Table A: Composition of Work Program

Focal Area Country/Region	Proposed Budget ($ Million)	Implementing Agency
A. Climate Change		
Enabling Activities		
1. Armenia	0.350	UNDP
2. Costa Rica	0.470	UNDP
4. Egypt	0.500	UNDP
5. Malaysia	0.470	UNDP
6. Mexico	0.306	UNDP
7. Sudan	0.290	UNDP
8. Tunisia	0.565	UNDP
9. Regional: Caribbean	6.500	World Bank
10. Global: CC:TRAIN	2.700	UNDP
(10) SUB-TOTAL	12.151	
Other Projects		
11. Lithuania	6.9	World Bank
12. Global: Slash and Burn	3.0	UNDP
(2) SUB-TOTAL	9.9	
B. Biodiversity		
1. Central Africa Rep.	2.5	UNDP
2. Guatemala	4.0	UNDP
3. India	20.0	World Bank
4. Indonesia	13.5	World Bank
5. Lebanon	2.5	UNDP
6. Mauritius	1.2	World Bank
7. Regional Amazonia	3.8	UNDP
(7) SUB-TOTAL	47.5	
C. Ozone Depletion		
1. Bulgaria	11.90	World Bank
2. Hungary	6.90	World Bank
3. Russian Federation	8.70	World Bank
4. Slovak Republic	3.50	World Bank
5. Slovenia	6.20	World Bank
(5) SUB-TOTAL	37.20	
(23) GRAND TOTAL	106.751	

Proposal for Review

Project Title:	**Sudan: Enabling Activity (Capacity Building to Enable Response and Communications to the UN Framework Convention on Climate Change)**
GEF Focal Area	Climate Change
Country Eligibility:	Convention Ratified November 19, 1993
Total Project Costs:	$ 290,000
GEF Financing:	$ 290,000
Implementing Agency:	UNDP
Executing Agency:	Government of Sudan
Local Counterpart Agency:	Ministry of Environment and Tourism, High Council for the Environment and Natural Resources
Estimated Approval Date:	June 1995
Project Duration:	24 months
GEF Preparation Costs:	$ 14,000

SUDAN: ENABLING ACTIVITY (CAPACITY BUILDING TO ENABLE RESPONSE AND COMMUNICATIONS TO THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE)

COUNTRY AND SECTOR BACKGROUND

1. In recognition of the importance of addressing climate change concerns, and the need to integrate environmental and development objectives, Sudan ratified the UNFCCC in 1993. However, there is considerable need for enhancement of knowledge about the sources, sinks, and potential impacts of greenhouse gases (GHG).

2. Evidence of the Government's increasing concern about environmental degradation is illustrated by a number of strong steps it has taken to incorporate longer-term environmental perspectives in its approach to national development. The 10-year (1992-2002) Comprehensive National Strategy (CNS) identifies the pursuit of environmental protection as integrally related to its goals for increasing population health and prosperity. A number of priority actions outlined in the CNS are related, either directly or indirectly, to climate change. These include protection and development of the rural environment for sustainable development, rehabilitation/preservation of ecosystems for sustainable and renewable energy resources, and enhancement of environmental awareness among concerned groups.

3. In recognition of the importance of environmental protection for the sustainable development of Sudan, the GOS created the Ministry of Environment and Tourism (MET) in February 1995. Priorities include raising public awareness, enforcement of environmental law/regulations, data collection, and encouraging the formation of voluntary organizations.

4. A coordinating institution, the Higher Council for Environment and Natural Resources (HCENR), will continue to remain active as a distinct department within the MET, together with the forestry, wildlife, and tourism departments. The Council consists of a number of ministers and has placed special emphasis on addressing acute degradation, resource depletion, and chronic pollution.

5. However, in spite of official recognition of the need to address the environmental issues facing Sudan, the GOS needs external assistance from the GEF in order to strengthen the institutional and technical capabilities of the newly formed MET. Particularly with regard to climate change, the MET requires considerable reinforcement of its technical capacity to address climate change impacts.

6. In terms of other international environmental frameworks, the International Convention to Combat Desertification strongly advocates the need for activities such as described in this project brief. The Convention notes its relationship to the UNFCCC and encourages joint programs in research, training, and data collection in order to derive maximum benefit from activities under each convention.

Proposal for Review

Project Title:	**Armenia: Enabling Activity (Country Study on Climate Change)**
GEF Focal Area:	Climate Change
Country Eligibility:	Convention Ratified May 14, 1993
Total Project Costs:	$ 350,000
GEF Financing:	$ 350,000
Government Counterpart Financing of GEF Component:	"in kind"
Cofinancing/Parallel Financing:	not applicable
Associated Project:	not applicable
GEF Implementing Agency:	UNDP
Executing Agency:	Ministry of Nature and Environmental Protection
Local Counterpart Agencies:	Ministry of Nature and Environmental Protection State Hydrometeorology Department
Estimated Approval Date:	July 1995
Project Duration:	2 years
GEF Preparation Costs:	US $ 10,000 PDF A (approved 13/3/1995)

ARMENIA: ENABLING ACTIVITY
(COUNTRY STUDY ON CLIMATE CHANGE)

BACKGROUND AND PROJECT CONTEXT

1. Armenia is a small, landlöcked and mountainous country with a land area of 29,800 square kilo-metres. Over 40 % of the terrain lies in the altitude of over 2,500 m. Turkey lies to the West, Georgia to the North, Iran to the South and Azerbaijan to the east. Armenia declared independence in 1991.

Economics

2. Armenia's transition to market economy has been marked by a strong privatization program and drift to price liberalization and on the other hand great difficulties with these efforts, arising mainly from the fast decline of the general economic situation during the last few years. Armenia is highly dependent on trade with other CIS countries. Thus the conflict over Nagorno-Karabakh with Azerbaijan and instability in Georgia, which since 1991 have almost completely blockaded the major trade and transit routes, have resulted serious damages to the economy. In one year the GNP dropped down from the 1991 level US $ 1,930 to the US $ 780 per capita in 1992 and was further declining during 1993. Especially the energy sector has suffered of the blockade since Armenia is almost completely dependent on primary energy imports (natural gas and oil). The only relative stable source of energy has during the last few years been hydropower, the use of which, however, has led to environmental problems with further draw-down of water level of Armenia's major water reservoir, Lake Sevan (the water level has during the last 60 years already drawn down by about 18 meters having remarkable effects to the microclimate of its surroundings).

3. The cease-fire in Nagorno-Karabakh (in effect from 25 May 1994), increasing stability in Georgia and developing trade with Iran give hope that the economic situation will start slowly to recover from its collapse. The rehabilitation of the power sector is underway with the help of the World Bank, the European Bank for Reconstruction and Development (EBRD), US AID and some other international organisations. The European Union has established an Energy Centre in Yerevan under its TACIS program to assist enterprises with measures dealing with energy efficiency (energy audits etc.). To relieve the acute energy shortage, the Government plans also to reopen the Medzamor nuclear power plant, which was closed for safety reasons after the December 1988 earthquake.

Environment

4. It can be said that there is both the willingness and scientific capacity in Armenia to implement projects dealing with environmental issues, but due to the present economical situation very few concrete measures have been undertaken. On the other hand, most of the plants, which were still working and emitting greenhouse gases in 1990 are now either closed or work only with partial capacity. However, it's evident that the emissions will increase sharply with recovery of the economy and the government is eager to find solutions which could both minimize the environmental

impacts and be eventually also the least cost option or have other benefits like enhanced independency of imported fuels. Thus promoting efficient use of energy by developing measuring and billing systems, energy audits of the enterprises and utilization of "domestic" renewable sources of energy are of high priority in the government's program. Also an Energy Law targeting these issues is currently under preparation.

5. The Ministry of Nature and Environmental Protection has already collected data on the industrial emissions to the air and the enterprises have a legal responsibility to calculate and provide information for this purpose. The system must, however, be extended to cover all greenhouse gases and their sources as formulated in the reporting instructions of the IPCC.

Project Background

6. A request for funding from GEF to fulfil the commitments of Armenia to the UN Framework Convention on Climate Change was sent to UNDP by the Government in January 1995. The request was based on the proposal prepared by the Environmental Research and Development Centre of the State Hydrometeorology Department and undersigned by the Ministry of Economy and Ministry of Nature and Environmental Protection. With respect to the request, a preparatory mission was undertaken to Armenia in March 1995 to formulate the project framework and a project brief for submission to the GEF-OP and GEF Council Meeting. There are no other ongoing or planned projects to assist Armenia to fulfil its commitments to the UNFCC.

PROJECT OBJECTIVES

7. The immediate objectives of the project are to prepare the first National Communication of Armenia 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.

8. The project can also be seen as a useful exercise to enhance general awareness and knowledge of climate change related issues in Armenia thus enabling Armenia 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 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 players in the field including governmental, non-governmental, academic, private and "grassroots" sectors.

9. Last but not least, the project will help Armenia to identify and develop concrete projects with the target of reducing global greenhouse gas emissions or studying the climate change phenomena itself; projects which may also be eligible also for further funding or cofunding by GEF or other multilateral or bilateral organizations.

PROJECT DESCRIPTION

10. 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 Steering Committee with participants from all the project relevant sectors to prepare a detailed work plan for the project (eventually with the help of an international consultant), coordinate the tasks and ensure an effective dissemination and change of information both during and after the project.

(b) Strengthen the already existing information centres of the State Hydrometeorology Department and Ministry of Nature and Environmental Protection to identify and create links to both national and international sources of information 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 main goal of this activity is to find potential international partners to cooperate with the projects related to mitigation of the greenhouse gas emissions. To the extent possible electronic networks are used to save travel costs and enhance the geographical coverage of available information. In this context the project will cooperate with a UNDP project: "Strengthening of Information and Communication Infrastructures for Academic, Scientific and Social Development", if it is implemented (at the moment the project is still under development and seeks cofinancing).

11. In accordance with the objectives of the project need, for e.g. "up-to-date" information such as the following could be identified:

- information on 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.
- 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.

12. 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(s) staff members will consist of computer specialists, also providing support for other departments) as well as experts of the specific fields related to project (meteorology & atmospheric physics, renewable energy sources & energy efficiency; forestry, etc.)

3. Study the climate change phenomena itself and its possible impacts with respect to the specific geographical and climatological characteristics of Armenia

3.1 Systemize and establish a database of climatological data based on the long term observations of the State Department of Hydrometeorology

3.2 Study the microclimates and mountain biosystems as indicators of the climate change and assess the adaptability/vulnerability of these systems on change

3.3 Publish the results of the studies

4. Undertake a national inventory of greenhouse gases in 1990 with a methodology recommended by the IPCC.

4.1 Build capacity and establish a data collection and management system to provide the basic statistical data, detailed enough for the actual and following inventories, on a continuous basis

4.2 Undertake the inventory using the appropriate methodology and contribute on the development of the IPCC methodology with a study on methane and nitrous oxide emissions from the specific biosystems in Armenia

5. Build capacity, develop tools and undertake studies to provide relevant information for formulation of a national greenhouse gas mitigation strategy

5.1 On the basis of inventory, develop a computer model to estimate the future emissions of different sectors as well as to study the effect of different policies and technological options.

5.2 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 as well as to prepare follow-up projects to mitigate greenhouse gas emissions.

6. 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.

7. Using the outputs of this project as well as results of other ongoing projects, prepare the first communication of Armenia to the Conference of the Parties.

RATIONALE FOR GEF SUPPORT

13. 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 Armenia to fulfil its commitments to implement the Convention.

14. Given the high priority which the 11th INC Meeting in February 1995 gave to the projects of enabling activities, and with respect to the present economical situation of Armenia, being at the beginning of rehabilitation of its collapsed 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 point of view 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 Armenia, as well as to provide information and "tools" for the international donor and loan organizations assisting Armenia in its efforts.

15. With respect to the comments of the technical review, the project does not try to be particularly innovative but rather to determine the practical tasks which are necessary to enable Armenia to fulfil its commitments to the Convention. There are, however, two components which have very interesting elements also from the viewpoint of demonstration/replication (activity 2) or international research related to the impacts of climate change and the phenomena itself (activity 3). With respect to the activity 2: if the use of electronic networks (Internet) proves to be an efficient way to change information and create links to potential international partners, it will have a remarkable replication potential in other countries like Armenia and enhance significantly possibilities e.g. for "grassroots" and non-governmental organisations to participate in the process. With respect to activity 3: mountain plant communities, as mentioned also by the Technical Reviewer) are known to be sensitive indicators of climatic change and thus Armenia as one of the most mountainous countries in the world can be seen as a good candidate for these studies.

SUSTAINABILITY AND PARTICIPATION

16. The Government of Armenia fully supports the objectives of this project and gives a very high priority to it due e.g. to the reasons already mentioned in the chapter "Background and Project Context". The Government has also endorsed that the project outputs 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 costs of various support staff, space for the work and meetings etc.

17. 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, as needed.

18. To ensure wide participation a national Steering Committee will be established on the basis of the already existing National GEF Committee with representatives from the Ministry of Economy, Ministry of Agriculture, Ministry of Nature and Environmental Protection and Ministry of Energy and Fuels together with representatives from the Environmental Research and Development Centre of the State Hydrometeorology Department, UNDP and other relevant governmental or non-governmental organizations, research institutes, international experts working in the country (ie. under EU/TACIS, USAID) or corporations. 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. 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 capacity building in the project relevant sectors in order to target later the actual mitigation of the greenhouse gas emissions.

LESSONS LEARNED AND TECHNICAL REVIEW

19. A number of points are raised in the technical review. While several have been incorporated, several others have not been. This is due to the fact that the Reviewer was not fully informed about the nature of "enabling activities" as defined by the INC for the FCCC. The response to his major points are explained below:

(a) The project is not particularly innovative -- this has been responded to, mainly in the chapter "Rationale for GEF support".

(b) What is the significance of INPO ? This question is a result of the poor quality fax which was forwarded to the Reviewer. INPO is a mangled version of CC:INFO

(c) "Specific objective 3.2" is unnecessary. This objective was eliminated from the proposal.

(d) The question of specific Armenian candidates for the study of biosystems as indicators of climatic change and how does further understanding of these systems contribute to the GEF objective of reducing emissions of greenhouse gases is, with respect to the first part of the question, has been responded in the chapter "Rationale for GEF support". With respect to the second part, an assessment of vulnerability and adaptation of different biosystems to the potential change are part of the commitments (article 4 e-h) and is eligible also for GEF funding. Besides being

sensitive indicators of climatic change the mountain plant communities are also very vulnerable to the change.

(e) The Reviewer questions the appropriateness of budgeting 31 experts and no clerical and administrative support. The management of these staff will be the responsibility of the Government of Armenia and support staff will be provided by the Government as an "in-kind" contribution.

(f) A request for more information on the EU and other ongoing projects has been taken into account, to the extent possible, in the first chapter of the brief

PROJECT FINANCING, BUDGET AND INCREMENTAL COSTS

21. 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 in-kind contribution of the Government of Armenia, 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 (24 months @ US $ 300 p/m)	US $ 7,200
(b) International Consultants (2 months @ US $ 7,000 p/m)	US $ 14,000
(c) Equipment	US $ 2,500
(d) Travel	US $ 10,000
(e) Other operational expenses (mail, photocopies etc.)	US $ 800
Subtotal:	**US $ 34,500**

Activity 2 Strengthen the already existing information centres of State Hydrometeorology Department and Ministry of Nature and Environmental Protection

(a) Local Experts (5x24 months @ US $ 200 p/m)	US $ 24,000
(b) Travel	US $ 10,000
(c) Equipment (computers, copy machine etc.)	US $ 20,000
(d) Operational costs (satellite connection, publications etc.)	US $ 15,000
Subtotal:	**US $ 69,000**

Activity 3 Study the climate change phenomena itself and its possible impacts with respect to the specific geographical and climatological characteristics of Armenia

(a) Local Experts (10x24 months @ US $ 200 p/m)	US $ 48,000
(b) Travel	US $ 10,000
(c) Equipment (computers, programs etc.)	US $ 30,000
(d) Operational costs	US $ 2,000
Subtotal:	**US $ 90,000**

Activity 4 Undertake a national inventory of greenhouse gases and contribute to the development of the methodology of IPCC

(a) Local Experts (5x24 months @ US $ 200 p/m)	US $ 24,000
(b) Travel	US $ 10,000
(c) Equipment (computers, programs etc.)	US $ 10,000
(d) Operational costs	US $ 1,000
Subtotal:	**US $ 45,000**

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

(a) Local Experts (10x24 months @ US $ 200 p/m)	US $ 48,000
(b) International Consultants (2 month @ US $ 7,000 p/m)	US $ 14,000
(c) Travel	US $ 10,000
(d) Equipment	US $ 10,000
(e) Operational costs	US $ 1,000
Subtotal:	**US $ 83,000**

Activity 6 Organize a workshop to present the results and discuss 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 Armenia to the COP

(a)	Personnel The Project Coordinator/Manager is responsible for the preparation of the communication see activity 1	
(b)	Operational and Reporting Costs, Materials etc.	US $ 5,000
Monitoring and Evaluation		US $ 13,500
Total Project Costs		**US $ 350,000**

ISSUES, ACTIONS AND RISKS

22. The crucial element of fulfilling the objectives of the project will be 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 the project support staff paid by the government. The project will respond to these issues by creating these links through the Project Steering Committee as well as ensuring that other presuppositions for close collaboration of the project personnel with each others and with other staff and partners are existing.

24. Another crucial element is the international collaboration, especially, when preparing the work plan for and implementing the research oriented activities 3 and 4. During this process, IPCC and UNEP will be consulted to ensure that the methods and details of the subjects are relevant also from a global point of view.

25. The scientific and technical (human) capacity to implement the project should not be a problem since the level of education in Armenia is very high and there are qualified local experts to undertake most of the tasks under the project.

INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

26. The implementing agency of the project is 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 Armenia 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.

27. 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.

28. 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:INFO, 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

29. After the detailed workplan 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 the successful implementation as well as to identify potential partners and sources of information of which the project could benefit.

30. The Project Steering Committee 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.

TECHNICAL REVIEW

ARMENIA: ENABLING ACTIVITY (COUNTRY STUDY ON CLIMATE CHANGE)

RELEVANCE TO GEF

1. The proposed project relates directly to the reduction of greenhouse gas emissions and global warming purposes of GEF.

OBJECTIVES

2. The substantive project objectives are to enhance the understanding of climatic change, to establish the capability to prepare a valid inventory of greenhouse gas sources and sinks, and to identify greenhouse gas emission reduction strategies. These are appropriate and fully consistent with GEF purposes.

3. The procedural objectives, namely to put in place the staff and resources necessary to accomplish the substantive objectives, are appropriate and necessary to the success of the project.

APPROACH

4. The approach, which the project intends to adopt is clearly defined in the brief.

5. The approach is appropriate and technically sound.

6. The project brief provides no information as to why Armenia was selected for this project.

BACKGROUND INFORMATION

7. More information regarding the Medzamor nuclear power plant and the nature of the "serious environmental problems" associated with the further draw-down of water levels in Lake Sevan would strengthen the proposal. The project brief indicates that World Bank power sector project is underway - it would be surprising were more information not available regarding the present energy system, general patterns of fuel and electricity end-uses (and, hence, the potential for increased energy efficiency), and an indication of potential primary energy sources.

8. The project brief indicates that the EU is promising technical assistance for the development of the [natural] gas industry and a national saving-strategy which would make unnecessary the

restarting of the Medzamor nuclear power station - more detail as to how the proposed work complements the pending EU project would be helpful.

FUNDING LEVEL

9. The overall funding level seems appropriate. Comments on specific budget items follow below at item eight.

INNOVATION

10. The project is not particularly innovative, but it deals with issues fundamental to the development of a greenhouse-gas minimizing strategy

STRENGTHS/WEAKNESSES

11. **Strengths:** The proposal outlines a valid approach to achieving the substantive objects. The incorporation of a program to achieve information exchange and cooperation among the involved players is a strength.

12. The project relies heavily on local experts and strengthening communication links with little use of international consultants.

13. **Weaknesses:** The proposal provides no indication of the potential reductions in greenhouse gas emissions. The synergism with the EU technical assistance and the World Bank power-sector projects should be detailed.

OTHER COMMENTS

14. Specific objective 2 includes a reference to INPO.

What is the significance of INPO to the project?

15. Specific objective 3.2 is to: "enhance the capacity of Armenia to undertake studies of the greenhouse gas contents and vertical distribution in the atmosphere"

The atmospheric greenhouse gas concentrations and vertical distributions are well understood.

16. Specific objective 3.3 is to: "study the microclimates and biosystems as indicators of the climate change and assess the adaptability/vulnerability of these systems on change"

Biosystems, for example mountain plant communities, are known to be sensitive indicators of climatic change. What sensitive Armenian systems are candidates for study, and how does further understanding of these systems contribute to the GEF objective of reducing emissions of greenhouse gases ?

17. The proposed Institutional Framework and Monitoring and Evaluation are appropriate to the project.

18. A full-time staff of 31 local experts is projected, but there is no mention of, nor budget items for, the necessary clerical and administrative support staff. Overall management and coordination of the work of such a large staff may be an issue.

