

A GEF/SGP Operations Handbook will be a regularly updated sourcebook on the GEF/SGP which will help to ensure consistency and quality standards across the country programmes. It will be designed for use by National Coordinators and other stakeholders, and will include both strategic and operational guidance, practices and procedures. To ensure that GEF/SGP projects are, in fact, consistent with overall GEF thematic objectives and criteria, more rigorous and clearly defined criteria for GEF/SGP project selection will be developed. These will include technical guidelines for each focal area to assist National Coordinators and National Selection Committees in screening project proposals.

### **2.2 Establish an Effective Framework for Ongoing Programme Learning**

42. Developing capacity at all levels of the programme to learn and apply lessons from community-based experience, particularly as they relate to achieving global environmental benefits, will be central to the quality and impact of the GEF/SGP in the Operational Phase.

### Country programme monitoring and evaluation

A country-based monitoring, evaluation and reporting system will be established which is closely integrated with the programme planning process, is practical and useful as a management tool, and supports learning and feedback at all levels of the programme, particularly the community level. The monitoring and evaluation system will provide a framework for assessing programme performance and impact, including the monitoring of impact indicators to provide a basis for assessing the role of the GEF/SGP in contributing to global environmental benefits. Targeted special studies will be undertaken to support ongoing monitoring and impact assessment. The use of participatory monitoring and evaluation methods and tools will be emphasized. In-country monitoring and evaluation will be coordinated to the extent feasible with UNDP/GEF monitoring and evaluation activities, as well as to the work of the GEF Secretariat in this area, while ensuring that the unique needs of the GEF/SGP are met.

### **2.3 Develop Programme-related Communications and Outreach Capacity**

43. Effective communications and outreach will be essential to meeting priority capacity building needs among GEF/SGP stakeholders and to reaching key audiences within, among and beyond the participating countries. A range of information, training and support materials will be developed to: (i) build a common foundation of understanding about the GEF and the GEF/SGP; (ii) effectively document and disseminate the lessons being learned from community-based experience; (iii) build awareness of and tangible support for the GEF/SGP (in particular) and this approach to development (in general), among key actors in the sustainable development field; and (iv) in the medium to long term, help effect and shape institutional policy within governments and bilateral and multilateral agencies towards the small grants approach. Communications and outreach activities will be targeted to a range of audiences including local NGOs and community-based groups, GEF/SGP National Selection Committees, development practitioners (NGOs, governments, UN System Agencies, academics, etc.), donors and the media.

#### GEF/SGP Stakeholder Workshop

In order to ensure higher quality project proposals and greater awareness of and support for the GEF/SGP in countries, a "GEF/SGP Stakeholder Workshop" will be developed for use at the country level in building a foundation of understanding about the principles, objectives, approaches, and structures of the GEF/SGP. The two-day workshop is intended both as a training activity and as a catalytic capacity-building activity, with particular emphasis on: (1) fostering broader awareness and understanding of the linkages between local environmental and livelihood concerns and the GEF focal areas; (2) building capacity in small-scale project development and implementation; and (3) applying participatory concepts, methods and tools. Participants in any given country may include potential grantees (NGOs and CBOs), government officials, journalists, academics, scientists, participants in macro GEF projects, and other relevant groups. The Stakeholder Workshop can also serve as the foundation for country-level planning and programming exercises associated with project development and selection, and will play a key role in the start-up of new country programmes.

The workshop design will be developed as part of the ongoing transition work programme, and will complement the GEF Project Development Workshop developed jointly by UNDP, UNEP and the World Bank in consultation with the GEF Secretariat. Field testing, final production and full implementation of the GEF/SGP Stakeholder Workshop will be carried out over the two-year period of this proposal.

### In-country information exchange, networking and policy dialogue

At the country level, a range of information exchange, networking and policy dialogue activities will be undertaken to support community-based initiatives and to leverage their impact. Innovative means to facilitate information exchange will be explored and supported, such as the use of video, community theatre, and site visits to projects. Efforts will be made to expand the role of the National Selection Committees as a mechanism for communications and outreach with respect to the GEF at large and the Biological Diversity and Climate Change Conventions.