Proposal for Review

Project Title:	**Costa Rica: Enabling Activity (Building National Technical Capacity to Develop Options for Greenhouse Gas Emissions Reductions and Enhancement of Carbon Sinks)**
GEF Focal Area:	Climate Change
Country Eligibility:	Convention Ratified August 26, 1994
Total Project Costs:	$ 470,000
GEF Financing:	$ 470,000
Country contribution in kind:	$ 130,000
GEF Implementing Agency:	UNDP
Executing Agency:	Ministry of Natural Resources, Energy and Mining National Meterological Institute
Estimated Approval Date:	May 1995
Project Duration:	20 months
GEF Preparation Costs:	US$ 15,000

COSTA RICA: ENABLING ACTIVITY (BUILDING NATIONAL TECHNICAL CAPACITY TO DEVELOP OPTIONS FOR GREENHOUSE GAS EMISSIONS REDUCTIONS AND ENHANCEMENT OF CARBON SINKS)

COUNTRY AND SECTOR BACKGROUND AND CONTEXT

1. The international scientific community anticipates that climate change, and, in particular, global warming caused by anthropogenic activities, will have a great impact on the sustainability of the world's existing agricultural production systems, domestic water supplies, and natural terrestrial and marine ecosystems. Developing countries such as Costa Rica, whose economies are largely dependent on their agricultural, fishery and tourism sectors as sources of food supply, employment and foreign exchange are particularly at risk. Costa Rica's narrow landmass bordered by the Caribbean and Pacific, its many microclimates, and its heavy dependence on hydroelectric generation in the national power sector increase the country's vulnerability to climate change.

2. It is important that national research, analysis, and planning institutions factor climate change into their economic development programs and activities. Moreover, the Framework Convention on Climate Change commits signatories such as Costa Rica to take inventory of their emissions and to develop mitigation strategies such as greenhouse gas reductions or enhancements of carbon sinks to combat the effects of climate change.

3. Understanding and reacting to the many complex facets of climate change is a major policy focus for Costa Rica. Costa Rica is taking action both at a multilateral level through mechanisms such as the Framework Convention on Climate Change (FCCC) signed in June, 1992, at the United Nations Conference on Environment and Development in Rio de Janeiro, and at regional and national levels through research programs and national planning strategies.

4. Costa Rica ratified the FCCC in August 1994. The FCCC structures the international policy debate on the climate issue for the next decade, establishes several new institutional mechanisms for international cooperation, and binds together the issues of environmental protection and economic development. The FCCC has been ratified by 121 countries and entered into force on March 21, 1994, 90 days after it was ratified by the 50th party.

5. Costa Rica is complying in many of the areas described in Articles IV and XII of the FCCC, particularly in data exchange, inventories and research, education and public awareness. Most significantly, Costa Rica has already developed a broad national climate change strategy and has completed a national inventory of greenhouse gas sources.

6. Furthermore, Costa Rica is demonstrating world leadership by embarking on an ambitious program to incorporate sustainable development principles in the missions and programs of each of its major Cabinet agencies. Under this initiative, Costa Rica has elected to meet Annex 1 country emissions reductions standards (reduce emissions to 1990 levels by the year 2000) under the FCCC.

Costa Rica's Climate Change Program

7. Costa Rica is an active participant in the Intergovernmental Panel on Climate Change (IPCC) - a scientific and advisory group of scientists from over 100 countries commissioned by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO). The first scientific assessment report of the IPCC was presented at the Second World Climate Conference sponsored by UNEP and WMO in 1990. As a result of this involvement in the IPCC and the two World Climate Conferences, Costa Rica has had an active Climate Change Program since 1989.

8. Since 1989, Costa Rican climate change activities have included:

(a) Continuous participation in the IPCC process through contribution of scientific information and in-country review of IPCC reports.

(b) Active participation in sessions of the Inter-Governmental Negotiating Committee (INC) and the preparation process for both the U.N Conference on Environment and Development and the First Conference of the Parties to the Framework Convention on Climate Change.

(c) Development of a National Program for Climate Change, initiated in 1991 with the National Meteorological Institute as the host government agency. The program was created with the following objectives:

(i) Promote studies and projects designed to reduce the uncertainties about climate change and its impacts.

(ii) Disseminate relevant research results about climate change and possible impacts to policymakers and others.

(iii) Coordinate research and adaptation options.

(iv) Evaluate mitigation and adaptation options and their costs.

(v) Inform the public about the issue.

9. As part of the National Program, Costa Rica has completed a national inventory of GHG emissions sources with funding from the GEF. At the same time, Costa Rica is participating in the US Country Studies Initiative. Both activities are described in greater detail below.

PROJECT OBJECTIVES

- To develop Costa Rica's institutional capability and technical procedures to provide the scientific underpinning for policy analysis and decision making in greenhouse gas reduction and sinks enhancement.

- To develop a portfolio of cost effective greenhouse gas reduction and sinks enhancement policy options, measures and strategies.

- To assemble the data and develop the methodologies necessary to verify and monitor emission reductions in the various economic sectors of the country.

- To catalyze mitigation policy and legislation development and implementation.

PROJECT DESCRIPTION

10. Costa Rica needs additional in-country technical capacity to develop baseline forecasts for developing future anthropogenic emissions scenarios, analyze the economic and political cost-effectiveness of these scenarios, and suggest mitigation measures to make science-based national policy decisions and implement its FCCC commitments. While substantial scientific data, in the form of a national inventory of emissions sources, exists, analysis of options is vital to making these data relevant to policymakers.

11. Decisions about the desirability of enacting GHG reductions and sink enhancement programs need to be based on a familiarity with different baseline scenarios and with the potential impacts that decisions affecting these baselines will have on the country's economic and social development.

12. By the end of the project, and as a direct result of the project, the following situation is expected:

(a) A team of Costa Rican technical experts will have been developed. This team will be able to advise policy makers on development decisions likely to be affected by mitigation strategies.

(b) A portfolio of mitigation policy options, including a ranked list of potential project concepts for further development under the GEF Project Development Facility or other bilateral or multilateral funding mechanisms - based on an in-depth analysis of existing sources of greenhouse gas emissions and several baseline scenarios - will be published and made available to Costa Rican policy makers and other interested parties.

(c) Costa Rica will be equipped to meet its reporting requirements at the next Conference of the Parties to the Framework Convention on Climate Change.

(d) Models and "lessons learned" about Costa Rica's experiences with both its emissions inventory and analysis of mitigation policy options will be available to share with other Parties to the UNFCCC facing similar circumstances.

(e) A significant contribution to the field of mitigation policy and its relationship to economic development will have been made.

(f) Costa Rica will have the data and models necessary to verify and monitor emission reductions in the various economic sectors of the country.

13. The project will use a participatory, team approach to gathering and analyzing data, developing several baseline scenarios and identifying cost effective mitigation policy options. The goal of the scenarios will be to predict the emissions projections and tendencies for at least 20 to 25 years. Particular attention will be paid to examining costs - economic and political - of these scenarios and specific mitigation strategies. The project will take place over a period of 20 months with three distinct phases:

Phase One - Months 1-2

14. Phase one will gather likely team members and technical experts together at a five day conference where participants will: present the results of the national inventory developed by the UNEP project; decide on methodologies and parameters for the baseline scenario development and analysis; present ideas from international experts in greenhouse gas mitigation, environmental policy development, and economic analysis; and; assemble work groups and set out work plans for the individual sector studies.

15. Conference participants will be pre-selected representatives from public, private, NGO and academic communities actively involved in energy, land use, transportation, waste management and economic development. The conference will also include presentations from outside experts who have experience with cost benefit analyses of mitigation options in these sectors.

Phase Two - Months 3 - 11

16. Phase two will be devoted to producing sectoral studies in the areas of energy, land use, transportation, and waste management. During this time, multi-disciplinary teams consisting of representatives of government agencies, private sector economic concerns, and academia, and, technical advisors from Costa Rican and other non-governmental organizations will gather data, develop several baseline scenarios, analyze these scenarios with socioeconomic data, and develop a portfolio of policy options.

17. The baseline scenario will begin with a general picture of where Costa Rica is today. Baseline scenarios for the future will combine data on population, land tenure, development patterns, income distribution, infrastructure, energy use, current national development plans, and economic policy including tax and trade policies to determine tendencies for the next 20 - 25 years.

18. Baseline emission scenarios do not include any policies aimed specifically at stabilizing global CO2 emissions, and so can be described as "business as usual" scenarios. They are extremely important in policy development, as they provide an indication of the potential dimensions of the global warming problem given that no preventative or remedial action is taken, and can be used as references against which to assess the implications of different policies.

19. It is important to use baseline scenarios because the sensitivity of sectors to climate change may be affected by baseline changes. Comparing the sensitivity of sectors to climate change under current conditions, with the sensitivity using changed baseline scenarios, helps identify what baseline variables (e.g. population growth) may be the most important for affecting climate sensitivity. Identifying such sensitivities helps in designing climate change mitigation policies.

Phase Three - Months 11 - 20

20. The final phase will proceed on two tracks. One track offers technical assistance to Costa Rica's Consultative Commission On Climate Change as they develop a national plan to present to the President's Cabinet Commission on Sustainable Development. It is expected that the national plan will result in the introduction of legislation or a Presidential initiative. The individual sector reports, policy recommendations and cost analysis, will be published and presented at a second, smaller, three day workshop.

21. The project will culminate with the formal national communication of the national inventory and mitigation policy options to the COP in January, 1997.

RATIONALE FOR GEF FINANCING

22. In the absence of GEF financing of Convention-related enabling activities, no resources would have been available to undertake the programme of activities described in this proposal. This 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 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 Costa Rica to fulfil its commitments as Party to the UNFCCC.

SUSTAINABILITY AND PARTICIPATION

23. Under the current administration, Costa Rica's Climate Change Program has expanded to become one of the two cross-cutting environmental policies (along with biodiversity protection) of the new multi-sectoral National Sustainable Development Plan. This plan represents a major milestone for international environmental policy in that it is the first time that the President of a country has designated the environment and sustainable development as leading policy agenda items.

24. Since May, 1994, the Costa Rica Government has brought more resources to bear on considerations of how climate change issues and economic development affect each other. One of the first actions taken by the new administration was to ratify the Framework Convention on Climate Change (FCCC).

25. The National Climate Change Program is now headed by the Consultative Committee on Climate Change (CCCC). The committee consists of members from: the Ministry of Natural Resources' Divisions of Energy, Forestry, and Special Technical Advisory Group; the National Meteorological Institute; the Ministry of Science and Technology's Division of Standards; and; the Ministry of Education. The CCCC is charged with implementing the FCCC at a national level and making recommendations to the President's Cabinet Council on Sustainable Development which includes the seven major cabinet secretaries and industry and NGO representatives.

LESSONS LEARNED AND PREVIOUS OR ONGOING INITIATIVES

U.S. Country Studies Programme (CSP)

26. The CSP is a United States initiative designed to provide assistance to selected developing countries in meeting their requirements to develop and/or update their national programs that include plans to mitigate the impacts of GHG emissions and to adapt to the foreseeable changes in climate. The program consists of teams of technical experts from eleven U.S. Government agencies led by the U.S. Environmental Protection Agency. Areas of technical assistance include one or more of the following: developing inventories of sources and sinks of greenhouse gasses, assessing countries' vulnerability to climate change, and evaluating mitigation and adaptation response strategies. Costa Rica is one of six Central American countries evaluated as part of a "country" study focusing on the region's vulnerability to climate change.

27. A vulnerability assessment evaluates how changes in climate may affect elements of the national economy, segments of the natural environment, and human health and welfare. For example, a rise in temperature and an increase in rainfall may lower (or raise) the yield of a country's crops which, in turn, may reduce (or increase) a country's gross national product and its economic well being.

28. The Central American "country" study began in January, 1994 and will be completed in December, 1995. The focus in Costa Rica is on vulnerability in the agricultural sectors of rice and sugar cane production, and climate change implications for coastal areas and water resources. The final results of the study will be published in December, 1995. The study has been coordinated by the Regional Committee for Hydrological Resources, with the Costa Rican National Meteorological Institute overseeing the agriculture study. Information on vulnerability in the agriculture sector gathered by the country study will contribute to the land use analysis sector of the UNDP/GEF project.

UNEP Project X11-GF/4102-92-42: Country Case Studies on Sources and Sinks o Greenhouse Gases in Costa Rica

29. Global Environmental Facility Funds were provided to Costa Rica through the United Nations Environment Program (UNEP) to help the National Meteorological Institute produce a national inventory of emissions sources for greenhouse gases based on IPCC methodology. This project provided $140,569 in support of a national team of experts from Costa Rica's Departments of Energy and Forestry, the Ministries of Transportation and Agriculture, and from the National University, led by the National Meteorological Institute, to coordinate and oversee data collection from public and private sources and complete an inventory of greenhouse gas emissions for 1990 according to methodology established by the IPCC/OECD. The team brought together experts in the fields of forestry, land use, waste management, energy and fuel consumption - some of whom will be involved in the UNDP/GEF mitigation options project. During the project, which began in July, 1994, and concluded in February, 1995, emissions were considered from: Energy use and production; Agriculture; Land use changes; Waste Management (including agricultural product processing); Industrial Processes

30. The inventory determined that the highest priority target areas for reductions were energy and land use. In the energy sector, transportation was the highest source of emissions while deforestation headed the list for the land use sector.

31. Information from the national emissions inventory will be integrated with data gathered from UNDP/GEF project on population growth, energy use, national planning, tax and trade policy, land tenure, economic development patterns, and trends in agriculture, transportation and waste management to develop several baseline scenarios for considering mitigation strategies and policy options.

32. In addition to using data collected during the UNEP project, the UNDP/GEF project team will include several members of the national inventory team, use of computer equipment provided by the UNEP project, and the benefits of experience in organizing national and regional climate change workshops gained during the inventory. The UNDP/GEF project will complement future projects by developing a cadre of experts available to provide technical assistance to other countries in inventories, data analysis for climate change scenarios, and developing policy options for mitigating climate change.

33. Previous technical reviews of "enabling projects" for the UNFCCC have emphasized the importance of utilization of national expertise; this project emphasizes the development and strengthening of existing national expertise.

PROJECT FINANCING AND BUDGET

34. The total cost of the project is approximately US$ 600,000, including the national in-kind contribution. The GEF contribution to the project amounts to $470,000. A break-down of project costs by component is provided below.

35. Costa Rica's National Meteorological Institute will contribute the following to the project: office space; services such as electricity and water; computer and cartographic equipment; GIS hardware and software; equipment maintenance; communications (telephone and mail); access to residual information and institutional intellectual resources; 1/2 the salary of project director; secretarial and computer technical assistance; and transportation.

36. Additional in-kind inputs will come from: the Ministries of Planning and Transportation; the Ministry of Natural Resources, Energy and Mines; the University of Costa Rica School of Economics; the National University School of Economics; and, various NGOs involved in the sector studies.

Project Components	Component costs US $
Personnel	164,000
Workshops (2)	36,200
Training	4,000
Sector Studies (4)	240,000
Publications/Info dissemination	7,000
Equipment	7,000
Miscellaneous	9,000
Project Total	467,200

INCREMENTAL COSTS

37. Preparation of national communications by developing countries is to be fully financed by the GEF as financial mechanism for the UNFCCC. An incremental cost assessment is therefore not required. As the activities described above would not have been undertaken by the country to address its developmental goals but are required as part of Costa Rica's obligations vis a vis the Framework Convention on Climate Change, the baseline does not involve any action or expenditure. The incremental costs for this project are the therefore the full costs.

ISSUES ACTIONS AND RISKS

38. Costa Rica currently has a broad national climate change strategy and has completed a national inventory of greenhouse gas sources and sinks. Additional in-country technical capacity is needed to develop cost-effective emissions *mitigation strategies* in order to implement its commitments under the Framework Convention on Climate Change (FCCC) and provide options to policy makers. This project will assist teams of Costa Rican nationals to analyze the areas of

energy, land use, transportation and waste management, using information on socioeconomic variables such as population and land tenure, national planning and economic policy, and to develop technically sound projections and policy options based on different future scenarios. The project will result in a portfolio of greenhouse gas reduction and sink enhancement policy options, measures and strategies, including a list of specific potential project concepts for further development under GEF Project Development Funding or other bilateral or multilateral funding mechanisms. At the end of the project Costa Rica will have a substantially enhanced capacity to implement these policies, measures and strategies.

INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

39. The project will be implemented by a variety of participants under the coordination and supervision of the National Meteorological Institute which will house a project coordination unit (project manager, project coordinator, administrative support). The National Meteorological Institute will organize the workshops, subcontract various tasks to appropriate parties, coordinate the activities of the sector studies and be the central point for information dissemination and technical advice to policy makers based on the results of the studies.

40. The National Meteorological Institute is responsible for climate monitoring and evaluation, vulnerability studies, and mitigation of the effects of greenhouse gas emissions. NMI coordinates and directs the following actions:

- analyzes the climate records of the country;
- adapts global climate change models to global & regional conditions;
- evaluates the vulnerability of the country's main economic activities in view of foreseeable changes;
- evaluates and measures greenhouse gas emissions & sinks;
- evaluates mitigation options in the country;
- evaluates adaptation possibilities in order to diminish vulnerability.

41. NMI is also a member of the Consultative Committee on Climate Change - an inter-agency commission charged with implementing Costa Rica's climate change activities and providing policy options to the President's Cabinet Council on Sustainable Development.

42. Some of the members of the multi-disciplinary inventory team will also be involved in the baseline scenario analysis. This project will further build the capacity of this team and consolidate its ability to contribute experience-based technical input to policy makers in Costa Rica.

43. Other project participants will include: representatives from various economic sectors most likely to be affected by climate change, government policymakers, specialists from Costa Rican and international nongovernment organizations working on climate change, and experts from the Institutes of Economic Studies and Sustainable Development for the two main universities in the country.

Project progress reports and monitoring

- Brief quarterly reports will be published outlining major achievements of the past quarter.
- A full listing of all technical reports will be published prior to the end of the project.
- A detailed mid-term project performance report will be submitted to the UNDP/GEF at least one month before the mid-term project review.
- Project progress will be subject to on-going monitoring by the UNDP Country Office.

Expected time line

May 1, 1995	Project start
May 1 - Mid June	Prepare for workshop Identify experts/participants Assemble teams/working groups
Mid June	Workshop Determine length, depth of studies Establish workplan for teams
July 1 - Sept 1	Consolidate teams Begin sectoral studies
Sept 1 - Jan 1	Sectoral studies: Energy/Land Use/Transportation/Waste Management Develop policy options portfolio and preliminary project concept list
Jan 1 - March 1, 1996	Write and publish reports Prepare for presentation of results workshop
March 1	Presentation of results workshop Final report and recommendations to CCCC

	Distribution of proceedings
Mid March - June 1	CCCC develops recommendations on action plan for Presidential Sustainable Development Committee
January, 1997	Finalize and present Costa Rica's national communication to the Conference of the Parties of the UNFCCC

TECHNICAL REVIEW

COSTA RICA: ENABLING ACTIVITY (BUILDING NATIONAL TECHNICAL CAPACITY TO DEVELOP OPTIONS FOR GREENHOUSE GAS EMISSIONS REDUCTIONS AND ENHANCEMENT OF CARBON SINKS)

[The Project Brief has been revised to reflect the concerns expressed in this technical review]

1. The current version of the Project Brief is an updated and detailed version of an earlier draft ("Enhancement of national technical capacity for greenhouse gas abatement strategy development") which I received and reviewed in early Dec. 1994.

2. Many of my comments on the earlier draft are applicable to the current version, and some of it will thus be repeated.

3. Costa Rica (CR) has demonstrated considerable national committment in mitigating global change, including striving to meet the FCCC guidelines applicable to Annex 1 countries, i.e. reducing emissions of greenhouse gases (GHG) to 1990 levels by the year 2000.

4. The committment has been backed up by several initiatives and actions which are listed in the Project Brief. Two global environmental issues -- climate change and biodiversity protection -- are part of the National Sustainable Development Plan.

5. Notable among the activities already terminated has been the preparation, early in 1995, of a GHG emissions inventory. (Not surprisingly, energy use and deforestation have been identified as the largest sources of GHGs.) The tasks proposed logically follow, and are expressed clearly with a corresponding schedule for all the activities. The project would start with a workshop to present the results of the inventory study, and to make arrangements for the followup sectoral studies on source reduction and sink enhancement. These sectoral studies would take much of the first year. The remaining months would be to disseminate the results of the studies, develop policy recommendations, both nationally and over the Central American region.

6. The proposal is painstakingly complete, for instance, in Sec. D. "Immediate objectives, outputs, and activities". (Here we find that Output 1.2 has not been defined, no doubt an omission, since the activities are spelled out.)

7. The budget has recognized that the technical staff involved in the sectoral studies will generally not be those in workshop arrangement, information dissemination, and policy development. Thus, the sectoral studies are budgeted separately, and not included within the salaries of the project core staff.

8. The amount budgeted for the first workshop ($30,200 for five days) appears to be high, even if we consider the participation of international experts. Moreover, while all other budget items are

rounded to thousands, the odd number ($200) gives the impression that it has been adjusted so that the total coincides with that of the earlier draft (Dec. 1994).

9. Another large item ($33,000) is identified as "Mitigation project marketing", wbich is not clearly identifiable with specific tasks listed earlier. The type of expenses involved here should be clarified.

10. Many of the tasks to be conducted are pioneering in Latin America. The project foresees and budgets for the preparation and dissemination of reports for the sectoral studies and the final report as well as the three workshops, one of which would be to other Central American representatives. This reviewer feels that these activities should be supplemented by the preparation of a manual on the methodology used for the sectoral studies and their consolidation into the list of mitigation options. Such a manual, developed from the individual reports, would be useful not only in the national and Central American workshops, but also to other Latin American countries. An additional $30,000 on such a consolidated manual would be an excellent investment for the GEF portfolio.

11. In summary, the proposal is well formulated with the background, objectives, tasks, etc. clearly defined, and consistent with the proposed timeline and budget (with a couple of observations noted above). The tasks are ambitious, but given Costa Rica's committment and past experience, and the clarity of the current proposal, are likely to be accomplished. The only suggestion would be to increase the budget by $30,000 to prepare a manual and facilitate better dissemination among other countries.

Proposal for Review

Project Title:	**Egypt: Enabling Activity (Building Capacity for GHG Inventory and Action Plans in Response to UNFCCC Communications Obligations)**
GEF Focal Area:	Climate Change
Country Eligibility:	Convention Ratified December 5, 1994
Total Project Costs:	$ 0.615 million
GEF Financing:	$ 0.5 million
Country contribution:	$ 115,000 (In Kind)
Implementing Agency:	UNDP
Executing Agency:	Government of Egypt
Tentative Approval Date:	June 1995
Project Duration:	Two years
GEF Preparation Costs:	$5000

EGYPT: ENABLING ACTIVITY
(BUILDING CAPACITY FOR GHG INVENTORY AND ACTION PLANS IN RESPONSE TO UNFCCC COMMUNICATIONS OBLIGATIONS)

COUNTRY AND SECTOR BACKGROUND

1. At the national level there is a growing recognition that economic development, and the health and welfare of its population are closely linked to the proper management of its natural resources and environment. Accordingly, in early 1991, the Government of the Arab Republic of Egypt (GOE) decided to prepare an Environmental Action Plan to strengthen the management of environmental affairs. A detailed action plan was ready by May 1992. It focuses on actions for more efficient use of natural resources, particularly land and water, and to stop the degradation of its heritage and the urban environment. However the plan does not focus on regional and global environmental issues--especially climate change and bio-diversity--as it predates these international agreements. The central focus for environmental management and protection in the country is represented by the Egyptian Environment Affairs Agency (EEAA). After the enactment of Environment Protection Law beginning of 1994, EEAA has become a statutory body. It will therefore fulfil policy and executive functions in consultation with other Ministries, Agencies, private sector and NGOs and thus have have overall responsibility for environment and natural resources protection.

2. The EEAA's policy and coordinating role remains paramount. It has acquired knowledge and expertise in the area of climate change through its association with various studies. Its institutional capabilities need strengthening to provide the vital link between long-term climate issues and environmental and resource management in order to take full advantage of opportunities created by national response to the UNFCCC. Thus, Egypt's operational environment strategy revolves around short and medium-term environmental issues of national interest, pollution and environmental problems which are confined to country's boundaries, and long-term environmental issues like climate change are being studied with external assistance.

Related Ongoing Activities

3. Egypt has been actively involved in the activities of the Intergovernmental Panel on Climate Change (IPCC); and took part in preparing IPCC/Working Group 3 report on Response Strategies. In 1993, Egypt prepared a UNEP funded Greenhouse Gas Costing Study, funded by Finland and coordinated by UNEP Collaborating Centre on Energy and Environment. This has been followed by an ongoing study under the "Cooperative Agreement between Egypt and USA addressing climate change issues" and forms a part of the US Country Studies Program.

4. The results obtained in the UNEP study were based on the sectorial analysis, or what sometimes is called the bottom-up approach. The impact of the energy conservation actions/measures, which were responsible for cutting CO_2 emissions by about 40%, on the welfare and GDP of Egypt was studied in a top-down model and found positive. Energy conservation measures and the associated reduction in CO_2 had positive impact on the welfare, investment and GDP of Egypt. It can thus be concluded that considerable emissions of GHGs in Egypt could be cut

down at a net "negative" cost if measures and technologies considered in this study are applied. These include: energy conservation and efficiency improvements in all sectors, particularly industry, fuel switch to cleaner sources, use of renewables, material replacement in construction industry and enlargement of the green area.

5. The US Study has two objectives: (a) to identify gaps in the UNEP study and areas to be further refined; and (b) to establish the GHG emissions inventory for Egypt's energy supply/demand system and project these emissions according to various energy and economic development scenarios. A set of alternative strategies to reduce emissions would also be investigated. Thus the energy sector receives good coverage under the US Country Studies programme.

PROJECT OBJECTIVES

Global Environmental Objective

6. The direct objective of this project is to reduce the rate of growth of greenhouse gas (GHG) emissions in Egypt. The UNFCCC provides a clear mandate for many of the activities planned in the project. For the developing countries, the most relevant obligation is in Article 12 to prepare their national communications (due three years after entry into force of the Convention), which will need a considerable degree of preparatory activities in every country. These "communications" can include climate change projects for potential financing. Article 4.1 calls on all countries to formulate and implement programmes to mitigate and adapt to climate change. Article 4.8 draws special attention to the particular needs of countries liable to drought, desertification and natural disasters. The scope of activities of this project are, therefore, linked to the objectives of the UNFCCC.

Global Environmental Benefit

7. The proposed project has significant global environmental benefit in that it targets the identification, formulation and implementation of GHG emission reduction strategies which will ultimately lead to lowering of the rate of accumulation in the atmosphere of the primary GHGs: carbon dioxide; methane; and nitrogen oxides. Given that Egypt has one of the highest growth rate of energy based GHG emissions, the proposed project provides the opportunity to address this factor in a manner that is both beneficial for the global environment and the long-term economic development of the region. Finally, through the lessons learnt in this project, the potential for transfer to other regions of the globe also holds out the prospect for further global environmental benefits.

Overall Objective

8. The project will develop an institutional mechanism to coordinate the activities that are necessary to develop policy options related to climate change and to comply with the provisions of the UNFCCC. A climate change policy dialogue process, among governmental, NGO, academic, business, and grassroots sectors, would be reinforced, which in turn will foster understanding of climate change issues and linkages with sustainable development strategy. An inventory of GHG

emissions, and of their removals by sinks, would be periodically updated following accepted international methodologies, such as those of the IPCC. Cost-effective policy options for mitigation or adaptation strategies would be developed. Enhanced national capability would be created in the areas of climate change assessment, mitigation, and project development through programmes that strengthen existing institutions. Finally, a number of project proposals to fully exploit climate change mitigation opportunities in Egypt would be developed and presented for financing to public and private sector organizations in industrialized countries under the joint implementation provisions of the UNFCCC.

Specific Objectives

9. Three immediate objectives have been identified:

(a) To improve capacity in the host country to comply with the requirements of the UNFCCC;

(b) To contribute to the emergence of Egyptian national approaches and responses to the UNFCCC thereby institutionalizing the communications obligations under the UNFCCC;

PROJECT DESCRIPTION

Location and Extent

10. The Gross Domestic product (GDP) of Egypt in 1990 (the average of the two fiscal years 89/90 and 90/91) was about 49.2 billion Egyptian Pounds - L.E. (US$ 14.78 billion) at 1986/87 price level and 92.3 billion L.E. (US$ 27.72 billion) at 1990 price level. The share of different sectors in total GDP was as follows: industrial sector- 17.9%, agriculture- 19.65%, petroleum- 3.7%, construction- 4.95%, electricity- 1.3%, transport, communications, trade and finance- 34.2%, and general services including housing, social insurance, government and public services- 18.25%.

11. The main energy sources of Egypt are hydro power, oil, natural gas, coal and non-commercial fuels such as firewood, agricultural wastes and dried dung. The total commercial energy demand increased from about 130 PJ (3 Mtoe) in 1950 to about 677 PJ (16 Mtoe) in 1980/81 and to 1069 PJ (25 Mtoe) in 1989/90 with an average annual growth rate of 6.3% in the eighties. The pattern of energy consumption by source in 1990 was 52% from oil, 22% from natural gas, 15% from agricultural waste, 8% from hydropower, 3% from coal and less than 1% from firewood. Hydro power played a significant role in satisfying Egypt's energy needs in the seventies by providing more than two third of the electricity demand. In the late eighties the situation was completely reversed with oil and gas providing more than two third of the electricity demand. In 1990 the electric power sector accounted for about one third of the total oil and gas consumption- the current fuel mix of thermal electricity generation consists of 51% fuel oil and 49% of natural gas. In short petroleum fuels, i. e. oil and natural gas, are the main energy sources for Egypt at present and will remain for many years to come. They also represent the main current source of greenhouse gases (GHG).

Strategy

12. The project represents an approach to the building of institutional and technical capacities within the country that is adapted to the particular political perspective and technical skills of Egypt, and related to implemention of the FCCC and fulfill inventory and communications obligations. Approaches that will be employed include:

- ***Training of experts*** who will acquire expertise to enable them to be self-dependent and capable of assembling, interpreting, and disseminating data relevant to GHG emissions and mitigation of climate change impacts.

- ***Sponsoring national and cooperative training seminars, workshops, and studies*** on topics such as GHG data collection and inventory, prospective impacts of climate change, climate change adaptation opportunities, substitution of more efficient commercial fuels for non-sustainable biomass exploitation, forest and biomass resource management, and renewable energy technologies. These topics contribute to climate change mitigation,but suffer from a lack of understanding in the country regarding technical options, cost-effectiveness, and how to pursue policy development in these sectors.

- ***Establishing close links with parallel ongoing efforts,*** including subregional UNDP/GEF projects such as building capacity in Maghreb and Sub-saharan Africa; benefiting from the joint training programme of the Climate Change Secretariat and UNITAR-CC:Train; and following the guidelines and criteria for projects with "enabling activities" for the Convention that are being developed by the CC:COPE consultative process.

Institutional Mechanism

13. The Government of Egypt will be the executing agency. This arrangement will also allow the project to access the governmental network. The project will be executed and implemented using four key national institutional actors, as follows:

- ***Project Steering Committee (PSC):*** The PSC, chaired by EEAA, will be charged with overseeing and advising project execution and will have decision-making powers over all aspects of the project. The PSC will include the Government representatives from key Ministries like planning, economy, energy etc., a UNDP/GEF representative, at least three NGO representatives and the Project Coordinator, who will also act as member-secretary to the Committee.

- ***Project Coordinator (PC):*** The PC will be selected based on technical expertise and knowledge of the national policies. The primary aim of the PC office is to coordinate project execution among different wings of government and NGOs.

- *Technical Working Group (TWG):* A TWG composed of technical experts from key relevant sectors including government agencies, academic institutions, non-governmental organizations and representatives of the private sector will be formed. The TWG will enable project management to stay in touch with relevant constituencies, and will be a technical advisory body to the PC.

- *Project Advisory Network (PAN):* The PAN will be composed of international institutions that are involved in climate-related work. The PAN will not be physically convened; communications will be through direct contacts among the PC and members of the PAN. Most organizations proposed to be included in PAN are also taking part in the CC:COPE consultative process.

Outputs and Activities

14. Described below are the expected outputs associated with each immediate objective of the project and activities leading to those outputs.

Immediate Objective 1: Improve capacity in the country to comply with FCCC communications obligations and inventory requirements

Output 1- A Two-Tiered Institutional Structure to Address Climate Change Issues: This will consist of the policy-making PSC and a permanent technical secretariat in EEAA would be created or strengthened that is able to coordinate the activities that are necessary to develop policy options related to climate change and to comply with the provisions of the UNFCCC. The following activities are planned:

- Identify needs of the National Institution: Identify the needs of the EEAA with respect to the desired level of understanding of climate change issues.
- Project Initiation workshop: The PC will bring together the teams involved in UNEP and US studies and 4-5 in-country specialists interested in climate research as well as other selected external experts for a five day workshop. The workshop will finalize the work plans and necessary adjustments in the activities and the budgets will be made, as appropriate.
- Building on CC:TRAIN, the US and UNEP Country Studies, collate a training package to provide organizations that are likely to participate in climate work with a common understanding regarding climate change, the Convention, science, economics, academic research agendas, energy and land use, greenhouse gas inventory procedures, proposal writing, global activities, and funding agencies.
- Conduct training of country implementing institutions: Conduct training activities as needed for the participating organizations to establish a common level of understanding.
- Through training and capacity building, enable a more effective national participation in international and regional climate change meetings.
- End-Project National Workshop: Hold a national workshop at end of project to update training package materials as jump-off for post-project activities and to assess

past training efforts in the institutions that would have participated in the project activities.

Output 2- Technical Working Group (TWG) to Bring Together Different Constituencies: The development of policy options in a country will require inputs from many different sectors. Establishment of the TWG will provide an institutional mechanism through which these inputs can be gathered and project's management could remain in touch with non-governmental bodies and NGOs. To obtain this output, activities given below will be undertaken:

- Constitute the Technical Working Group: Based on the previous assessment of national capabilities and responsibilities. identify national TWG members, including all relevant stakeholders, such as Government agencies, NGOs, academic institutions, and the private sector.
- Country Training Courses: Conduct training courses as needed to establish a common level of project background, with a minimum of one course based on the training package developed.
- Meetings of TWG: At least quarterly meetings of the working group to consider progress, define and undertake the necessary policy research programme, and generally guide project activities.

Output 3 -Standardized Inventories of Greenhouse Gas Sources and Their Removals by Sinks: The availability of inventories will form the scientific basis for policy analysis at the national level. Earlier inventories were prepared under UNEP project and are being reviewed in US study using IPCC methodology. The project activities will continue to use the IPCC methodology for national policy development and comparison with other countries' inventories. Planned activities are:

- Evaluation of Country Inventories: The core group at EEAA coordinates the evaluation of the existing inventories at national level and identifies gaps based on the IPCC/OECD methodology.
- National Inventory Workshops: National training workshops for individuals and groups to be involved in the inventories in the country.
- Completion of Country Inventories: EEAA manages the completion of country inventories, using the IPCC/OECD methodology, including listing areas where this methodology needs adjustments.
- Dissemination of Inventory Report: Finalization and dissemination of national inventory report, including communications of the analyses to the IPCC/OECD.
- Regular updating of inventory in fulfillment of Egypt's communications obligations under the Convention.

Output 4 - Country Reports on Assessment of Policy Opportunities and Priority Areas for Intervention: Policy and technical proposals for climate change adaptation and mitigation generated through a variety of sources will be assessed in order to develop country reports intended to help guide national and sub-national policy development. Project activities proposed are:

- Review of Country Climate Change Policies: Identify and document existing policies and policy analyses relevant to climate change in Egypt, including energy and land-use policies.
- Scenario Development: Modelling of national scenarios, including projected future levels of GHG emissions and removals by sinks, as well as potential climate change impacts.
- Country Policy Dialogues: EEAA and TWG, based on the policy review undertaken earlier, initiate policy dialogues to reformulate environment and development goals in light of climate change considerations, and to establish priorities for policy analysis leading to preliminary national recommendations.
- National Policy Analyses: EEAA and other implementing agencies coordinate policy analysis to develop and assess policy options and institutionalize information collection and policy assessments, bringing in relevant experience from region and elsewhere. Multiple meetings and workshops refine the analysis.
- National Policy Workshop: Final policy workshop to develop proposed national strategies.

Immediate Objective 2: To contribute to the emergence of Egyptian national approaches and responses to the FCCC

Output 1 - A Strengthened National Mechanism in EEAA That Can Provide Full Support for Climate Change Related Activities: The Government of Egypt and local institutions will be able to use the capacity created through the Office of Project Coordinator in the EEAA to help them develop national priorities in the area of climate change and channel these into relevant regional and global processes, such as the UNFCCC or the IPCC. Activities envisaged are:

- Identify PC: Select a qualified professional to coordinate project activities at the national level.
- Implement Activities of Project: The Project Coordinator, assisted by a core group in EEAA will implement all relevant project activities, including development of the overall work plan and its funding and human resource requirements.

Output 2 - A Report on the Assessment of Past, Ongoing, and Proposed Climate Change Initiatives and Impact Studies in Egypt: A comprehensive review of other activities and actors in Egypt and North Africa/West Asia in the area of climate change will be important for the project. The PC will remain in contact with counterparts for Maghreb and Africa projects. Activities to be undertaken are:

- Identify and collect published and unpublished literature on climate change initiatives, policies, and impacts;
- Document the status of externally funded research and other climate change activities;
- Identify and document expertise and consultants in Egypt and North Africa climate change issues. This review is to be done at the very beginning as a draft for use by the project, and finalized at the end of the project.

Training Programme

15. Training activities are a significant component of this project at all levels, and will take full advantage of ongoing GEF/UNDP, US and UNEP Country Studies, other bilateral initiatives and initiatives such as sub-regional projects for Maghreb and Sub-Sahara, and CC:Train, CC:COPE. Training will be composed of:

> ***Technical Expert and Consultancy Training:*** Extensive reliance on technical experts will be required during the project to conduct studies and analyses, and to train national governmental and non-governmental organizations in a wide variety of subjects related to the substance and process of climate change and its mitigation.
> ***Orientation:*** The PC will undergo an in-depth orientation tour after being selected for the position in order to supplement technical expertise and knowledge of ongoing climate change and mitigation activities in North Africa, Europe and the US, including preliminary joint implementation efforts. It will include meetings with governmental, NGO, academic and research organizations. The orientation is expected to be approximately one month in duration. During the course of the project, individual project representatives, belonging to PSC and TWG, will participate in short-duration orientation.
> ***In-Service Training:*** This will include participation of governmental and NGO representatives in national as well as international workshops and seminars to be organized by the PC with national and international expert support. Topics for this training will be selected by these Coordinators, and are likely to include climate change, the UNFCCC and related national and international policies, GHG mitigation options based on Egyptian energy and forestry circumstances, developing GHG emissions inventories and scenarios, climate change mitigation economics, and proposal writing and project development.

Expected end of project situation

16. On completion of this project, Egypt will have a considerably improved capacity through which to respond to the challenges and opportunities presented by its ratification of the United Nations Framework Convention on Climate Change. End of project outcomes will include:

> ***A two-tiered institutional mechanism*** consisting of a policy-making Inter-Ministerial Committee and a permanent technical secretariat in EEAA would be created or strengthened that is able to coordinate the activities that are necessary to develop policy options related to climate change and to comply with the provisions of the UNFCCC;
> ***A climate change policy dialogue process***, among governmental non-governmental, academic, business, and grassroots sectors, would be created or strengthened, intended to foster understanding of climate change issues and linkages with sustainable development strategy;
> ***An inventory of GHG emissions and their removal by sinks***, would be periodically updated following accepted international methodologies, such as those of the IPCC. In cases where more detailed work is required on these inventories, appropriate project proposals will be prepared;

Cost-effective policy options for mitigation or adaptation strategies would be developed. In cases where more detailed work is required on policies, appropriate project proposals will be prepared;

Enhanced national capability would be created in the areas of climate change assessment, mitigation, and project development through programmes that strengthen existing institutions.

Project reviews, reporting and evaluation

17. The project has a distinct component for internal monitoring and evaluation (M&E) that is specifically designed to learn from the experiences of the project and to improve the process of inter-institutional transfer of knowledge and experience. External monitoring and evaluation procedures will be established in accordance with GEF and UNDP practices. In addition, the proposed Project Steering Committee (PSC) which will maintain close project oversight will also conduct periodic technical and programmatic reviews. Quarterly Project Progress Report will be prepared and sent to PSC members to be evaluated during the regular meetings of the PSC.

RATIONALE FOR GEF FINANCING

18. The proposed project will help accelerate the adoption of GHG emission reduction strategies in the country. This will be accomplished primarily through establishment of a two-tiered institutional mechanism at the national level, cooperation between government and private sector, sharing of information, demonstration projects, institutional capacity building and training of indigenous experts. The direct benefit will be in the reduction of GHG emissions from Egypt. The indirect benefits will be the establishment of a long-term capability to alter the development course of the nation so as to include minimizing of GHG emissions as one of the criteria factored into the decision making process.

19. From the local perspective, the common objective of increasing the economic and ecological efficiency of energy and natural resources use in Egypt provides a very convincing justification for the pursuit of the activities outlined in the Egypt's National Environmental Action Plan. Dramatic but predictable increases in future energy use in the country will make it more difficult to control global GHG emissions; additionally such resources will drain resources available to Egypt for other pressing priorities. As most of the project activities could form part of the Environmental Action Plan if long-term planning perspective is adopted, the project will demonstrate that climate change mitigation trajectory moves along the sustainable development path.

SUSTAINABILITY AND PARTICIPATION

20. The project's emphasis on training, capacity building and institutional development coupled with the establishment of an active national network will ensure sustainability of project objectives beyond the term of GEF support. In addition, the project's emphasis on GHG emission reduction strategies that are essentially cost-effective with long-term economic benefits will help stimulate

national long-term support for the services and activities of the project. The project will actively promote the marketing of its services and capabilities to both the public and private sectors of the region. The project's focal point, EEAA, is also the institution holding the overall responsibility for climate change and environmental matters in Egypt.

LESSONS LEARNT AND TECHNICAL REVIEWS

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. This project recognizes the importance of exchange of information and experience at the national level, as well as regionally and internationally. It is proposed that this project will work in tandem with similar enabling activities to be undertaken in the Arab States region, such as the UNDP Jordan proposal (approved by the first Council Meeting) and the Sudan proposal (cleared by the GEFOP and submitted to the second Council Meeting), and will establish linkages with the GEF Maghreb Regional GHG Emissions Reduction project.

22. This proposal was submitted for independent technical review to a STAP expert. The technical comments of the reviewer, which support this proposal, are attached. Based on GEFOP recommendations for similar projects in Malaysia and Sudan, a component dealing with project preparation has been deleted as it is considered more appropriate to fund this through the PDF mechanism at a later point.

PROJECT FINANCING AND BUDGET

23. The total costs of the project amount to $615,000. It is proposed that the GEF will make a contribution of $500,000 towards this project. This amount will be supplemented by the local currently in-kind contribution of the Egyptian Government equivalent to $105,000.

Budget Category	National Inputs in kind (US$)	UNDP Inputs (US$)
Personnel	60,000	227,000
Travel	10,000	85,000
Training	15,000	400,000
Office Space	10,000	-
Office Equipment	10,000	30,000
Miscellaneous services	10,000	20,000
Total	**115,000**	**500,000**

INCREMENTAL COSTS

24. Preparations of national communications by developing countries is not subject to incremental cost calculation requirements under the provisions of the UNFCCC.