### Inter-country and global information exchange, networking and policy dialogue

Communications and outreach capacity will be strengthened to support information exchange, networking, and policy dialogue at the inter-country and global level. A GEF/SGP brochure will be developed for general information purposes, and two publications will be launched -- a "Field Notes" series for rapid dissemination of on-the-ground experience, and "Occasional Papers" which will be more in-depth case studies and analyses of programme and project-level outcomes, impacts and lessons learned.

## **2.4 Foster Better Integration and Synergy Between the GEF/SGP and Macro GEF Projects in Participating Countries**

44. Strengthening in-country operational linkages between the GEF/SGP and the GEF is important to leveraging the programme's impact. The lessons learned from GEF/SGP experience in supporting community-based activities in the GEF focal areas can be valuable inputs into the overall GEF work programme, improving the quality of macro GEF project design and implementation.

### Country programming strategies

As a first step, GEF/SGP country programme strategies will identify potential operational linkages with macro GEF activities, including linking GEF/SGP programming geographically to macro GEF programming. For example, the GEF/SGP could target small grant support to local groups working in the area of a large GEF biodiversity investment or technical assistance project in order to help facilitate community awareness and participation, and to pilot test community-based strategies and activities.

### GEF/SGP programming services

Experience in several Pilot Phase countries demonstrates that GEF/SGP National Coordinators and National Selection Committees can provide useful services to assist in the planning, design, implementation, and monitoring and evaluation of macro GEF projects. For example, the GEF/SGP can help facilitate community and NGO participation in GEF-supported "enabling activities." Also, National Coordinators and National Selection Committees can apply their GEF/SGP experience in helping to design and implement small grant activities within macro GEF projects.

**OBJECTIVE 3: ENSURE THE SUSTAINABILITY OF PROGRAMMING CAPACITY AT THE COUNTRY LEVEL BY PREPARING GEF/SGP COUNTRY PROGRAMMES FOR LONG-TERM OPERATION FUNDED BY DIVERSE PUBLIC AND PRIVATE SOURCES.**

45. During the coming two years, as the GEF/SGP moves into its Operational Phase, ways of assuring the medium and long-term sustainability of the programme will be vigorously explored.

**3.1 Develop and Test a Strategy for Transforming over Time the GEF/SGP from a GEF Programme to a Sustainable Country-based Facility Supported by Non-GEF Contributions**

46. The basic premise is that the number of participating countries in the GEF/SGP will not expand indefinitely. Rather, a "graduation process" will be designed whereby mature GEF/SGP country programmes can become self-sustaining. In this sense, it is envisioned that the GEF/SGP could become a kind of "incubator" in which small grant-making structures and networks are cultivated, matured and empowered to stand on their own. A ceiling of about 50 ongoing GEF-supported country programmes would seem to be reasonable for the foreseeable future under this scenario.

Country programme sustainability strategy

The first phase of this process will focus on developing a conceptual framework and strategy for programme sustainability at the country level. The objective will be to define more sharply the issue of programme sustainability, to identify and examine alternative models, and to outline a process for demonstrating the potential for sustaining GEF/SGP programming capacity beyond the period of GEF support.

The second phase will focus on initiating activities in targeted country programmes which will lead to a "graduation process" whereby mature GEF/SGP national networks can move beyond the GEF to become ongoing in-country facilities in the mainstream of sustainable development efforts, and funded by bilateral donors, national endowments, environmental trust funds and other financial sources. Some possible "models" that country programmes could evolve toward include: (1) an independent entity along the lines of a foundation or trust fund; (2) becoming attached to a National Environment Fund; or (3) becoming a programme of a national NGO or NGO network.