25. 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 the Government of Egypt to fulfil its commitment under the Convention. This goal will be accomplished primarily through in-country coordination, sharing of information, institutional capacity building, and training of local experts. Direct benefits will be economic and environmental benefits associated with more efficient use of energy and other natural resources, as well as the promotion of a development course in the country that accounts for the goal of minimizing GHG emissions in the decision-making process.

26. The project seeks to establish links with other projects being carried out by other GEF implementing agencies or by other multilateral and bilateral organizations. It will do so practically, as mentioned earlier, by establishing close links with parallel ongoing subregional UNDP/GEF projects such as building capacity in Maghreb and Sub-Saharan Africa; benefiting from the joint training programme of the Climate Change Secretariat and UNITAR, CC:TRAIN; and following the guidelines and criteria for "enabling" projects that are being developed by the CC:COPE consultative process, as well as guidance issued by the INC at its 11th session and by the COP in Berlin in March 1995. The 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 for the present and for the future.

ISSUES, ACTIONS, AND RISKS

27. The project methodology involves close cooperation between governmental and non-governmental organizations in carrying out project activities. There is a risk that cooperation may not occur effectively. This risk will be reduced by careful attention to the problem by the PC who will work with NGOs and other private institutions through the mechanisms of the TWG to address problems.

28. While sufficient funds are available for the project itself, the last objective aims to undertake specific climate change mitigation efforts with additional public and private sector funding. If funding efforts are not successful, this part of the project will not be possible. This risk can be mitigated by establishing a clear time-table for fund-raising activities to be used by the Project Coordinator.

INSTITUTIONAL ARRANGEMENTS FOR PROJECT IMPLEMENTATION

29. The Government will allocate a budget for the PC and an assistant's services, logistics and administrative support. The project will be located within the structures of EEAA.

30. The Government will assist in the creation of Technical Working Group to undertake national level project activities as described above. The Government will assign suitably senior and qualified representatives of relevant government agencies and organizations to the Project Steering Committee and TWG and will seek the participation of qualified academic and non-governmental organizations and individuals. Actual execution of project activities will be undertaken in coordination with EEAA, Organization for Energy Conservation and Planning (OECP), the selected national organizations and NGOs. The PC will have the responsibility for ensuring timely execution and success of the project with the assistance of the core staff of EEAA assigned to the project.

TECHNICAL REVIEW

EGYPT: ENABLING ACTIVITY (BUILDING CAPACITY FOR GHG INVENTORY AND ACTION PLANS IN RESPONSE TO UNFCCC COMMUNICATIONS OBLIGATIONS)

RELEVANCE AND PRIORITY

1. Egypt is a large heavily populated country with rapidly growing greenhouse gas emissions. Egypt is also particularly vulnerable to climate change being so dependent on the water supply of the river Nile and lying so low, especially the Delta area at about one metre above sea level. So Egypt itself is a priority country for GEF climate change projects. As Egypt was one of the first countries to ratify the FCCC, there is a fair chance that the government of Egypt will support the activities as proposed in the project.

2. The scope of the project is excellent, it meets with the present demands of capacity building as to support the government in meeting the FCCC commitments. The primary focus on greenhouse gas abatement oriented capacity building is well chosen given the present growth of emissions and the scope for negative cost measures to reduce the rate of growth (as in almost all developing countries).

3. Global significance is there because Egypt is a big country with a relatively large population. Moreover Egypt is an important player in the Arab World and thus there is a good chance that other Arab countries will follow Egypt's example.

BACKGROUND AND JUSTIFICATION

4. The project is reasonably well specified, and the allocation of the money is appropriate (not too much on materials travel and equipment, the focus is on personnel cost as one would expect in a capacity building project).

5. The project builds on existing institutions in Egypt and intends to strengthen those, the Environment Agency. This strengthening is rightfully guided by an interdepartmental committee.

PROJECT OBJECTIVES

6. The project objectives are clear and sound, and they are measurable. Especially the objective of developing eight realistic GHG control projects can be evaluated, as can the quality of the national communications to be produced in the FCCC framework.

7. The risks are that the government will pull away the resources that are an essential part of this project i.e. the staff of the technical working group (worth 60.000 USD) and or the office space and office equipment.

8. Other risks are a laissez-faire attitude of the relevant ministries, vis a vis the implementation of cost effective projects.

ACTIVITIES

9. The activities can be achieved when the Egyptian government is fully committed to put sufficiently high level staff in the mentioned "Project Steering Committee", and when the project coordinator has quality and is well accepted by the Project Steering Committee and by the Environment Agency.

CRITICAL ANALYSIS OF THE SITUATION/APPROACH

10. The project is well defined and the approach is appropriate. Identification of the most promising ways to reduce the growth of GHG emissions is an important part of the project.

PROJECT SUSTAINABILITY

11. Sustainability will always be a vulnerable issue in a capacity building project as the goal of the project is to encourage activities that are not being carried out automatically due to lack of knowledge, lack of priority or lack of institutional capability/setting. Still there is a fair chance that the government of Egypt will continue the type of activities once it recognizes that the measures proposed are cost effective, and that donor countries are willing to support projects that have global benefits in terms of a reduced growth for greenhouse gas concentration in the atmosphere.

12. Sustainability is aimed for in the project through the development of a pipeline of sound projects, and through the development of an institutional structure that is linked both nationally (including NGO participation) and internationally.

INNOVATION

13. The project is a straightforward capacity building project with the right balance of national and global interests. Innovation is not always required. The selection of Egypt for this type of project is well justified.

PROJECT ALLOCATION

14. As always in this type of projects one has to decide whether to put it under the authority of the planning and economics type ministries or under the environment type ministries. Here the selection is the Environment Agency, as the primary basis for the project, with important institutionalized relations to the others. Given the importance of strengthening the usually not very powerful environment ministry this choice is good. On the other hand it may be difficult to implement the measures that will be proposed as these are usually in the domain of the other ministries. Still I believe the right choice has been made given the broadness of the issue.

DEMONSTRATION PROJECTS

15. Capacity building can act as a demonstration project, as the institutional and the technical results may well be copied by others. It would be useful if a regional role of this project could be made more explicit. In that case the cost would probably go up.

FUNDING LEVEL

16. The funds indicated in this project: 500.000 USD to be financed through GEF and 115.000 to be funded by the host country is realistic and not on the high side for the objectives stated in the project document, given the size of Egypt and the complexity of the institutions in this country.

TIME FRAME

17. The time span of the project is 2 years. This is relatively short. Personally I believe a four year period would be better, but then the cost would be some 40% higher. The project now ends with the development of eight cost effective GHG abatement projects. The challenge however, is to get at least two or three of those projects awarded. And we all know that usually takes at least one or two additional years. So I suppose the group/institution to be developed will probably call for an extension.

SUMMARY

18. The greatest strength of the project is the identification of a country that deserves support for capacity building funds under GEF/FCCC given its situation as a major player in GHG emissions growth, a major player among the Arab countries, and a country that has actively participated in the climate debate through conferences, IPCC participation and on the political podium. The project itself is a straight forward relatively low budget capacity building project with potentially a very worthwhile spin-off for the national, regional and global community.

ANNEX A: SUMMARY OF PRIMARY ENERGY CONSUMPTION AND GHG EMISSIONS IN EGYPT, 1990

Energy/Emissions Sector	Energy PJ	CO_2 Mt	CH_4 kt	N_2O kt
1. Petroleum	43.50	3.1	51.906	0,121
2. Power Production	464.63[1]	24.75	0.073	0.89000
3. Heavy Industry	144.41	18.81	0.032	0.399
4. Light Industry	138.59	9.30	0.0243	0.351
5. Household & Commerce	134.57	9.34	2.635	0.3700
6. Transport	196.6	13.46	9.934	7.091
7. Agriculture & Domestic waste	212.12[2]	0.67	424.22	33.25
8. Others[3]	58.42	4.08	1.127	1.579
Total	**1392.84**	**83.51**	**489.951**	**42.629**

19. As may be seen from the Table, power production, industry and transport sectors are the major producers of CO_2 (carbon-dioxide). Rice paddies are, on the other hand the main producer of CH_4 (methane). They are responsible for over 80% of methane production in Egypt. Finally, Nitrogenous (N)-fertilizers and road transport are the main sources of nitrous oxide.

20. Lastly, it is well to remember that Egypt has relatively high GHG emissions per capita; comparable to China and Brazil. More important is the certainty that the share of fossil fuels will go up in future and consequently the emissions.

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[1] Generated energy equivalent of hydropower was obtained by assuming an equivalent efficiency equals the average thermal efficiency in that year, i.e., about 33%.

[2] About 202.71 PJ of non-commercial energy sources are included.

[3] Governmental offices, services, etc. (electricity consumption not included).

Source:
UNEP Greenhouse Gas Abatement Costing Studies - Phase Two, UNEP Collaborating Centre on Energy and Environment, Riso National Laboratory, Denmark, May 1994

Country Description

7. The Republic of Sudan is one of the least developed countries in the world. Over the past few decades, recurrent droughts, chronic food security problems, and regional instability have contributed to population displacement and an ongoing refugee crisis. Agricultural production, identified as a critical area in the GOS's development objectives, suffers from expanding desertification in the North where roughly half the population lives.

8. Situated in northeastern Africa, Sudan covers a land area of about 2.5 million square kilometers, the largest land area on the continent. Of this area, 34% is classified as desert, 20% as shrub/semidesert, 38% as woodland/forest, 7% as agricultural and 1% as swamp/wetland. It shares borders with eight countries: Egypt, Libya, Chad, the Central African Republic, Zaire, Uganda, Kenya, Eritrea and Ethiopia. It also borders the Red Sea.

9. Agriculture and livestock provides a livelihood for the vast majority of the rural population. Modern irrigated farming and mechanized rain-fed plots account for over 65% of agricultural production, while labor-intensive traditional farming are practiced by most of the rural population. Much of southern Sudan is covered by swamps (roughly 4 million hectares), and between 84 and 92 million hectares are classified as forest land (or 34-37% of total land area).

10. Energy use is characterized by a high reliance on traditional fuels. Of the estimated total energy consumption of 6.7 million TOE in 1992, about 82% consisted of firewood, charcoal, and other forms of biomass. Total installed electric generation capacity is 450 MW, of which half are oil-fired thermal plants - hydro power accounts for the balance. Public access to electricity is very limited - 8% of the total population - and results in typical per capita consumption of about 45 kWh per year. Sectorally, industrial and residential consumers remain the largest consumers.

11. Sudan is an energy-rich country relative to its solar and oil resources. Annual average solar insolation is very high throughout the country, ranging from 436 W/m^2 in the south to 640 W/m^2 in the north. However, this potential remains largely untapped. In addition, Sudan possesses oil bearing areas in the northwest, along the Red Sea, and in Unity-Talih in southwestern region. Total confirmed oil reserves were estimated to be about 2 billion barrels in May 1987, of which 500 million were considered to be recoverable.

Related Activities

12. In 1994, Sudan submitted a preliminary GHG emissions inventory to the OECD. The report is a very rough estimate of CO2 emissions based on petroleum consumption characteristics and typical conversion factors and does not take into account land use/forestry, agriculture, waste, or other industrial processes.

13. The United Nations Development Programme (UNDP) has developed a project for rangeland rehabilitation in consultation with the GOS for funding under the Global Environment Facility (GEF). This project (i.e., *Community Based Rangeland Rehabilitation for Carbon Sequestration and Biodiversity*) aims to put into place an effective and sustainable natural resource management system

at the local level which would sequester carbon, improve biodiversity by rehabilitating rangelands in the North Kordofan region.

PROJECT OBJECTIVES

Legal Premises

14. This project will assist Sudan in preparing national communications consistent with the requirements of the Climate Change Convention (UNFCCC). The Convention provides a clear mandate for all of the activities planned in this project. Specifically; Article 12 requires developing countries to prepare national communications, due three years after entry into force of the Convention; Article 4.1 calls on all countries to formulate and implement programs to mitigate and adapt to climate change; Article 8 of the Desertification Convention provides for coordination with UNFCCC communications for countries experiencing serious drought and/or desertification.

Development Objectives

15. Of particular concern to Sudan is the potential effect of climate change on its fragile ecosystem, and by extension, its prospects for future food security. Regardless of what the climate change impacts will be, it is important that Sudan possess the necessary human/institutional resources to integrate appropriate responses into its ongoing development priorities. However, for the emergence of response strategies in which development priorities coincide with long-term local and environmental concerns, the GOS is in need of considerable additional technical and institutional capacity. Specifically, a number of limitations exist, which represent the premises for such an intervention. This project will therefore aim to address the following areas of concern:

Enhanced knowledge and expertise to comply with the communications provisions of the UNFCCC. While Sudan ratified the UNFCCC in 1993, it is essential that national expertise be developed and strengthened in order to comply with the Convention's requirements for data collection, inventory assessment, communications, policy development, and program implementation.

Greater understanding of the relationship between climate change mitigation strategies and attainment of national sustainable development objectives. Sudan's ecology, and by extension, its food security is very fragile and easily disturbed by climatic variations. While there are national programs aimed at ecosystem protection through rangeland management, preservation of trees, and reforestation efforts, knowledge about the linkages between these programs and climate change mitigation needs to be reinforced among key decision makers.

Strengthened cooperation and coordination among ministries, agencies, and institutions in areas pertinent to climate change. Despite the establishment of governmental entities responsible for environment, activities of relevance to climate change need to be better coordinated between government and research institutes, academic institutions, the private sector and NGOs, so that duplication of efforts can be avoided.

Immediate Objectives

16. The goal of this project is to build Sudanese capacity in order to advance national interests related to climate change. This includes a range of activities to facilitate implementation of the UNFCCC itself, to more actively and effectively pursue energy and natural resource management activities related directly or indirectly to climate change mitigation and adaptation, and to take advantage of new opportunities related to the procurement of funding for projects related to climate change. Two immediate objectives have been identified: (i) to improve Sudanese institutional and technical capacity to comply with requirements of the UNFCCC; (ii) to facilitate the emergence of Sudanese national approaches and responses to the UNFCCC.

PROJECT DESCRIPTION

Strategy

17. This project builds Sudanese knowledge and capacity related to implementing the UNFCCC by a focus on issues clearly perceived by the Sudan as environmental and developmental priorities. The strategy revolves around the incorporation of the perspective of dryland degradation and seeks to promote the assessment of how responses to dryland degradation will influence climate change policies. Specifically, the project strategy will consist of the following major components:

> *Training:* Enhancement of national capability to comply with the provisions of the UNFCCC is necessary. The project will identify key national personnel who will need specialized training to participate fully in relevant activities. These individuals will acquire expertise in assembling, interpreting, and disseminating data relevant to GHG emissions and mitigation of climate change impacts.
>
> *Technical Discourse:* The link of this project to land degradation issues is critical. The project will initiate a dialogue at multiple institutional levels to address climate change linkages to desertification and drought. The project will sponsor national and cooperative seminars, workshops, and studies on potential climate change such as changes in crop yields/vegetative cover, rainfall variation, together with the ramifications regarding food security, groundwater recharge, and surface water discharge. Other issues such as GHG data collection and inventory, climate change adaptation opportunities, substitution of more efficient commercial fuels for non-sustainable biomass exploitation, forest and biomass resource management, and renewable energy technologies will also be addressed.
>
> *Network Development:* It is essential that Sudan become an active participant in climate change issues in the region. The project will establish close links with parallel ongoing subregional UNDP/GEF projects such as building capacity in the Maghreb, the Middle East, and Sub-Saharan Africa. Furthermore it will develop international networks through participation in the joint training program of the Climate Change Secretariat, CC:Train; and the CC:COPE consultative process.

18. In summary, the project strategy will assist the Sudan to fulfill its obligations under the Convention and to effectively participate in the global effort to limit GHG emissions and develop

GHG sinks. In this regard, the project will simultaneously contribute toward national environment and development priorities, while adhering to criteria specified by the UNFCCC.

Institutional Framework

19. The project will be executed and implemented using four key institutional actors:

Government of Sudan: The GOS will be the executing agency, and will provide inputs including counterpart support, secondment of technical experts, communication/office facilities, secretarial/administrative services, special expertise, and information services

Inter-Ministerial Steering Committee: The Inter-Ministerial Steering Committee (IMC) will be a policy-making body that will oversee project execution and ensure inter-ministerial coordination. The IMC will include broad representation from government, relevant research institutions, NGOs, as well as a UNDP/GEF representative.

Project Coordinator: A Project Coordinator (PC) will be selected based on technical expertise and knowledge of national policies. The PC will coordinate project operation among different wings of government and NGOs. The PC's salary and a full-time Technical Assistant will be provided by the project under subcontract. It will be desirable to locate this office within a permanent secretariat of the MET but with a distinct identity. The PC will be responsible for carrying out all the activities listed in the project document and will be a member and serve as secretary to the IMC.

National Technical Committee: The NTC will consist of individuals with expertise from among relevant sectors, including government agencies, academic institutions, NGOs and private sector organizations. The NTC will enable project management to maintain contact with constituencies and act as a technical advisory body to the PC.

International Advisory Network: An electronic IAN will be established that is composed of international institutions currently involved in research activities related to global climate change issues, particularly land degradation linkages.

Outputs and Activities

20. The objectives and expected outputs of the project are described below. The project will rely heavily on substantive outputs from other ongoing sub-regional projects for the Maghreb, Middle East, and Sub-Saharan countries and will participate in CC:TRAIN and CC:COPE, thus facilitating personnel training, development of project implementation manuals, and improvement of methodological tools.

IMMEDIATE OBJECTIVE 1: IMPROVE SUDANESE CAPACITY TO COMPLY WITH THE UNFCCC COMMUNICATIONS AND COMPLETION OF INVENTORY

Output 1 - A Two-Tiered Institutional Structure to Address Climate Change Issues. A two-tiered institutional mechanism consisting of the policy-making Inter-Ministerial Committee and a permanent technical secretariat in the Higher Council for Environment and Natural Resources will be created and strengthened to enable it to coordinate the activities that are necessary to develop policy options

related to climate change and to comply with the provisions of the UNFCCC. The GOS, through the IMC will be able to draw on the scientific, technical, and policy capacities of this strengthened national agency (HCENR) in the process of undertaking its obligations to the UNFCCC. The following activities are planned:

- Identify the needs of the HCENR with respect to the necessary level of understanding of climate change issues.
- Convene a five-day workshop that will bring together the teams involved in UNEP and US studies and 4-5 in-country specialists interested in climate research as well as other selected external experts. The workshop will establish a work plan and budget.
- Building on CC:TRAIN, and the experiences of the US and UNEP Country Studies, collate a climate change training package to provide participating organizations with a common understanding regarding UNFCCC provisions, desertification/drought linkages with climate change, arid land research agendas, greenhouse gas inventory methodology, proposal writing, regional/global activities, potential funding agencies, and other pertinent issues.
- Through training and capacity building, enable more effective and impactful national participation in international and regional climate change meetings.
- Convene a national workshop at the project's end to assess training program and update training package materials as a springboard for post-project activities

Output 2 - A core group of trained personnel. A National Technical Committee (NTC) will be created to consolidate the involvement of key national technical staff from a range of related disciplines. The following activities are planned:

- Constitute the NTC based on an assessment of national capabilities and stakeholder status.
- Conduct training courses as needed to establish a common level of understanding, including an in-depth review of the training package discussed above.
- Convene meetings of the NTC on a quarterly basis to evaluate activities and contribute to project guidance.

Output 3 - A Standardized Inventory of Greenhouse Gas Sources and Sinks: The availability of inventories will form the scientific basis for policy analysis at the national level. The project activities will continue to use the IPCC methodology for national policy development and comparison with other country inventories. The planned activities are:

- Evaluate country inventories. The HCENR will coordinate the evaluation of the existing OECD sources inventory and identifies gaps based on the IPCC/OECD methodology.
- Convene national inventory training workshops for individuals and groups participating in the national inventory, maximizing the use of UNEP and regional African information.
- Complete the Sudanese inventory. The HCENR will mange the completion of the national country inventory using the IPCC/OECD methodology, including listing the areas where this methodology needs adjustments.
- Finalize and disseminate the national inventory report, and communicate analyses to UNFCCC and IPCC.

Output 4 - A Report on the Vulnerability of Sudan to Climate Change Impacts and Priority Areas for Intervention. Policy and technical proposals for climate change adaptation and mitigation generated through a variety of sources will be assessed in order to develop country reports intended to help guide national and subnational policy development. The planned activities are:

- Convene meetings and workshops among implementing agencies to assess vulnerability of drylands to climate change, bringing in relevant experience from the sub-region and elsewhere as necessary.
- Identify and analyze Sudanese policies on land degradation prevention and control that are relevant to climate change, including forestry initiatives, agricultural priorities, range management, renewable energy development, and others.
- Initiate national policy dialogues among the HCENR and the NTC to conceive sustainability goals in light of climate change considerations, and to establish priorities for policy analysis leading to preliminary national recommendations.
- Convene a national policy workshop to develop a set of finalized national strategies.

IMMEDIATE OBJECTIVE 2: FACILITATE THE EMERGENCE OF SUDANESE NATIONAL APPROACHES AND RESPONSES TO THE UNFCCC

Output 1 - A Strengthened National Mechanism in the HCENR That Can Provide Support for Climate Change Related Activities. The Government of Sudan and local institutions will be able to use the capacity created through the Office of Project Coordinator in the HCENR to help develop national priorities in the area of climate change and channel these into relevant regional and global processes, such as the UNFCCC or the IPCC. Proposed activities are:

- Select a qualified professional in Sudan to coordinate project activities at the national level.
- Implement activities of Project. The Project Coordinator, assisted by a core group in various national agencies will implement all relevant project activities, including development of the overall work plan and its funding and human resource requirements.

Output 2 - A Report on the Assessment of Past, Ongoing, and Proposed Climate Change-Related Initiatives and Impact Studies in the Sudan. A comprehensive review of other activities and actors in Sudan and North Africa/Middle East in the area of climate change will be conducted. This will be of critical relevance for the project. The PC will remain in contact with counterparts for the Maghreb and Middle East projects. Activities to be undertaken during early stages of the project are:

- Identify and collect published and unpublished literature on climate change initiatives, policies, and impacts in the Maghreb/Middle East region.
- Document the status of externally funded research and other climate change activities in the region.
- Identify regional experts and consultants on climate change issues.

Output 3 - Establishment of linkages with regional and global networks in Climate Change. Through a process of networking, training and workshops, national counterparts in Sudan will be

familiarized with existing regional and global climate change initiatives, so as to facilitate emergence of Sudanese national responses to climate change issues. Such a process of integration and networking will ensure that previous lessons learnt are taken into consideration, existing materials developed in this area are utilized, and existing experience and information are shared in order to increase knowledge levels in the area of climate change and specifically with respect to the UNFCCC guidelines.

- Identify networks and establish linkages with regional and international contacts in order that experiences and information may be mutually shared with consideration to Sudanese issues, priorities and ongoing activities related to climate change.
- Take advantage of planned international meetings and other opportunities for networking that involve members of the Technical Working Group and other relevant regional and international players.
- Participation in the Climate Change Secretariat's informal mechanism for information sharing, including utilization and supply of information to the Secretariat and the CC:INFO bulletins.
- Conduct workshops to explore private sector involvement, including joint implementation, with results channeled into the INC process.

Training Program

21. Since this is a capacity and institution building project, training activities are a significant component at various levels. The training component will take full advantage of ongoing GEF/UNDP, and other initiatives such as sub-regional projects for Maghreb and Sub-Saharan Africa, and CC:Train, CC:COPE and incorporate the following training elements:

Technical Expert and Consultancy Training:The project will provide technical experts to conduct studies, carry out analyses, and train national governmental and non-governmental personnel on climate change issues relevant to Sudan. Consultants will be technical experts in areas such as dryland ecology, range management, energy management, forestry, climate change mitigation strategies, as well as private sector proposal development.

In-Service Training:In-service training will include participation of governmental and non-governmental representatives in national as well as international workshops and seminars organized by the PC with national and international expert support. Topics for this training will be related to land degradation linkages with climate change, the UNFCCC and related national and international policies, GHG mitigation options based on the Sudanese energy/agriculture/forestry context, development of GHG emissions inventories/scenarios, cost-benefit analysis, proposal writing, and project development.

Orientation: The PC will undergo a one-month, in-depth orientation tour after being selected for the position to supplement his/her technical expertise and familiarity with ongoing climate change activities in North Africa, Europe and the USA, including preliminary joint implementation efforts. It will include meetings with governmental, NGO, academic and research organizations. In addition, members of the IMC and NTC will participate in short-duration regional orientation complementing project activities and promoting participation in international meetings, visits to energy and forestry projects, and development of networks.

Expected Project Achievements

22. On completion of this project, Sudan will have a considerably improved capacity through which to respond to the challenges and opportunities presented by its ratification of the United Nations Framework Convention on Climate Change. End of project achievements will include:

A two-tiered institutional mechanism, consisting of a policy-making IMC and a permanent technical secretariat in the HCENR will be created and strengthened to coordinate the activities necessary to develop policy options related to climate change and to comply with the provisions of the UNFCCC.

A climate change policy dialogue process, including governmental, NGO, academic, and private sector organizations, will be created and strengthened with the intent to foster understanding of climate change issues and linkages with sustainable development strategies among a wide stakeholder group.

An inventory of greenhouse gas emissions and sinks will be developed and periodically updated in accordance with accepted an international methodology. In cases where more detailed work is required on these inventories, appropriate project proposals will be prepared.

A set of cost-effective policy options, including both mitigation and adaptation strategies, together with the capability to carry out more detailed work, as necessary.

Enhanced national capability for performing cost/benefit studies, mitigation options, carbon sequestration potential, as well as for conceiving and implementing future climate change actions.

Better understanding of Sudan's vulnerability to the impacts of climate change and an assessment of priority areas for intervention.

Monitoring and Evaluation

23. Internal monitoring and evaluation will be emphasized in order to optimize the process of inter-institutional transfer of knowledge and experience. External monitoring and evaluation procedures will be established in accordance with GEF and UNDP practices. In addition, the IMC will be charged to maintain close project oversight including periodic technical and programmatic reviews.

RATIONALE FOR GEF FINANCING

24. The proposed project will help accelerate the development of GHG emission reduction/storage strategies in Sudan. This will be accomplished primarily through the development of institutional capacity, training of personnel, information acquisition/dissemination, and dialogue/cooperation between government and non-governmental sectors. The direct benefit will be establishment of a long-term capability to advance sustainable development by the incorporation of climate change criteria into the decision making process.

25. National development objectives and strategies are well served by the project. The GOS's Comprehensive National Strategy emphasizes the need to develop a development approach that

protects ecological and human systems against desertification. As a result, project activities could fit into a long-term planning perspective. It is clear that in the absence of GEF financial support, this project is not possible and a valuable opportunity to influence the integration of climate change considerations in national development will have been lost.

SUSTAINABILITY AND PARTICIPATION

26. The project's emphasis on training, capacity building and institutional development coupled with the establishment of an active national network is the primary mechanism promoting sustainability of project objectives beyond the term of GEF support. In addition, the project's emphasis on climate change mitigation strategies compatible with long-term food security will help stimulate national support for project activities. The project will actively promote the marketing of its services and capabilities to both the public and private sectors of the region.

27. In addition, the project has a number of demonstration values that promote sustainability. The project activities are compatible with the principles expressed in the Comprehensive National Strategy. Equally important is the project institutional framework which involves close cooperation between governmental and nongovernmental organizations in carrying out activities under the project.

LESSONS LEARNED AND TECHNICAL REVIEWS

28. Previous technical reviews of enabling projects for the UNFCCC have noted the importance of cooperation and networking of a broad range of experts. This leads to an exchange of information that is linked both nationally and internationally. For this reason, this capacity building project emphasizes the development of national expertise through training and the exchange of information.

29. Previous reviews have also indicated that national communications may include analyses of possible climate change impacts and response options where this is a priority for the country concerned. For this reason, the project includes an emphasis on climate change linkages with land degradation.

30. Independent STAP roster reviews were carried out on this project. The review is attached in annex form. In view of the newly established GEF PDF, GEFOP recommended that the project development component be deleted from the project brief, as this can more appropriately be funded from the PDF. This component has been deleted accordingly.

PROJECT FINANCING AND BUDGET

31. The total cost of this project is $290,000. The GEF contribution will cover the costs itemized below. In addition to this, the Sudanese Government will make an in-kind contribution to cover secondment of technical experts from government offices to the Project Office, provide support

services, basic communication, office facilities, expertise in certain areas, and library/information facilities.

Budget Category	GEF Inputs
Project Personnel	105,000
Travel	55,000
Training	60,000
Office Space	25,000
Equipment	20,000
Miscellaneous	16,500
Country Office Support (3%)	8,500
Total	**290,000**

INCREMENTAL COSTS

32. Preparations of national communications by developing countries is not subject to incremental cost requirements under the provisions of the UNFCCC. An incremental cost assessment for this project is therefore not required.

33. This 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 this country to fulfil its commitments to implement the Convention.

34. This project seeks to establish links with other projects being carried out by other GEF implementing agencies and by other multilateral and bilateral organizations. It will do so by participating in the informal consultative mechanism 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.

ISSUES, ACTIONS, AND RISKS

35. The project represents an approach to capacity building that emphasizes training, networking, and national dialogue. It is adapted to the particular context and technical skills of Sudan. One risk is that manpower and equipment resources that are essential to the project's success may not be sufficient. Another challenge is the creation of a coherent institutional framework for climate change issues--integrating the various relevant sectors--which does not at present exist. However, the high-level participation of the various ministries will promote accountability and commitment to achieving the project's objectives.

INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

36. The MET is the national organization charged with climate change responsibilities and is poised to take an active role in the development of policies and activities.

37. The policy making body for the project will be the IMC. Representing the broad Sudanese community of stakeholders, this body will focus on policy issues as opposed to the day to day implementation of capacity-building objectives.

38. The HCENR is well positioned to take a leading role in this project. It has a distinct legal identity, encompasses numerous powers that affect resource management, and has experience in coordinating work among branches. Being part of the MET further positions it to be able to integrate its role within the broader environmental policy network that is developing in Sudan.

39. The NTC will be a body of national trained experts who will contribute in the area of report development, specific analyses, as well as serve in an advisory capacity to the PC.

UNDP Response to Comments of External Technical Reviewers

General Comment: The Project Brief was revised in accordance with the reviewer's and GEFOP suggestions. The following comments should be noted:

Comments on Project Approach: The reviewer notes a preference for more concretely described objectives. The text has been tightened accordingly. However, it should also be noted that clearly, the success of the project hinges on well defined means to achieve stated objectives. Being a Project Brief, the purpose in this document is to identify the broad elements of the project, leaving the specific description of subcategories and standards to the Project Document which will follow.

Comments on Objectives/Activities: The reviewer's recommendations with respect to the training package have been taken into account and the text changed accordingly. The reviewers further propose alternative objectives that emphasize inventory development and mitigation strategies. Inventory development has been emphasized accordingly. However, an initial activities, in the Sudanese context aimed at establishing institutionalized linkages among stakeholder groups is of fundamental importance. Once the national network is established, the objectives of inventory and mitigation strategy development will be pursued.

Comments on vulnerability assessment. The reviewer notes that an assessment the vulnerability of Sudan to climate change may exceed project constraints. Ecosystem vulnerability and mitigation are closely related. Therefore, some assessment of potential impacts of climate change is necessary to inform policy directions. However, we concur that a comprehensive vulnerability assessment could be deferred to a later time. For the purposes of the present project, the Brief has been revised to focus on the identification of policies relevant to climate change.

Comments on Institutional Arrangements: Further elaboration of the various committees to be established have been added to the Brief.

Comments on African Context: Further elaboration on how the project will build upon existing UNEP and other initiatives has been added to the Brief.

TECHNICAL REVIEW

SUDAN: ENABLING ACTIVITY (CAPACITY BUILDING TO ENABLE RESPONSE AND COMMUNICATIONS TO THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE)

OVERALL IMPRESSIONS

1. The Republic of Sudan is one of the least developed countries in the world. Only recently (February 1995), the Government of Sudan created the Ministry of Environment and Tourism to oversee environmental management. Although interests in environmental problems are growing, the newly created ministry is severely lacking the technical capacity to address climate change impacts. Capacity building and institutional strengthening are therefore prerequisites for the formulation and implementation of climate change policy in Sudan.

2. The Sudan is a country experiencing serious droughts and desertification. Future food security may be adversely effected by the impacts of climate change. A successful implementation of climate change policy will only be possible if it is linked with national sustainable development objectives. The project proposal explicitly aims to link climate change policy with land degradation prevention.

3. The project brief formulates the objectives of the project in very general capacity building terms. Only a few of the activities to be conducted consist of clear defined and specific tasks. These include the elaboration of an emission inventory and vulnerability assessment. Results of these tasks are needed for the Government of Sudan to meet the requirements of the FCCC. The FCCC recognizes the financial resources need to be allocated for developing countries to meet their requirements.

APPROPRIATENESS OF THE PROJECT APPROACH

4. The approach taken in the project proposal focuses strongly on capacity building and training activities in general terms. Although capacity building and institutional strengthening are prerequisites for climate change policy in Sudan, it would be preferable if the objectives and activities were more concretely described. A preferably approach would be to identify specific and clearly defined tasks. Focusing on these tasks, training activities can be undertaken and an institutional framework can be established.

OBJECTIVES AND ACTIVITIES

5. Capacity building and institutional strengthening are prerequisites for climate change policy in Sudan and for an effective representation of Sudan in international fora. It is advisable to identify clear objectives with well defined tasks. Training activities need to focus on these tasks. It is not needed to develop new training material. It is preferable to use material of other donors and country studies (e.g. the US country study programme) and the guidelines developed by the IPCC. Networking activities are important in order to easily exchange useful information.

6. We would like to advise to build the project around the following objectives and tasks:

Objective 1: Elaboration of an inventory of greenhouse gas emissions and removals, following the IPCC methodology.

To carry out an emission inventory, activity data need to be gathered from all economic sectors. Therefore, a representation of all relevant ministries/departments (inter alia environment, energy, agriculture, forestry, industry) is needed. It is important to use as much as possible the experiences in other similar African countries. E-mail facilities will be very useful for networking activities with other African countries (a network has been established within the UNEP country studies).

Objective 2: First steps in formulating a mitigation strategy.

Based on the emission inventory and an inventory of sectoral policy plans, a start can be made with the formulation of a mitigation strategy.

7. To ensure on-going activities related to climate change in Sudan, it would be beneficial if one of the project outputs could be the formulation of clear proposals which can be used for the allocation of additional funding. These proposals can relate to further research on the emission inventory. They can also relate to the implementation of promising mitigation options, focusing on options linking climate change issues with land degradation. Sudan's project brief explicitly states that guidance is needed in drafting project proposals and approaching donor organisations.

8. Sudan's project brief also includes an assessment of the vulnerability of Sudan to climate change. However, we believe that this objective might be too ambitious in this stage. To carry out a comprehensive vulnerability assessment, a large amount of physical and economic data are needed as well as modelling techniques and experience. It might be preferable to focus in this project solely on the emission inventory and the formulation of mitigation options.

OMISSIONS IN THE BACKGROUND DISCUSSION

9. No further comments.

INSTITUTIONAL ARRANGEMENTS

10. The institutional framework to address climate change problems is currently still very weak in the Sudan. The Government of Sudan created only recently the Ministry of Environment and Tourism to oversee environmental management. The project will build on existing institutions and will strengthen those. The participation of all relevant stakeholders in various committees implementing the project will facilitate a strong embedding of climate change policy in sectoral policies. However, the tasks of the various committees to be established (an interministerial steering committee, a national technical committee and an international advisory network) have not sufficiently been described. Also, the role of the Higher Council for Environment and Natural Resources (HCENR) in implementing the project is not sufficiently clear.

FUNDING

11. The funds indicated in this project seem to be realistic to carry out an emission inventory and to identify the first steps in a mitigation strategy.

INNOVATIVE FEATURES

12. The project is a straightforward capacity building project.

DEVELOPMENT DIMENSIONS AND RATIONALE FOR GEF SUPPORT

13. The FCCC recognizes that developing countries can only meet their reporting requirements if funding will be made available. Therefore, a strong rationale exists for GEF support for the Sudan to carry out a country study, which will include an inventory of greenhouse gas emissions and sinks, an assessment of vulnerability to climate change and the identification of possible adaptation measures.

QUESTIONS AND CLARIFICATIONS FOR PROPOSING AGENCY AND ADDITIONAL COMMENTS

14. No further questions or additional comments.

ANNEX A: CONSULTATIVE AND PARTICIPATORY PROCESSES

This proposal has been prepared by the GEF based on extensive in-country consultations with individuals and/or panels in relevant institutions, including government ministries/departments, academic institutions, research institutions, and non-governmental agencies, as summarized below:

Government Ministries:

Ministry of Agriculture, Natural and Animal Resources, Ministry of Irrigation, Ministry of Finance and Economic Planning, Ministry of Environment and Tourism, Ministry and Energy and Mining.

Govt. Agencies/Depts.:

Meteorology Department, Range and Pastures Department, the Higher Council for the Environment and Natural Resources, National Petroleum Corporation, Forests National Corporation.

Academic Institutions:

Institute of Environmental Studies.

Research Institutions:

Energy Research Institute

Non-Governmental Orgs.:

Sudanese Environmental Conservation Association, Biomass Energy Network Services.

Proposal for Review

Project Title:	**Tunisia: Enabling Activity (Emissions Inventory of Greenhouse Gases: National Strategy and Action Plans for Emissions Reduction and Fulfilment of National Communications under the UNFCCC)**
GEF Focal Area:	Climate Change
Country Eligibility:	Convention Ratified July 15, 1993
Total Costs:	$ 940,400
GEF Funding:	$ 565,400
Tunisian contribution in US $:	$ 100,000 (cost-sharing)
Tunisian contribution in kind:	270,000 TD (=US$ 275,000)
Implementing Agency:	UNDP
Executing Agency:	Government of Tunisia Ministry of Environment and Land Management/ Energy Conservation Agency
Estimated Approval Date:	July 1995
Project Duration:	30 months
GEF Preparation Costs:	None (preparation funded by Govt. of Tunisia)

TUNISIA: ENABLING ACTIVITY (EMISSIONS INVENTORY OF GREENHOUSE GASES: NATIONAL STRATEGY AND ACTION PLANS FOR EMISSIONS REDUCTION AND FULFILMENT OF NATIONAL COMMUNICATIONS UNDER THE UNFCCC)

COUNTRY AND SECTOR BACKGROUND AND CONTEXT

1. Tunisia has made sustainable development one of its central national objectives, and it has continued to hold that environment protection cannot de addressed separately from development. The creation of the National Commission for Sustainable Development in 1993 is evidence of the sincerity with which Tunisia undertook its commitments at the Earth Summit in 1992.

2. The Eighth Economic and Social Development Plan for 1992-1996 has given further emphasis to the importance of environment protection in Tunisia. This is also clearly demonstrated by the considerably higher level of funding that has been allocated to environmental matters (600 million TD (US$612 m) vs 260 million TD (US$ 265 m) for the 7th Plan) under the new Plan. On the institutional and legislative level, an appropriate institutional framework has been established through the establishment of the National Climate Change Committee and further through the regionally recognized work of the Tunisian Energy Conservation Agency. Actions promoting renewable technologies and intended to reduce energy consumption and atmospheric pollution are greatly encouraged by the Government and regulations and tax incentives have been set for this purpose.

3. In 1992, Tunisia established a National Climate Change Committee to follow up on the UNFCCC and to develop a common Tunisian position on the matter. Membership in the Committee includes the Ministry of Environment and Land Management, Ministry of National Economy, Energy Conservation Agency, Ministry of Transport and the National Meteorological Institute.

4. Due to its limited energy resources (5.8 million tons of oil and 26 million m3 of natural gas in 1990), Tunisia is facing a deficit in its energy balance: oil production stagnation (4,745 Ktoe for oil and 178 Ktoe for natural gas) against increasing energy consumption (5,016 Ktoe in 1993). The structure of the energy consumption shows a great dependency on oil products which represent 77% of the global consumption versus 10% for natural gas, 11% for electricity and 2% for the coke. On the sectoral level, industry comes first with 37% of the final consumption, against 31% for transportation, 16% residential, 9% tertiary and 7% agriculture.

5. With a decreasing production and an ever growing consumption, the deficit in Tunisia's energy balance is increasing rapidly. Energy efficiency is therefore an imperative, as is the further development and employment of renewable energy.

PROJECT OBJECTIVES

Global Environmental Benefits and Objectives

6. The proposed project has significant global environmental benefit in that it targets the identification, formulation and implementation of GHG emission reduction strategies which will ultimately lead to lowering of the rate of accumulation in the atmosphere of the primary GHGs: carbon dioxide; methane; and nitrogen oxides. It will thus be beneficial both for the global environment as well as for the long-term sustainable development of the region. Lessons learnt through this project will have considerable potential for transfer to other regions, and will leverage further global benefits.

7. This project will utilize the established IPCC guidelines in order to conduct a national inventory of GHG sources and sinks. As per IPCC methodology a base year of 1990 will be used. This project is consistent with the enabling activity and capacity building objectives listed in the INC Document (A/AC.237/90/Add.3--GEF/C.3/Inf.2), 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 this country to fulfil its commitments to implement the Convention.

8. The project seeks to establish links with projects being carried out by other GEF implementing agencies and by other multi and bilateral organizations. It will do so practically through mechanisms established under the GEF regional Maghreb project. In particular it will benefit from the Project Advisory Network established under the regional Maghreb project, which includes the following international members: UNDP; UNEP; The World Bank; UNEP Riso; The US EPA and the Dept. of Energy; The Stockholm Environment Institute; GTZ; the Climate Change Convention Secretariat; Climate Network Africa; START Network; the IPCC; and ACTS (SEI).

9. This project will likewise contribute globally through its participation in the informal consultative mechanism being set up by the UNFCCC Secretariat to ensure that results and outputs of this project will be shared among all actors in climate change activities in order to enable such actors to mutually benefit from one another's activities for the present and in the future.

10. In line with the priorities identified by the Tunisian Government, and further in line with the recent recommendations of INC XI (A/AC.237/WG.II), the present project will also address "Stage I" - (Planning) regarding adaptation to and impacts of climate change.

Specific Project Objectives

- The intent of this project is to allow Tunisia to respond to its obligations as a UNFCCC party, through elaboration of a national inventory of emissions sources and removals of GHG, and the establishment of a strategy to limit the emissions and protect and enhance the sinks of these gases.
- Strengthen national capacities in GHG emissions control

- Scientific evaluation of impacts of sea level rise upon terrestrial and marine eco-systems and their respective habitats and an elaboration of a response and adaptation strategy

PROJECT AND RELATED PROGRAMME CONTEXT

11. A GEF project was approved for the Arab States under the Fifth Work Programme of the Pilot Phase (May 1993). This project is entitled "Capacity Building in the Maghreb to respond to the Challenges and Opportunities created by National Response to the UNFCCC", and covers three countries: Algeria, Morocco and Tunisia. Libya has also indicated its willingness to fund its own participation in the project.

12. The Maghreb project was designed on the assumption that planned national inventory, data gathering and planning activities would be carried out under funding from other donors. At the time of submission of the Maghreb project, Tunisia was expecting to receive funding from GTZ for these activities. This funding did, however, not materialize, and Tunisia is therefore requesting funding from the GEF in order that it can conduct the required national inventory and planning activities as per the UNFCCC obligations. More information on the Maghreb project, and on other relevant activities undertaken by the Tunisian Government is provided in Annex 2.