**3.2 Launch a Resource Mobilization Effort to Co-Finance GEF/SGP Programmes and Activities**

47. A systematic effort will be launched from the beginning of the Operational Phase to mobilize additional non-GEF funding at the country level and globally through co-financing and other funding mechanisms. Sources of co-financing could include bilateral donors, multilateral agencies, international NGOs, charitable foundations and others (during the Pilot Phase, non-GEF funds were received from the U.S. Agency for International Development and the MacArthur Foundation).

48. As part of the resource mobilization effort, two international "donor coordination" meetings are planned during the 1996-97 period. The meetings will bring together bilateral and multilateral donors, and possibly interested private foundations, to review the GEF/SGP and potential co-financing arrangements.



## IMPLEMENTATION PLAN

49. Following a decision on this proposal at the October meeting of the GEF Council, a more detailed Project Document will be prepared for the next two-year phase of the GEF/SGP. The Project Document will be prepared by the GEF/SGP headquarters unit in collaboration with the GEF/SGP National Coordinators, and following consultations with the UNDP Regional Bureaux, the GEF Secretariat, the Climate Change and Biodiversity Convention Secretariats, and others.

50. The Project Document will include a workplan and implementation plan/timeline for the priority activities outlined in this proposal, and will specify new countries in which the programme will be initiated in 1996 and 1997.

## BUDGET (1996-97)

<b>I.</b>	<b>SUPPORTING COUNTRY PROGRAMMES</b>	
	A. Replenishing Ongoing Country Programmes	
	32 countries x \$300,000/country x 2yrs.	19,200,000
	B. New Country Programmes	
	5 x \$250,000/country x 2yrs.	2,500,000
	5 x \$250,000/country x 1yr.	1,250,000
	C. Scaling-Up Project Grants	
	15 x \$200,000/grant	3,000,000
	D. Training and Networking	
	GEF/SGP National Coordinator Training (1996)	200,000
	3 Regional Meetings (1997)	225,000
	GEF/SGP Operations Manual	
	Final production, translation, distribution	25,000
	E. Monitoring, Evaluation and Impact Assessment	
	Impact Monitoring and Assessment Framework	25,000
	Special Evaluation/Assessment Studies	50,000
	F. Communications and Outreach	
	GEF/SGP Stakeholder Workshops	90,000
	SGP Brochure	25,000
	SGP Field Notes	60,000
	SGP Occasional Papers	90,000
<b>II.</b>	<b>GLOBAL ADVISORY GROUP</b>	
	2 meetings x \$60,000/meeting	120,000
<b>III.</b>	<b>DONOR COORDINATION MEETINGS</b>	
	2 meetings x \$60,000/meeting	120,000
<b>IV.</b>	<b>PROGRAMME MANAGEMENT AND SUPPORT</b>	

<b>A. Programme Coordination and Support Staff</b>	
Programme Manager	280,000
Programme Officer	150,000
Secretary	100,000
Sr. Adviser (25%)	73,000
Secretary (25%)	28,000
<b>B. Travel</b>	<b>200,000</b>
<b>C. Consultants</b>	<b>100,000</b>
<b>D. Equipment</b>	<b>20,000</b>
<b>E. Contingency</b>	<b>150,000</b>
<b>F. Agency Support Costs (3% of I.A-F, II, III, IV.C and E)</b>	<b>809,700</b>
<b>TOTAL</b>	<b>\$28,890,700</b>

## BREAKDOWN OF COUNTRY BUDGETS

	<u>Grant</u>	<u>Non-Grant</u>
A. 32 Ongoing Country Programmes		
Grants		
32 x \$220,000/country x 2yrs.	14,080,000	
Capacity Building		
32 x \$10,000/country x 2yrs.		640,000
Monitoring and Evaluation		
32 x \$10,000/country x 2yrs.		640,000
Communications and Outreach		
32 x \$10,000/country x 2yrs.		640,000
Operations		
32 x \$50,000/country x 2yrs.		3,200,000
B. 5 New Country Programmes		
Grants		
5 x \$200,000/country x 2yrs.	2,000,000	
Operations		
5 x \$50,000/country x 2 yrs.		500,000
5 New Country Programmes		
Grants		
5 x \$200,000/country	1,000,000	
Operations		
5 x \$50,000/country		250,000
C. Scaling-Up Grants		
15 grants x \$200,000	3,000,000	
<b>TOTAL</b>	<b>\$20,080,000</b>	<b>5,870,000</b>