PROJECT DESCRIPTION

Location and Extent

13. The present project will cover the whole national territory. The emissions inventories will be elaborated according to appropriate geographical zonings to facilitate the development of a national strategy and action plans based on the regional specificities.

Immediate Objectives, Outputs and Activities

Immediate Objective 1

14. Allow Tunisia to fulfil national communications obligations under the UNFCCC, which it ratified in 1993, through the elaboration of a national inventory of sources and sinks of all anthropogenic emissions of GHGs not regulated by the Montreal Protocol.

Output 1.1

15. National inventory of anthropogenic emissions; their sources and sinks with possible evolution scenarios, in fulfilment of communications obligations under the UNFCCC.

Activities for output 1.1

16. Priorities by gas and source/sink category. It is recommended that the 6 categories defined in the IPCC guidelines be adopted, namely: (1) Energy, (2) Industrial processes; (3) Solvent use, (4) Agriculture, (5) Land-use change and forestry, (6) Waste management.

17. Determine the fuel categories according to the IPCC classification:

(1) liquid, (2) solid, (3) gas, (4) others, (5) biomass.

18. Divide the country into homogeneous regions as pertinently as could be.

19. Assess the quantities on the basis of the best scientific knowledge available and the most up to date technologies, and according to the IPCC guidelines.

20. Carry out uncertainty verification and assessment based on the IPCC guidelines.

21. Present results according to the IPCC guidelines. Results of geographical regions will be included in the report for national use.

22. Emissions estimation for years 2000 - 2010 - 2020 based on the prediction of the several intervening parties' activities and considering 3 hypotheses: pessimistic, probable and optimistic.

Output 1.2

23. An inventory updating tool.

Activity for output 1.2

24. Provide a precise methodology to update the inventory describing the assessment methods and providing necessary data, and the ratios used for every activity.

Output 1.3

25. A trained staff capable of establishing and updating the inventory.

Activities for output 1.3

26. Identify in coordination with the Ministry of Environment and Land Management the target institutions and the group to be trained in establishing and updating the inventory.

27. Establish and execute an inventory elaboration training program.

28. Establish and executive a training program for the staff charged to update the inventory.

Immediate Objective 2

29. Evaluate and diagnose the current context and inventory ongoing national activities related to GHG emissions mitigation

Output 2.1

30. An initial framework and reliable data to establish a national strategy.

Activities for output 2.1

31. Describe the existing institutional framework identifying the different parties with each one's current role and responsibility in emission, reduction, absorption of GHGs. Proceed to identify institutional overlaps and duplication.

32. Describe the regulatory and legislative framework, listing all relevant regulatory texts and standards. Analyze and identify possible regulatory and legislative shortcomings.

32. Describe the tariff and fiscal policies applied in the relevant sectors, especially the energy sector, as well as various tax incentives and stimuli and identify others which could be provided.

33. Inventory of on-going programs, actions, initiatives and projects, with the adequate description: type of intervention, expected impacts, objectives, cost, financing, and implementation status.

34. Assessment of the implementation of each intervention provision of recommendations for efficiency improvements and strengthened coordination.

Immediate Objective 3

35. Establishment of a consistent national strategy to mitigate, and facilitate adaptation to climate change taking into consideration sustainable development priorities.

Output 3.1

36. Emissions thresholds and plans compatible with Tunisia's sustainable development plans.

Activities for output 3.1

37. Determine realistic sectoral and global objectives to limit emissions from various GHGs in the light of development priorities for each sector and in light of Tunisia's sustainable development plans and in accordance with international commitments.

38. Determine a realistic schedule to limit the emissions of various GHGs in light of development priorities for each sector and in light of Tunisia's sustainable development plans and in accordance with international commitments.

39. These objectives will depend on the definition of allowable thresholds and levels of GHG emissions to determine the extent to which Tunisia's socio-economic development may rely on fossil fuel use. The established threshold will enable Tunisia to comply with international standards for atmosphere protection.

Output 3.2

40. Inventory of appropriate measures and technologies feasible within each sector.

Activity for output 3.2

41. For each sector:

(a) Assessment and evaluation of possible measures and technologies based on energy economies.
(b) Assessment and evaluation of possible measures and technologies based on the use of energy sources with low carbon emissions.
(c) Assessment and evaluation of possible measures and technologies based on emissions reduction using renewable energy options.
(d) Assessment and evaluation of possible measures to combat deforestation.

42. All technologies will be assessed based on their availability at national and international levels.

Output 3.3

43. An institutional, regulatory and financially consistent framework to contribute to GHG emissions reduction.

Activities for output 3.3

44. Identify parties and institutions, and determine the role of these in the implementation of the strategy.

45. Definition of accompanying measures for institutional strengthening of relevant institutions.

46. Identify and recommend the appropriate regulatory measures contributing to GHG mitigation.

47. Identify and recommend the most relevant and feasible national financial measures. These recommendations will specifically focus on: tariff policy, and tax incentive measures.

48. Identify appropriate international cooperation, required levels of financing and technology, which could contribute to the national strategy.

Output 3.4

49. An established monitoring and evaluation mechanism for the strategic plan.

Activities for output 3.4

50. Determine the frequency with which the inventory should be updated.

51. Determine the institutional set-up responsible for updating the inventory.

52. Promote and facilitate the dissemination and the exchange of information between all parties.

53. Determine the methods to adjust the strategy.

Immediate Objective 4

54. Plan for reduction of GHG emissions and protection and enhancement of sinks in different sectors

Output 4.1

55. Sectoral action plans for the following sectors: energy, transportation, industry and tertiary, agriculture and waste management.

Activities for output 4.1

56. The activities listed below will be conducted for each action plan.

57. Assess ongoing actions with proposals of reinforcement and coordination.

58. Identify actions and measures to ensure least-cost emissions reduction.
Rank these actions according to criteria such as: efficiency, cost eligibility to national and international funding, implementing agencies, existing capacity, quantitative impacts, etc.

59. Determine the necessary funds outlining a financing scheme and a schedule of financial needs (funds, governmental subsidies, national loans, international loans or grants).

60. Identify the most appropriate institutional framework for the implementation of the plan.

61. Determine follow-up and assessment procedures.

62. Taking into consideration the context and constraints of each sector, definition of and agreement on the most realistic implementation plan.

Output 4.2

63. A staff trained in new technologies identified as most adequate to local conditions and needs.

Activities for output 4.2

64. Identify new technologies that could be adapted to the local context.

65. Organize international training course (3 person/months).

66. Identify the target groups to be trained in new technologies in the energy field.

67. Determine and implement local training programs intended for the target groups.

Immediate Objective 5

68. Scientific evaluation of impacts of sea level rise upon terrestrial and marine eco-systems and their respective habitats and an elaboration of a response and adaptation strategy

69. Tunisia with a 1,300 km coastline and low elevation, is particularly vulnerable to the effects of sea-level rise. The risk incurred by Tunisia is the inundation of the lower coastal zones. A strategy for response and adaptation aimed at countering the tendencies and to neutralize the impacts and potential risks of climate change must therefore be put in place.

Output 5.1

70. A vulnerability assessment and evaluation study of the impacts of sea level rise

Activities for output 5.1

71. Building on already on-going work in this field and utilizing existing methodologies and tools (e.g. IPCC Common Methodology on Sea Level Rise, methodologies emanating from the recently approved GEF projects: UNEP "Country Case Studies on Climate Change Impacts and Adaptation Assessments" and the recently approved UNDP Maldives project), developing a vulnerability assessment of the impact of sea level rise

72. Identification of options for implementing adaptation provisions

73. Elaboration of a response and adaptation strategy

74. Through the implementation of the three activities listed above, transfer knowledge and know-how on climate change impacts and adaptation matters to national cadres

RATIONALE FOR GEF FINANCING

75. This 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 will respond to such objectives by implementing an activity needed to enable Tunisia to fulfil its commitments under the Convention, in accordance with programming guidance issued by the INC at its 11th session and the COP in Berlin, March 1995.

76. This project seeks to establish links with other projects being carried out by other GEF implementing agencies or by other multilateral and bilateral organizations. It will do so practically by establishing links with the outputs of other on-going initiatives and projects, including the regional GEF projects in the Maghreb and in Africa, CC:TRAIN and CC:COPE. The project will also participate in the informal consultative mechanism being set up by the UNFCCC secretariat, to ensure that results and outputs of this project are 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.

77. As a project intended to respond to the UNFCCC, the inventory will contribute to the transfer of technologies and to national capacity building especially with respect to energy issues and global environmental protection. With the implementation of the national strategy, it is hoped that appreciable energy economies and efficiency will be realized and by year 2010 an emissions reduction of about 30 millions of tons of CO2 will be reached.

SUSTAINABILITY AND PARTICIPATION

78. The project's sustainability beyond the GEF term of support will be ensured through transfer of technology, training, capacity building and institutional development coupled with the establishment of a functioning and active national network. The project will furthermore result in the establishment of important policy and institutional mechanisms that will also be vital for the success and sustainability of the GEF Regional Maghreb project. The strengthening of national capacity within the project context will ensure regular updating of the Tunisian inventories and will further contribute to similar exercises in the sub-regional and regional levels.

79. The project's emphasis on cost-effective GHG emission reduction strategies with long-term economic benefits will help stimulate long-term national support for the services and activities instituted by the project. The project will actively promote the marketing of its services and capabilities to both the public and private sectors of the region.

Consultative Process

80. This proposal has been prepared entirely by Tunisian experts without funding from either the GEF or UNDP. Based on lengthy in-country consultations with all relevant partners, the Energy Conservation Agency has prepared the present project proposal.

81. The proposal will enable Tunisia to fulfil its reporting obligations under the UNFCCC and will further enable Tunisia to fully benefit from the already approved (May 1993) Maghreb GHG project (covering Algeria, Morocco and Tunisia) entitled "Building Capacity in the Maghreb to respond to the Challenges and Opportunities Created by National Response to the UNFCCC" (RAB/94/G31).

82. Tunisia submitted the proposal to UNDP in late January 1995 in the hope that it could be included in the first work programme approved by the GEF Council in February 1995. However, in view of the fact that the GEFOP for Climate Change was held in December 1994, submission was delayed for the second work programme to be approved by the GEF Council in May 1995.

LESSONS LEARNT FROM TECHNICAL REVIEWS

83. Previous technical reviews of "enabling projects" for the UNFCCC have emphasized the importance of utilizating national expertise. This project thus places emphasis on the utilization of existing expertise, and on training and "twinning" where expertise might not be available. It has also been pointed out that a 2 year duration may not be sufficient; this project thus covers a 30 month period.

84. Finally, previous reviews have indicated that fulfilment of communications obligations under the convention could usefully be combined with adaptation/impact studies, where this also is a priority for the country concerned. The present project thus also includes a component for the study of sea level rise issues in the Tunisian context.

85. The present proposal was submitted to STAP experts for independent technical review. The review is attached attached along with UNDP's response. In addition, in accordance with recommendations of GEFOP the following changes were made to the proposal: further information on GEF Pilot Phase Regional Maghreb project is included in text and in Annex 2; public awareness component of project has been deleted and project costs have been reduced accordingly; it has been further emphasized that project outputs will be used for national communications under the Convention.

PROJECT FINANCING AND BUDGET

86. The total cost of the project is $940,400. The GEF contrinution to the project amounts to $565,400. A break-down of project costs by component is provided below.

87. Tunisian Government will make an in-kind contribution totalling TD 270,000 ($275,000) which will cover the cost of a National Project Director (30 person months), a National Project Coordinator (30 person months), four expert staff (total 40 person months) as well as office space. Tunisia will also make a hard currency contribution, payable to UNDP in accordance with standard arrangements of a total of US$100,000.

Project Components	Component costs US $
Personnel: Inventory & Strategy	353,000
Personnel: Impact & Adaptation	174,000
Training	60,000
Equipment	50,000
Miscellaneous	9,000
Project Total	646,000
Support costs (3%)	19,400
Grand Total	**665,400**

INCREMENTAL COSTS

88. Preparation of national communications by developing countries is to be fully financed by the GEF as financial mechanism for the UNFCCC. An incremental cost assessment is therefore not required. As a demonstration of its commitment to the obligations of the UNFCCC, the Tunisian Government has proposed to undertake national cost-sharing to finance a considerable portion of the project expenses. The Government of Tunisia has therefore committed US$ 100,000 in cash and TD 270,000 (=US$ 275,000) in kind contribution towards this project.

ISSUES, ACTIONS AND RISKS

89. The project represents an approach to the building of institutional and technical capacities within the country, adapted to its particular context and technical skills. It would thus result in enhanced an knowledge and capacity related to implementation of UNFCCC obligations, as well as national policy mechanisms to address GHG reduction and mitigation of climate change impacts over the long term.

90. As this not a complex project, the risks associated with its implementation are minor and mostly centre on matters of institutional framework and backing. The Government of Tunisia recognizes that this project will need to involve a great number of national actors, and is cognisant

of the fact that the success of this project depends on the successful involvement of all relevant partners.

INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

91. The Ministry of Environment and Land Management will hold overall responsibility for project implementation, with coordination through the already established Climate Change Committee (membership: Ministry of Environment and Land Management, Ministry of National Economy, Energy Conservation Agency, Ministry of Transport and the National Meteorological Institute).

92. A Project Coordinating Unit will be established which will be responsible for the implementation of the project and for liaising with the Climate Change Committee. Other ministries and institutions also associated in the implementation of the project will include:

- Ministère de l'Agriculture (MA)
- Ministère des Finances (MF)
- Ministère des Equippements et Habitats
- Agence National de Protection de l'Environnement (ANPE)
- Société Tunisienne d'Electricité et de Gaz (STEG) will contribute in the determination and implementation of electricity production measures.
- Entreprise Tunisienne des Activities Pétrolières (ETAP)
- Radio Télévision Tunisienne (RTT) will contribute to the execution of awareness programs.
- The municipalities will intervene in establishing more appropriate traffic plans.
- Oil companies
- Industrial sector (public and private)
- NGOs will contribute to the implementation of the public awareness program.
- Academic Institutions and Universities

Project Reviews, Monitoring and Evaluation

Project progress reports and monitoring

- Brief quarterly reports will be published outlining major achievements of the past quarter.
- A full listing of all technical reports will be published prior to the end of the project.
- A detailed annual project performance report will be submitted to the UNDP/GEF at least one month before the annual project review.
- Annual project reviews will be conducted in accordance with established UNDP procedures.
- On-going monitoring of project progress for the GEF by the UNDP Country Office.

Project technical reports

- A report for mainly national use including: recapitulative inventory tables, presentation of results based on Tunisian regions, the possible evolution scenarios of emissions and sinks, a description of the current context and situation assessment
- A report for mainly international use intended for the COP and the IPCC and including a detailed presentation of the results as recommended in the IPCC guidelines.
- A third report will be devoted to the global strategy.
- A synthesis report and a report per sector will include the details of sectoral actions plans.

UNDP RESPONSE TO COMMENTS OF EXTERNAL TECHNICAL REVIEWER

Project: Tunisia - Emissions Inventory of Greenhouse Gases: National Strategy and Action Plans for Emissions Reduction and Fulfilment of National Communications under the UNFCCC

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

1. As per IPCC methodology, the base year of 1990 will be used for inventory activity undertaken in this project.

2. The reviewer's suggestion that the project be divided into two phases has been noted, however in view of the importance of coastal zone management and the marine ecosystems, the study of impacts of sea-level rise is a priority for the Government of Tunisia and therefore should be addressed within the present project. Moreover, the project will be especially beneficial as a capacity building effort if it can reinforce national expertise in dealing with various climate change issues including inventory activity, mitigation analysis and impacts assessment.

3. In accordance with the reviewer's recommendation, the participation of academic institutions, particularly relevant university departments will be ensured in project implementation.

4. With regard to the reviewer's comment on the level of funding for this project, it may be noted that in the present version of the project the level of funding has been considerably reduced from the original budget proposed by the Government of Tunisia, while still taking into account the cost of undertaking the project activities in Tunisia. All efforts have been made to ensure that the project funds are used as cost-effectively as possible. The addition of the climate change impacts and adaptation component has increased the budget by an additional amount of US $ 175,000.

5. With regard to the questions and clarifications posed by the reviewer, it should be noted that local experts will be attached to the project on either a full-time or part-time basis as necessary, in accordance with a detailed workplan to be prepared under a full project document by the Government of Tunisia upon approval of the present proposal. The project document will include a time-table for project activities and a detailed budget as per UNDP requirements, which will budget for the necessary expenses to be covered by the project's funds towards convening of National Climate Change Committee meetings and towards the travel costs necessitated by study tours and international conferences.

TECHNICAL REVIEW

TUNISIA: ENABLING ACTIVITY (EMISSIONS INVENTORY OF GREENHOUSE GASES: NATIONAL STRATEGY AND ACTION PLANS FOR EMISSIONS REDUCTION AND FULFILMENT OF NATIONAL COMMUNICATIONS UNDER THE UNFCCC)

OVERALL IMPRESSIONS

1. The project idea supports, among other issues:

   - The requirements for countries to develop their capability to fulfil their commitments to the UNFCCC.
   - The global effort of testing the IPCC methodology for making inventory of sources and sinks of GHGs as supported by other funding agencies.
   - The global effort of providing capacity building in developing countries on issues related to climate change.

2. I fully endorse the project proposal with amendments as suggested in the following paragraphs.

APPROPRIATENESS OF PROJECT APPROACH

3. The general approach for the project appears to be appropriate because:

   - proper methodologies will be applied in the study.
   - it involves a number of different institutions (government and non-governmental) thus integrating information from different sectors of national and socio-economic development.

OBJECTIVES OF THE PROJECT

4. All the five objectives are valid and appropriately focused. Since they want to use the IPCC methodology on GHGs, then it would have been better if they could use a base year defined by IPCC for their estimations.

5. The activities outlined for each objective if implemented well will certainly result in achieving the proposed objectives.

ACTIVITIES

6. The activities stated under each objective are fairly exhaustive and ambitious that I doubt if all will be achieved successfully as planned. However it would have been better if the project could be divided into two distinct phases. Phase one would deal with estimates of GHG emissions inventory only while phase two could deal with impact assessments.

OMISSIONS IN BACKGROUND DISCUSSION

7. The background information is fairly exhaustive and satisfies the necessity to request for funds to carry out the study.

INSTITUTIONAL ARRANGEMENTS

8. The institutional arrangement for the project is clearly outlined. However, the participation of institutions of higher learning, such as the university should not be overlooked.

FUNDING

9. Going through the objectives and their activities, I do get the impressions that the funds requested are slightly higher when compared to what other countries have been getting for similar Studies. It may be necessary to review the number required of both external and internal experts for the Inventory and Strategy portions of the project. This could reduce some expenses. Considering that the study will involve conducting the inventory and the planning stages of mitigation and adaptation analyses, the sum of between $400,000 and $450,000 might be realistic.

INNOVATIVE FEATURES

10. The proposed project can be modified to suit studies in other countries especially developing countries with economies depending mostly on industry and energy consumptions from oil products, such as other Maghreb states and Nigeria. However, some portions of the proposal could be replicated in other African countries.

DEVELOPMENT DIMENSIONS AND RATIONALE FOR GEF

11. The development dimensions of proposals and the rationale for GEF involvement into this project:

- Tunisia is a signatory and has ratified the UNFCCC

- Tunisia is already participating in other projects supported by the GEF as stated under the related ongoing activities paragraph of the proposal.

- GEF is the main funding mechanism on issues related to Climate Change.

QUESTIONS AND CLARIFICATIONS

- Are the local experts going to be full time or part time on the project?

- How often will the National Climate Change Committee meet to review the progress of the activities of the project? Is this included in the budget?

- Have you made a provision in your budget for your experts to attend relevant international workshops/conferences during the project period?

ADDITIONAL COMMENTS

12. Basically the proposal is good for consideration by GEF for funding. It is in line with activities supported by other donor agencies such as the GTZ and the U.S. - Country Studies Programme on Climate Change. However, I would like to suggest the following:

- a spreadsheet with bars be prepared for each activity or task to show how activities will be implemented in months. These activities would include preparatory stage, data collection, analysis and etc.

- much effort should be made to ensure local experts are trained in different aspects of the study.

- Identification of a national research institution which could ensure continuity of these studies after the completion of the project is very important.

- Establish an infrastructure of a databank on GHG emissions inventory information.

ANNEX A: OVERVIEW OF STAFF REQUIREMENTS

	Unit	International Experts	National Experts
Project manager	p/m	10	
Expert/Energy efficiency	p/m	4.5	
Expert/Atmospheric pollution	p/m	4	
Expert/Energy production	p/m		7
Expert/transportation	p/m		7
Expert/Renewable energy	p/m		5.5
Expert/forestation	p/m		2
Fiscal Expert	p/m		2.5
Jurist	p/m		2.5
Advisor/Sea level rise	p/m	2	
Expert/Coastal zones	p/m		10
Marine ecologist	p/m		10
Land use planner	p/m		5
TOTAL		16.5	51.5

p/m = person months

ANNEX B: RELATED ON-GOING ACTIVITIES

A number of activities relevant to the project have been undertaken by the Tunisian Government.

(a) "Capacity Building in the Maghreb to Respond to the Challenges and Opportunities created by National Response to the Framework Convention on Climate Change" (RAB/94/G31) (See also above). Cost: $ US2,500,000. GEF project approved in May 1993.

Close links of cooperation will be established between the regional Maghreb project and the present proposal. Indeed, the inventories and action plans, outlined in the present proposal were a pre-requisite in the Maghreb proposal and it was anticipated at the time of formulation of the Maghreb proposal that funding would materialize from elsewhere for the national inventory and planning activities. The Maghreb proposal was thus designed on the assumption that inventories and action plans would be available prior to project start-up. However, in view of the fact that the anticipated donor funding did not materialize, Tunisia is now in need of GEF funding to enable it to become a full participant in the Maghreb proposal and further to fulfil its obligations under the UNFCCC.

The Tunisian component of the Maghreb project is implemented by the same unit within the Environment Ministry as the present proposal with the latter having been designed specifically to supplement the GEF Maghreb project.

(b) "Vulnerability and Impact Assessment Adaptation Study and Mitigation Study" in Tunisia's Bizerte Lakes region: UNEP. This study has been recently completed by UNEP as part of the Mediterranean Action Plan. The present GEF proposal will utilize the data gathered under this Bizerte Lakes study and will build further upon this.

(c) Solar water heating systems. GEF/World Bank. This project will promote the commercialization of solar water heating technology in the residential and tertiary sectors by conditioning the market for sustained penetration of the technology as a least cost alternative under competitive market conditions. As such this project will greatly contribute to Tunisia's aim of striving for alternative and renewable energy resources. Cost: $ US 7,3 million

(d) Action Plan for energy savings by the year 2010. This is a Government initiated plan which aims at ensuring energy savings throughout the economy by the year 2010.

(e) Assessment of CO2 emissions in Tunisia starting from 1990, and estimations of these emissions up to 2020 (both actions were elaborated by the Agence pour la Maîtrise de l'Énergie).

(f) Purchase of mobile laboratories to measure atmospheric and water pollution all over Tunisia (this stands within the framework of pollution control reinforcement programs).

(g) Study on atmospheric pollution and ambient air quality in Tunisia. Cost: 50,000 TD allocated on the State budget.

(h) Study of a pilot project on the valorization of organic residues in rural areas (biogas production). Cost: 40,000 TD allocated on the State budget.

(i) The Government is also initiating a project of inspections, checks on engines, tuning and maintenance installations to reduce fuel consumption in the transportation sector.

(j) Special Energy Program. A GTZ funded project implemented through the Energy Conservation Agency with the objective of developing a rural energy supply system by promoting utilization of renewable energy sources for basic energy needs and developing fuel wood energy saving techniques and equipment.

(k) Energy conservation and demonstration projects in industry and transport. An IBRD loan based project. The project includes energy audits, elaboration of energy savings action plans, training and capacity building and photovoltaic lighting system dissemination in rural areas.

(l) Establishment of energy efficiency standards for building design in Algeria, Morocco and Tunisia. This EU financed project is on-going and is coordinated by the Tunisian Energy Conservation Agency.

Proposal for Review

Project Title:	**Regional: Caribbean: Enabling Activities (Planning for Adaptation to Global Climate Change)**
GEF Focal Area:	Climate Change
Country Eligibility:	CARICOM Parties to the Climate Change Convention: Antigua and Barbuda - Feb. 2, 1993 Bahamas - March 29, 1994 Barbados - March 23, 1994 Belize - October 31, 1994 Commonwealth of Dominica - June 21, 1993 Grenada - August 11, 1994 Guyana - August 29, 1994 Jamaica - January 6, 1995 St. Kitts and Nevis - January 7, 1993 St. Lucia - June 14, 1993 Trinidad and Tobago - June 24, 1994
Total Project Costs:	US$ 6.5 million
GEF Financing:	US$ 6.5 million
Government Counterpart Financing:	to be quantified during final preparation/appraisal, comprising taxes/duties, counterpart staff, incremental recurrent costs
GEF Implementing Agency:	World Bank
Grant Recipient/Executing Agency:	Organization of American States (OAS)
Estimated Starting Date:	Jan. 1996
Project Duration:	4 years
GEF Preparation Costs (PDF):	(none to date)
Executing Agency Preparation Costs:	US$ 68,000

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

CARICOM	Caribbean Community
CASI	Compact Airborne Spectographic Imagery
CCA	Caribbean Conservation Association
CDMP	Caribbean Disaster Mitigation Project
CEHI	Caribbean Environmental Health Institute
CEP	Caribbean Environment Programme (UNEP)
CMI	Caribbean Meteorological Institute
CMO	Caribbean Meteorological Organization
EAP	Environment Action Plans
FCCC	U.N. Framework Convention on Climate Change
GCC	Global climate change
GEF	Global Environmental Facility
GLOSS	Global Observing Network
ICSU	International Council for Scientific Unions
IMA	Institute for Marine Affairs
INC/FCCC	Inter-Governmental Negotiating Committee for a FCCC
IOC	Intergovernmental Oceanographic Commission
IOCARIBE	Intergovernmental Oceanographic Commission, Sub-Commission for the Caribbean and Adjacent Regions
IDB	Inter-American Development Bank
IPCC	Intergovernmental Panel on Climate Change
NIU	National Implementation Unit
NOAA	National Oceanic and Atmospheric Administration
OAS	Organization of American States
OECS	Organization of Eastern Caribbean States
OFDA	Office of Foreign Disaster Assistance
PMC	Project Management Committee
RAC	Regional Archiving Center
RPIU	Regional Project Implementation Unit
SIDSNET	Small Island Developing States Information Network
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USAID	U.S. Agency for International Development
WMO	World Meteorological Organization of the United Nations
UWI	University of the West Indies
CMC	CARICOM Member Countries (Antigua and Barbuda, Belize, Commonwealth of Dominica, Barbados, Bahamas, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago)

REGIONAL: CARIBBEAN: ENABLING ACTIVITIES (PLANNING FOR ADAPTATION TO GLOBAL CLIMATE CHANGE)

BACKGROUND

1. The members of the Caribbean Community (CARICOM) are primarily small island states with fragile coastal ecosystems. Agriculture and tourism are their principal sources of employment and foreign exchange earnings. Coastal areas, holding the vast majority of the population and economic activity, are vital to the prosperity of these countries. Coastal areas are usually the most biologically productive areas, supporting a wealth of living marine resources and characterized by high biological diversity. In recent years, these resources have come under increasing stress: intensification of human population and activities; concentration of tourism-related infrastructure; inadequate disposal of liquid and solid wastes; decaying drainage infrastructure; uncontrolled and often ill-conceived development schemes; severe weather events which brought about record losses and a reinsurance industry crisis; and mismanagement of coral reefs, sea grass beds, mangroves and wetlands. In addition, the lack of comprehensive information systems or a coordinated institutional structure prevent an integrated management of those resources.

2. Anticipated global warming, and consequent changes in sea level, sea surface temperature, and wind and ocean currents may seriously compound these problems. Sea level rise, in particular, will likely affect freshwater supply, increase beach and coastal erosion, and aggravate the impact of tropical storms. It also threatens the disproportionate share of industrial, tourism, energy, transport, and communications infrastructure concentrated in the coastal zone. The Intergovernmental Panel on Climate Change (IPCC) has calculated first order costs for protection of Caribbean shorelines from future sea level rise --including low coasts, cities, harbors, island elevations and beach nourishment, but excluding unprotected dry lands or ecosystems that may be lost, and the impacts of saline intrusion and increased storm frequency. For Caribbean island territories, the projected cost of new construction alone would be $11.1 billion, which is well beyond the combined investment capacity of their economies. Other more cost-effective adaptation measures are therefore called for.

REGIONAL AND NATIONAL ENVIRONMENTAL INITIATIVES

3. The region has been active in addressing many of the issues brought about by the threat of global climate change (GCC). In particular: (a) all member States of CARICOM have ratified or are about to ratify the U.N. Framework Convention on Climate Change (FCCC); (b) the region has been active in the work of the Intergovernmental Panel on Climate Change (IPCC) -- especially in the Coastal Zone Management Subgroup of the Response Strategies Working Group -- and in drawing the attention of the international community to the potential adverse impacts of GCC; (c) the region's concerns related to GCC were reflected in Agenda 21 and in the Programme of Action adopted by the First U.N. Conference on the Sustainable Development of Small Island Developing States (1994); (d) the Caribbean Environment Programme (UNEP/CEP) has carried out since 1987 pioneering work on the assessment of the implications of climate change and on integrated coastal zone management in general; (e) the Sub-Commission for the Caribbean and Adjacent Regions

(IOCARIBE), a body within UNESCO's Intergovernmental Oceanographic Commission (IOC), initiated in 1991 a regional project on Global Change and Coastal Land Loss; (f) a number of projects seeking to protect the stability of coasts and beaches in different countries were undertaken since 1984, with assistance from UNESCO's Inter-regional Project on Research and Training Leading to the Integrated Management of Coastal Systems, and from the World Bank and the OAS; (g) the Caribbean Meteorological Organization (CMO), an inter-governmental body of English speaking Caribbean countries, is monitoring climate dynamics and coordinating all meteorological activities in the Region; (h) the Institute of Marine Affairs (IMA), established in 1979 in Trinidad and Tobago under the auspices of UNDP, has recently been designated regional oceanographic data center by CARICOM; and (i) the region is implementing since 1994 the Caribbean Disaster Mitigation Project (CDMP), a project funded by the USAID Office of Foreign Disaster Assistance (OFDA) and executed by the OAS, which focuses on major issues in disaster mitigation and in the disaster/development linkage in the Caribbean.

4. At the national level, most Caribbean countries have recently completed preparation of their Environment Action Plans (EAPs) with assistance from the World Bank. The EAPs highlight the need for an integrated management of coastal and marine resources. But although the countries have been taking many initiatives for a more rational management of their coastal areas, they can hardly undertake the actions and investments which relate to GCC, nor can they afford their cost without external support. There is an urgent need to: (a) incorporate global warming concerns into the development planning of coastal areas in Caribbean countries; (b) adopt concrete measures to reduce the vulnerability of these areas; and (c) apply an integrated and holistic framework for addressing the issues brought about by GCC.

PROJECT OBJECTIVES AND BENEFITS

5. The Project's overall objective is to support Caribbean countries in preparing to cope with the adverse effects of global climate change --particularly sea-level rise-- in coastal and marine areas, through vulnerability assessment, adaptation planning, and capacity building linked to adaptation planning and national communications. More specifically, the Project will assist national governments and regional institutions to: (a) strengthen the regional capability for monitoring and analyzing climate and sea-level dynamics and trends, seeking to determine the immediate and potential impacts of GCC; (b) identify areas particularly vulnerable to the adverse effects of climate change and sea-level rise; (c) develop an integrated management and planning framework for cost-effective response and adaptation to the impacts of GCC on coastal and marine areas; (d) enhance regional and national capabilities for preparing for the advent of GCC, through institutional strengthening and human resource development; (e) identify and assess policy options (protect, retreat, accommodate) and instruments (economic, legislative, and regulatory) that may help initiate the implementation of a long-term program of adaptation to GCC in vulnerable coastal areas; and (f) collect the information for preparing national communications, as required under Articles 4.1 and 12.1 of the FCCC.

6. The Project would lead to global and regional benefits. Global benefits would result from: (1) long-term protection provided by appropriate adaptation planning for coastal and marine resources

and ecosystems and international waters; (2) generation of information related to sea level, climate, vulnerability, and economic matters for worldwide use; and (3) development of vulnerability assessment technologies, policy options, and a regional approach for dealing with GCC. Regional benefits would result from the Project's contribution to: (1) strengthening a regional network of GCC-involved institutions, building the region's adaptation planning capability, and supporting GCC-related international and intergovernmental programs in the region; and (2) providing the basis for CARICOM member governments to agree on a regional strategy for dealing with the GCC threat. In addition, important economic benefits may result from the planning process initiated by the Project: (1) the sustainable growth of tourism, fisheries, and other sectors threatened by the adverse impacts of GCC; (2) avoidance of irreversible losses and costly late reactions through the adoption of timely and cost-effective interventions and responses to GCC; and (3) the use of minimum-cost economic measures (user fees, incentives, market mechanisms) in order to initiate implementation of an adaptation strategy and to obviate the need for large infrastructure investments.

PROJECT DESCRIPTION

7. The Project will follow a regional approach: it will be executed through a cooperative effort of all participating countries and through a combination of national pilot/demonstration actions and regional training and technology transfer linked to adaptation planning. This approach seeks to strengthen regional cooperation and institutions and to provide cost-effective means for adaptation planning, data collection, and sharing of information, skills, and project benefits. The Project will seek to build on existing institutions and experiences, and to liaise with other important regional initiatives and programs underway in the Caribbean. It will consist essentially of enabling activities, complemented by selective capacity-building activities, aimed at creating or strengthening endogenous conditions and capabilities necessary to prepare a long-term program for adaptation to GCC. Project execution will take four years and involve the following adaptation planning and capacity building components.

8. A. **Adaptation Planning.** This component is concerned with short-term planning of adaptation to GCC in vulnerable areas. It will focus on regional sea/climate data collection and management, impact and vulnerability studies, and assessment of policy options. Its main activities will be to: (1) establish a comprehensive Sea Level/Climate Monitoring Network for the Caribbean --through upgrading and expanding the existing tidal gauge network-- for the array of key parameters (meteorological conditions, sea level, sea surface temperature, tidal variation, coral reef health) required for assessing climate change and developing a response strategy; (2) prepare a comprehensive inventory of physical and biological resources of coastal areas and their current uses and users --through a combination of techniques, including satellite imagery and Compact Airborne Spectographic Imagery (CASI)-- for subsequent use in vulnerability assessment; (3) develop a coral reef monitoring network, in close association with the Coral Reef Initiative spearheaded by the USA, seeking to obtain appropriate information for evaluating both the impacts of large-scale temperature stress on existing coral reefs and the adaptive capacity of these reefs; (4) prepare studies for assessing both the vulnerability of selected coastal areas to sea level rise --using IPCC's common methodology-- and the impact of sea level rise and storm surge risk in those areas --using OAS's tropical storm hazard assessment model; (5) establish databases and information systems on

climate/sea-level data, impact and vulnerability assessments, and coastal management planning, for worldwide use; (6) assess the economic value of coastal natural resources and the cost of their current loss and degradation, through the construction of environmental accounts for selected coastal areas, seeking to use economic quantifications in the design of cost-effective adaptation strategies; (7) formulate a planning framework for integrated coastal and marine management, and apply it in the assessment of policy options (protection, retreat and accommodation) for implementing a long-term strategy of adaptation to GCC; and (8) review existing regulations, legislation, and economic policies, and identify minimum-cost measures (including incentive and revenue instruments) that could be immediately applied to initiate implementation of such strategy.

9. B. **Capacity Building.** This component will focus on institutional strengthening and human resource development related to adaptation planning and national communications. Capacity building is an integral part of the project concept, given the importance of strong institutions and capable staff to long term sustainability. Project activities specific to this component will be to: (1) identify, link, and strengthen the network of regional and national institutions that are to be involved in any effort to plan an adaptation strategy, particularly the institutions and organizations which will actively implement the various aspects of the Project; (2) execute a comprehensive program of human resource development for upgrading the skills of technicians and officials from participating countries in areas relevant to GCC and adaptation planning; and (3) develop an appropriate methodology and assist technicians and officials in participating national institutions to compile the necessary information required for national communications to the FCCC Conference of the Parties.

10. A background working paper, providing detailed information on project activities, expected outputs, and implementation arrangements is available from the Bank Public Information Center (PIC) and from Mr. K. Rodgers (OAS), (458-6248).

RATIONALE FOR GEF FUNDING

11. The Inter-Governmental Negotiating Committee for a Framework Convention on Climate Change (INC/FCCC) at its Tenth Session agreed that adaptation to the adverse effects of climate change will require short, medium, and long-term strategies which should be cost effective, should take into account important socioeconomic implications, and should be implemented on a stage-by-stage basis in developing countries that are Parties to the Convention. INC/FCCC further agreed that the Conference of the Parties (COP) would entrust the Global Environment Facility (GEF) to meet the agreed costs of short term (Stage I) activities required by Article 12.1 of the Convention. This would include meeting the agreed full costs of relevant adaptation activities undertaken in the context of the formulation of national communications. Such activities may include studies of the possible impacts of climate change, identification of options for implementing the adaptation provisions (especially the obligations contained in Articles 4.1(b) and 4.1(e) of the Convention) and relevant capacity building. Proposed project activities are fully consistent with this guidance from the Convention and eligible for GEF funding.

12. Beyond the issue of strict eligibility and the desirability of assisting Caribbean countries to fulfill their commitments under the FCCC, a number of factors makes GEF support to this project

desirable. The Project will: (a) promote the protection of coastal areas and international waters from the effects of both ongoing expansions of human activities and impending GCC; (b) encourage a regional cooperative effort for addressing the issues of adaptation to GCC; (c) generate sea level/climate information for worldwide use and benefit; (d) initiate a planning process for making future economic development viable in an area of the world heavily dependent on its coastal zone and seriously threatened by the prospect of sea-level rise; (e) provide an appropriate vehicle for assisting those countries of the world which, while contributing very little to global warming, are the most affected by its consequences; (f) develop new options and means for dealing with GCC; (g) apply innovative technology for the assessment of coastal vulnerability; and (h) serve as a model for other countries of the Caribbean basin and of other regions with comparable needs and means.

PARTICIPATION AND SUSTAINABILITY

13. **Participation.** At the United Nations Global Conference on the Sustainable Development of Small Island Development States (Barbados; April 1994), several Caribbean states expressed interest in preparing a regional project addressing issues related to global climate change and sustainable development. A draft proposal for submission to the GEF was reviewed at a technical meeting held in Barbados in September 1994 with participation of several countries, CARICOM, OECS and other regional agencies. The countries involved proposed that the OAS serve as executing agency in view of its expertise in coastal vulnerability assessment and integrated coastal development planning in the region. At their meeting in New York in September 1994, the Ministers of Foreign Affairs of the CARICOM approved the project concept and its submission to the GEF. The Executive Summary and the Main Document of the project were reviewed by the CARICOM Secretariat, and circulated to all CARICOM member States and the Focal Points of the GEF Caribbean Constituency.

14. CARICOM countries have been fully involved in developing the project concept during the preparation phase. It is expected that participating countries and their institutions will continue to participate actively in Project implementation and will build their own national capacity to ensure continuation after Project completion. Discussions will be deepened in the coming months with NGOs and stakeholders in tourism, fisheries, and other coastal-based activities, to ensure their participation in the assessment and design of policy options and measures affecting them. Representatives of NGOs/stakeholders will be invited to participate in the PMC to provide balanced input from all segments of civil society. The Project will seek the participation of local communities of the most vulnerable coastal areas in adaptation planning activities.

15. **Sustainability.** The Caribbean region's active involvement in GCC initiatives to date (para.3) provides a solid foundation for initiating proposed project activities. Continued country commitment to FCCC objectives and the creation of regional and national institutional capacity to plan for adaptation to climate change will be the determining factors in long-term project "success" and sustainability. Project activities and implementation arrangements will be designed to enhance the likelihood of sustainability over the long-term. Specifically, (1) the Project will not create a separate organization to plan for GCC, but rather will strengthen existing regional and government institutions; (2) the Project will support and further develop international and inter-governmental

programs and networks or organizations aimed at addressing the issues of GCC and sustainable development; (3) the development of a permanent nucleus of expertise and of a regional capability for adaptation planning will allow the countries to sustain the planning process initiated with the Project; (4) the Project will be linked to EAP activities of all participating countries and to existing National Development Plans; (5) all recurrent functions of the regional and national implementing units will be fully integrated during the course of Project execution into their "host" institutions' regular programs; and (6) cost recovery and revenue instruments (from both the public and private sectors) will be identified and put in operation for financing recurrent costs.

16. **Next Phase.** The proposed Project constitutes the first phase of a more comprehensive and long-term program of adaptation to GCC. The second phase of that program will provide further capacity building in critical technical and managerial areas for adaptation to climate change, implement the minimum-cost measures identified by the Project, prepare long-term adaptation plans within an ICZM framework, and formulate technical assistance and investment projects for financing by the Bank, the GEF, and other sources. This second phase project may be submitted at a later date to the GEF for incremental cost funding of multi-focal area activities.

LESSONS LEARNED FROM BANK/OAS EXPERIENCE

17. The management of regional projects with participation by a large number of beneficiary countries poses special challenges to the executing and implementing agencies. The Bank/OAS experience in executing regional projects shows that countries' differing priorities and capacities must be taken into account in designing individual country participation in project activities. The Project is designed to respond to this requirement with two general types of activities: (a) pilot or case studies in one or more carefully selected countries, aimed at producing information and experience of value to all beneficiaries, and (b) regional activities, like technical meetings, training workshops, capacity building, and establishment of data bases and networks, which will be open to all beneficiary countries. Important instruments to be used in Project execution are: (a) technical cooperation agreements with country governments to set the conditions and responsibilities governing country participation in the project; (b) performance contracts with consultants and non-governmental institutions to acquire technical services for the Project; and (c) cooperation agreements or memoranda of understanding with regional and multilateral institutions to establish participation of other agencies in the project.

TECHNICAL REVIEW

18. The proposed project was reviewed by a Technical Review Panel (TRP) on February 23, 1995, including a STAP technical reviewer and representatives from the US Country Studies Program. UNEP's Nairobi and Caribbean Regional Sea offices provided extensive and constructive commentary on how the proposed project could complement and build on related initiatives. The STAP technical reviewer strongly supported the project concept and proposed regional approach. He confirmed that the proposed project was fully consistent with Convention guidance that Parties cooperate in preparing for climate change impacts. In his view, the project would address the two

major factors of critical importance for assessing and adapting to climate change: the need for regional cooperation, and the fundamental requirement for environmental data on which to base analyses. Project priorities were considered appropriate, and proposed activities were found to be practical and relevant. The STAP technical reviewer concluded that the principal challenge facing the project would be to manage and review its many activities and participants and to ensure an equitable distribution of resources among participants. To address these challenges, he recommended that management responsibilities of the different participating entities be clearly defined, timetables and tasks be made explicit, and measurable outputs be agreed for evaluating performance. It was also recommended that the project emphasize networking, sharing of information, cooperation and links with other work underway. Comments made at the TRP have been fully incorporated in revising the project documentation. A more detailed summary of the STAP technical reviewer's comments and how they have been addressed in the revised project document is attached as Annex 1.