## GRANT FUNDING AS A PROPORTION OF TOTAL FUNDING

Grant Funds	\$20,080,000 (70%)
Programme Support Services <sup>5</sup>	\$ 6,900,000 (24%)
Programme Management	\$ 1,910,700 ( 6%)

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Programme Support Services includes non-grant funds from the country budgets and budget lines I.D, I.E and I.F from the summary budget on 16.

## **ANNEX I**

### **GEF/SGP PARTICIPATING COUNTRIES**

#### **AFRICA**

Botswana  
Burkina Faso  
Cameroon  
Cote d'Ivoire  
Ghana  
Kenya  
Mali  
Mauritius  
Senegal  
Zimbabwe

#### **ARAB STATES**

Egypt  
Jordan  
Tunisia

#### **ASIA AND THE PACIFIC**

India  
Indonesia  
Nepal  
Pakistan  
Papua New Guinea  
Philippines  
Sri Lanka  
Thailand

#### **EUROPE**

Poland  
Turkey

#### **LATIN AMERICA AND THE CARIBBEAN**

Barbados  
Belize  
Bolivia  
Brazil  
Chile  
Costa Rica  
Dominican Republic  
Ecuador

Mexico  
Trinidad and Tobago

**ANNEX II**  
**COUNTRIES INTERESTED IN PARTICIPATING IN THE GEF/SGP**  
**AND POSSIBLE SELECTION CRITERIA**

**AFRICA (26)**

Angola	Mauritania
Benin	Mozambique
Burundi	Namibia
Cape Verde	Niger
Central African Republic	Nigeria
Chad	Seychelles
Comoros	Sierra Leone
Equatorial Guinea	Sudan
Eritrea	Swaziland
Guinea	Tanzania
Liberia	Togo
Madagascar	Uganda
Malawi	Zambia

**ARAB STATES (7)**

Lebanon	United Arab Emirates
Morocco	West Bank and Gaza (Palestinian Authority)
Somalia	Yemen
Sudan	

**ASIA AND THE PACIFIC (25)**

Bangladesh	Mongolia
Bhutan	Myanmar
China	Nauru
Cook Islands	Niue
Dem. People's Rep. of Korea	Palau
Fiji	Rep. of Korea
Iran	Samoa
Kiribati	Solomon Islands
Laos	Tokelau
Malaysia	Tuvalu
Maldives	Vanuatu
Marshall Islands	Vietnam
Micronesia	

### **EUROPE/ECONOMIES IN TRANSITION (8)**

Belarus	Hungary
Bulgaria	Kazakstan
Cyprus	Slovak Republic
Czech Republic	Ukraine

### **LATIN AMERICA AND THE CARIBBEAN (13)**

Argentina	Jamaica
Colombia	Panama
Cuba	Peru
Guatemala	El Salvador
Guyana	Uruguay
Haiti	Venezuela
Honduras	

### **SELECTION CRITERIA**

- Environmental threats and needs in GEF thematic areas.
- Presence and capacities of local NGOs and community-based organizations.
- Government interest in joining the programme and support for programme's implementation modality.
- Status of BD and CC Convention ratification.
- Government-NGO relations.
- Enabling environment.
- Interest and capacity of UNDP Country Office to support the programme.
- Presence of other UNDP small grant programmes to promote sustainable development (Africa 2000 Network, LIFE).
- Presence of one or more regular GEF projects.
- Presence (current or proposed) of a national environmental fund.
- Presence of other relevant donor programmes.
- Potential for regional clustering of countries and programme activities