PROJECT COSTS AND FINANCING

19. Total project costs are estimated at US$ 6.5 million, net of taxes, of which about 80% represent foreign exchange costs. Adaptation planning activities are estimated to cost US$ 3.6 million (or 56% of total project costs), while capacity building activities will require an anticipated US$ 2.1 million (32% of total costs). Project coordination and management costs are estimated at US$ 0.8 million (or 12% of project costs). As the Project constitutes an "enabling activity" under Article 12 of the FCCC and will implement Stage I adaptation and related capacity building activities, as defined by the INC/FCCC at its Tenth Session, it is proposed that the agreed full costs of the Project, amounting to US$ 6.5 million, be funded by the GEF. A cost breakdown is provided as Annex 2 to this project summary. Since the Project's activities satisfy the INC/FCCC criteria for full GEF funding (see para.11), an incremental cost analysis has not been prepared.

ISSUES, ACTIONS AND RISKS

20. The following actions will be required during future project processing: (1) linking the Project to related programs in the region being executed by UNEP, UNDP, USAID, OAS, and other agencies, in order to complement and support their work and to benefit from their expertise; (2) make initial provisions for committing the involved governments to fund recurrent costs and to exempt Project's purchases from taxes; (3) defining the key indicators that will be used in monitoring and evaluating the Project; (4) reconciling operational procedures of the Bank and the OAS to minimize administrative costs; (5) establishing criteria for selecting the countries that will benefit from pilot/demonstration activities; (6) defining in more detail management responsibilities and relationships between the PMC, the RPIU, and the NIUs; and (7) identifying the institutions that will provide and receive capacity building.

21. The main risk facing the project relates to the difficulty of ensuring effective and efficient implementation in view of the multiplicity of countries and institutions involved. Assigning Project execution to the OAS tends to minimize this risk in view of OAS's considerable experience in managing regional projects in the Caribbean and other regions of the hemisphere. Another important

risk relates to existing uncertainties as to the actual degree of GCC-induced sea level rise that may be expected or planned for. The Project's generation of information on climate, sea level, vulnerability, and economic information, however, will contribute greatly to reducing such uncertainty and to rationalize future adaptation planning and the management of the GCC threat. The Project will have important positive environmental effects in the long term by: (a) promoting the protection of coastal and marine resources through appropriate adaptation planning; and (b) strengthening the regional and in-country capability to manage coastal and marine resources under the adverse conditions created by GCC.

INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

22. **Institutional Framework.** The Organization of American States (OAS) will be the Grant Recipient/Executing Agency for the Project, and will be responsible for overall project management and technical supervision. To ensure effective coordination and management of project activities at the regional level, a technical project unit will be established within one of the existing Caribbean regional institutions. This Regional Project Implementation Unit (RPIU) will have special responsibility for technical assistance and capacity building activities related to adaptation planning. Agreement will be reached on the "host" institution for the RPIU during final project preparation.

23. A Project Management Committee (PMC) will be established with representatives from CARICOM, the Region's representative on the GEF Council, the OAS, the UNEP's Caribbean Environment Programme (UNEP\CEP), the UNDP, the Centre for Environment and Development of the University of the West Indies, the regional/local NGO community; the RPIU will act as technical secretariat to the PMC. Representatives from the main affected sectors (tourism, fisheries, coastal infrastructure) will be invited to participate --or made permanent members-- as new knowledge is acquired on the extent of each sector's vulnerability to GCC. The PMC will meet at least annually to provide policy guidance, to review implementation progress and work programs, and to evaluate results.

24. Each country will be required to establish a National Implementation Unit (NIU) within the institution designated by the government, in accordance with the PMC's criteria, as a prerequisite for participating in the Project. The NIUs, working in close collaboration with the OAS/RPIU, will facilitate and coordinate project implementation at the national level. The location of the RPIU and the NIUs in existing regional and national institutions will constitute the main vehicle for strengthening those institutions and creating effective information networks. During Project execution, the recurrent functions of the RPIU/NIU's will be progressively integrated into the regular programs of their respective host institutions.

25. **Linkage with Other Programs.** The Project will seek to build on existing institutions, experiences and initiatives. It will liaise with regional intergovernmental bodies, such as the Intergovernmental Panel on Climate Change (IPCC) and with other important programs underway in the region, such as UNEP's Caribbean Environment Programme (CEP) and USAID's Coral Reef Initiative and Caribbean Disaster Mitigation Project (CDMP). The OAS/RPIU will establish exchange mechanisms (workshops, committees, meeting of experts, etc.) and sign Cooperation

Agreements or Memoranda of Understanding with multilateral and regional organizations in order to ensure their participation in Project activities. Collaboration with UNEP during the final phase of preparation and implementation will be particularly important, in view of its expertise and existing projects in the region in the areas of impact and vulnerability assessment, development of adaptation options, integrated coastal management, and establishment of monitoring networks. UNDP's participation in the PMC would facilitate coordination of capacity building activities, as necessary.

26. **Monitoring and Evaluation.** A Monitoring and Evaluation program will be carried out during Project execution in order to assess the Project's success in meeting its objectives. A set of key indicators will be used to assess the impact of the Project in the region, to evaluate cost and operation efficiency, and to facilitate the introduction of adjustments when necessary. The annual progress reports of the RPIU will include information on the performance of each Project component and each participating country against those indicators. An initial workshop, a mid-term review and a final meeting will be part of Project execution.

ANNEX A: SUMMARY OF TECHNICAL REVIEW AND OUTCOMES

REGIONAL: CARIBBEAN: ENABLING ACTIVITIES (PLANNING FOR ADAPTATION TO GLOBAL CLIMATE CHANGE)

OBSERVATIONS

1. The STAP technical reviewer evaluated the proposal as excellent. In his view, the project addresses the two major factors which are of critical importance for the effective assessment of and adaptation to climate change: the need for regional co-operation, and the fundamental requirement for environmental data on which to base analyses. He considered that the proposal addresses in a practical fashion all the requirements for parties of the FCCC to co-operate to prepare for climate change impacts, and that its priorities are well conceived.

RECOMMENDATIONS

2. The principal challenge facing this project will be to manage and review its many activities and participants, and to ensure an equitable distribution of project resources among participants. Therefore management responsibilities must be clearly defined, and the Regional Project Implementation Unit (RPIU) must be given explicit timetables and tasks. Also, the relationship between the RPIU and the National Implementation Units (NIUs) must be firmly defined, specifying accountability and measurable outputs. The reviewer suggested the following deliverables for project monitoring purposes:

- Enhancement of the present tide gauge network by *X* gauges.
- New data to GLOSS standards on sea level at these and older sites
- Fixing of 20 tide gauge bench marks in geocentric co-ordinates
- Preliminary analysis for individual mean sea levels and tides
- National commitments to continue operation of gauges for at least 20 years
- Analyses of available data on tropical storms, trends and flooding risks, as the OAS has already begun for Jamaica
- Flood risk maps for *Y* pilot areas
- Plans to extend work to other areas
- Network of named institutions and individuals capable of making regional and local assessments
- The start of a long-term regional data and analysis center

3. In order to be successful, and to maximize the demonstration value for other regions, the project must emphasize networking, sharing of information, cooperation and links with other work underway. The technical reviewer recommended that the project give greater emphasis to regional workshops in order to use existing skills fully and to build regional cooperative networks. The project should include, at a minimum, an initial, mid-term and final workshops. Specialized training can be for short durations if the right level of expertise can be build on.

Cooperative links with UNEP's on-going Regional Seas Programme should be maintained, as well as with other programs like the CARICOM reef monitoring project. The skills and experience from OAS's impact studies in Jamaica should be incorporated. Arrangements should be made for other Caribbean countries to participate in the project and share their data & experience once they have ratified the FCCC. Finally, participating governments should commit to continue the observation programs for a 20 year period, after the project officially ends.

4. The reviewer pointed out two areas where technical activities are needed:

- The project should fix each tide gauge bench mark in geocentric coordinates to distinguish vertical movements of land from sea level changes. NOAA should be invited to participate in this.
- It should include training in the use of altimeter data.

OUTCOMES OF TECHNICAL REVIEW

5. The project document now includes a detailed description of the areas in which parties to the FCCC need to co-operate in preparing for climate impacts. These include promotion and co-operation in scientific, technical, socio-economic and other research; exchange of expertise and data; and cooperation in defining a methodology for preparing national communications.

6. The Project Management Committee, which will provide project guidance and review, will include UNEP's Caribbean Environment Programme and the University of the West Indies. The latter will play a major role in the coordination and delivery of the capacity building elements of the Project, particularly the training components. To avoid duplication, project management will liaise extensively with existing institutions and programmes. All planned activities are designed to ensure that they complement rather than duplicate existing or planned initiatives.

7. The full project documentation now includes a detailed explanation of the project implementation process. Standard Technical Cooperation Agreements between the GS/OAS and agencies of its Member States will be signed. The functions and responsibilities of both the RPIU and the NIUs, and their relationships with other national regional institutions, are set out. The criteria for the establishment of the NIUs and for the selection of pilot sites have also been specified. The participatory approach, used in the conceptualization and preparation of the project, will be applied and expanded during project implementation.

8. As a result of the technical review process, an assessment of relevant institutions and legal mechanisms in the region will be undertaken. A separate section on Monitoring and Evaluation has been added, and indicators have been defined to assess success in meeting project objectives, evaluate costs and operating efficiency, and facilitate adjustments when necessary. An initial workshop, a mid-term review and a final meeting have been built into the project design. Lastly, attention will be given to reconciling operational procedures of the Bank and the OAS to minimize administrative costs.

9. The fixing of tide gauge bench mark in geocentric coordinates was incorporated into the activity dealing with the establishment of a Sea Level/Climate Monitoring Network.

Annex B: Caribbean: Planning for Adaptation to Climate Change

Estimated Costs
(US$ '000)

Activity	Level	Cost
Adaptation Planning		3,629
Development of Sea Level Network	Regional	764
Inventory of Coastal Resources	Regional	575
Coral Reef Monitoring	Pilots	300
Coastal Vulnerability and Risk Assessments	Pilots	700
Databases and Information System	Regional	300
Econ. Valuation Coastal/Marine Resources	Pilots	360
Economic/Regulatory Proposals	Pilots	300
Policy Framework for CZM Planning	Regional	330
Capacity Building for Adaptation Planning		2,071
Institutional Strengthening	Regional	926
Human Resource Development	Regional	735
Facilitation of National Communications	Regional	410
Project Management and Technical Support	Regional	800
	TOTAL	6,500

Proposal for Approval

Project Title:	**Global: Enabling Activity (CC:TRAIN Phase Two Training Programme to Support the Implementation of the UNFCCC)**
GEF Focal Area:	Climate Change
Countries Eligibility:	*Africa* : Benin (6/30/94), Chad (6/7/94), Nigeria (8/29/94) Senegal (10/17/94), *Latin America and the Caribbean* : Bolivia (10/3/94), Cuba (1/5/94), Ecuador (2/23/93), Paraguay (2/24/94), Peru (6/7/93) *Pacific* : Cooks Island (4/20/93), Fiji (2/25/93), Kiribati (2/7/95), Marshall Islands (10/8/92), Nauru (11/11/93), Samoa (11/29/94), Solomon Islands (12/28/94), Tuvalu (10/26/93), Vanuatu (3/25/93)
Total Project Costs:	US$ 3.2 million
GEF Financing:	US$ 2.7 million
Government Counterpart Financing of GEF Component:	US$ 0.5 million
Cofinancing/Parallel Financing:	In kind contribution of training materials from bilateral programme ($ 0.5 million)
Associated Project:	NA
GEF Implementing Agency:	UNDP
Executing Agency:	UNITAR
Local Counterpart Agency:	National Teams for the Implementation of the UNFCCC
Estimated Starting Date:	July 1995
Project Duration:	Three Years
GEF Preparation Costs:	NA

GLOBAL: ENABLING ACTIVITY
(CC:TRAIN PHASE TWO
TRAINING PROGRAMME TO SUPPORT THE IMPLEMENTATION OF THE UNFCCC)

BACKGROUND

1. The UN Framework Convention on Climate Change (UNFCCC) is an international agreement which seeks to achieve the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". Parties to the Convention commit to take measures to address climate change within a framework of action which include, *inter alia*, commitments to reduce GHG emissions, financial support to developing countries, and scientific and technical cooperation.

2. Responding to the requests of the INC/FCCC for support to address the implementation needs of developing countries, particularly to implement article 12, UNITAR, working with the interim secretariat of the INC/FCCC, developed a training programme to promote the implementation of the UNFCCC in 1992. The training programme, later called CC:TRAIN, was approved for special development assistance from the GEF through UNDP in 1993. In January 1994, the pilot phase of CC:TRAIN began and was implemented in three countries - Lithuania, Viet Nam, and Zimbabwe - with the following objectives:

(a) To create a package of global training and information materials on the policy aspects of climate change;
(b) To create a replicable methodology for facilitating policy dialogue on climate change issues at the national level which could lead to the formation of an institutional framework for coordinating future activities and plans; and
(c) To generate recommendations for a policy-level training and communications strategy and assist in creating linkages and synergies among on-going programmes.

Country Selection in Phase Two

3. At the ninth and tenth sessions of the INC/FCCC, the Committee expressed its interest in expanding CC:TRAIN in both scope and coverage. Between the tenth and eleventh session of the INC, requests for participation in the next phase of CC:TRAIN were received from 56 developing countries and countries with economies in transition, including a block request from the 12 developing island countries of the Pacific region.

4. In selecting the countries for phase two, extensive consultations with the secretariats of GEF, UNDP, UNEP and the bilateral programmes were undertaken to ensure cost-effectiveness, coordination, and maximum impact. The following criteria were considered in selecting the participating countries in the next phase:

(a) The country has ratified the Convention.

(b) The government is interested in participating in the programme and commits to its guidelines. In particular, it agrees to:
  (i) contribute to logistical costs and arrangements;
  (ii) designate national experts from various sectors to form a country team;
  (iii) involve a cross-section of sectors, e.g., NGOs, business community, industry;
  (iv) assist in the follow-up process by providing local resources (staff, funding, and materials) to the country team during and after the programme.

(c) The country has sufficient infrastructure/capacity to organize national workshops and meetings.

(d) The country has not been through a collaborative process of developing a comprehensive national implementation strategy.

(e) The country can work in either one of the following three official U.N. languages - English, French, or Spanish.

5. In addition, account was taken of the following: (a) that the country's development process is likely to involve a significant increase in greenhouse gas emissions and/or affect the capacity of its sinks to capture greenhouse gas emissions; or (b) that the country is especially vulnerable to the impacts of climate change and is interested in the implementation of the Convention.

6. It is proposed that the second phase of CC:TRAIN be implemented in the following countries:

- 4 Countries in the Africa Region : Benin, Chad, Senegal (Francophone); Nigeria (Anglophone)
- 5 Countries from the Latin America and Caribbean Region : Bolivia, Cuba, Ecuador, Paraguay, Peru (Hispanophone)
- 9 Countries in the Pacific Region : Cooks Island, Fiji, Kiribati, Marshall Islands, Nauru, Samoa, Solomon Islands, Tuvalu, and Vanuatu (Anglophone)

7. The 9 countries in the Pacific region will be treated as a regional group in the implementation of the project, and will be allocated the resources equal to 5 countries in the Latin America and Caribbean region.

PROJECT OBJECTIVES

8. The project will help the participating countries develop the institutional and policy framework necessary to implement the UNFCCC and to prepare national communications.

9. The proposed project has three principal objectives. First, it will enhance the capacity of each of the participating countries to implement the Convention by facilitating the establishment

of a national institution and process for the development of a strategy to implement the Convention. Second, it will enhance the capacity of four regional partner institutions to play the major role in carrying out the first objective, which includes programme delivery, and the provision of training and technical assistance. Third, it will create an informal training network to allow the sharing of training resources developed by other programmes and institutions. This network would also include the use of the CC:TRAIN package and methodology by other institutions to reach out to even more countries not covered by the proposed second phase of CC:TRAIN.

PROJECT DESCRIPTION

10. The proposed project will build the capacity of the participating countries to implement the Climate Convention. It consists of six components.

Component 1 : Establishing and training a network of regional partner institutions to support the implementation of the programme and the delivery of training and techical assistance

11. The goal of this component is to train dedicated staff of the regional partners to deliver the programme, including the provision of technical assistance and training on climate change analysis tools such as national GHG inventory, mitigation analysis, and vulnerability and adaptation assessments. The establishment of this network would ensure timely delivery of training and technical assistance as well as reduce the costs of programme delivery.

12. The main activities involved in accomplishing this goal are :

(a) The preparation of the CC:TRAIN Operational Manual based on the guidance material and experience gained in implementing the pilot phase, for use in training regional partner institutions on implementing CC:TRAIN and the dissemination of the CC:TRAIN approach to other programmes;

(b) The training of staff from the regional partners on the CC:TRAIN operational manual, the use of the CC:TRAIN Workshop Kit and Guidance Manual on Preparing National Implementation Strategies, the delivery of technical training on climate change analysis tools based on material already developed by other institutions and programmes, and course development; and

(c) The adaptation of the CC:TRAIN materials (Workshop Package on the UNFCCC and the Guidance Manual on Preparing National Implementation Strategies) into French and Spanish by the regional partners.

Component 2 : Establishing a country team and building its capacity to implement the UNFCCC

13. The goal of this component is to identify and establish politically-supported country teams in the participating countries which will be responsible for implementing the cycle of activities of

the programme and developing national implementation strategies. The main activities involved in accomplishing this goal in each country are :

(a) The training of the country team coordinator on the CC:TRAIN Operational Package and Workshop Kit;

(b) The training of the country team on the preparation of the national implementation strategy;

(c) The establishment of a country team fund to support the operation of the country team;

(d) The establishment of a training fellowship mechanism to finance the training of the country team and/or designated national experts on climate change analysis tools either through technical training workshops conducted by other programmes or through workshops organized by the regional partners using material developed by other programmes;

Component 3 : Facilitating a national policy development process

14. The goal of this component is to support the establishment of a process for the preparation of national implementation strategies which can provide the overall context for the preparation of national communications as well as identify policy areas where climate change considerations can be harmonized with national development goals in ways which promote its acceptance by a broad constituency. Its main activities, which represent the CC:TRAIN cycle of activities, will be the responsibility of the country teams and regional partners, under the overall supervision of the programme manager. Together, they will organize and undertake the following in each of the participating countries:

(a) A National Workshop on the Challenges and Opportunities of the UNFCCC - this workshop will be organized by the country team to raise the awareness of national policy-makers and decision-makers on the importance and value of implementing the UNFCCC, as well as consolidate political support for the work of the country team;

(b) Four National Consultative Meetings - these meetings will be organized by the country team with key government agencies and non-governmental sectors to review the first drafts of the national implementation strategy and generate input into and consensus on the national implementation strategy;

(c) A National Conference on the Implementation of the UNFCCC - the country team will present the national implementation strategy they have developed to senior policy-makers and decision-makers.

15. In addition, a Regional Workshop on the Implementation of the UNFCCC will be conducted in each of the three regions. These workshops will bring together country team representatives in each region to exchange national implementation strategies and explore possibilities for regional cooperation in implementing the UNFCCC. These workshops will be organized with support from the International Academy of the Environment based in Geneva.

Component 4 : Preparing the national implementation strategy

16. The goal of this component is to assist the country team in preparing a national strategy to implement the UNFCCC by providing technical assistance and seed funding for research and studies deemed necessary by the country team to formulate the national implementation strategy. The main activities involved are:

(a) The provision of technical support by the regional partners to the country teams on the preparation of national implementation strategies; and

(b) The establishment of a country team research fund to provide the seed financial resources to carry out the initial climate change analysis required to prepare a national implementation strategy (such as national GHG inventories, and vulnerability and adaptation assessments), as determined by the country team;

Component 5 : Carrying out the national implementation strategy

17. The goal of this component is to facilitate the carrying out of the national implementation strategy by promoting the institutionalization of the country team approach and the policy development process established during the programme, and to assist in identifying coordinated national projects to implement the national implementation strategy. The main activities involved in each participating country are:

(a) National Workshop on Project Identification - this workshop will use GEF/UNDP materials on project identification and development, and will help the country team and national institutions identify and formulate project proposals;

(b) Follow-up National Workshop on the Implementation of the Convention - this workshop will review the relevance of the national implementation strategy and the role of the country team, present possible projects based on the areas identified in the national implementation, and set the stage for the development of the national communication required by UNFCCC using the national implementation strategy.

Component 6 : Use of the CC:TRAIN package by global partners

18. The goal of this component is to facilitate the use of the CC:TRAIN methodology and training packages by other institutions and programmes and to leverage other funds for servicing the needs of developing countries. This component will also facilitate the sharing of training

resources among and across programmes such as the bilateral programmes, the ALGAS project, the Africa project on capacity building, the proposed training programmes of UNEP on mitigation and vulnerability analysis. The main activities involved in accomplishing these goals are :

(a) Sharing and joint improvement of the CC:TRAIN package with the various enabling projects funded by GEF through UNDP (e.g. ALGAS project, Africa Capacity Building project, etc.), bilateral programmes, and others for use in their respective programmes;

(b) Joint fund-raising with global partners such as the International Academy of the Environment for use of the CC:TRAIN methodology and package in other countries not included in the proposed second phase of CC:TRAIN.

Sequence of Activities

The proposed project envisages the following cycle of activities in each country:

1. Identification and establishment of country team
2. Training of country team coordinator
3. Planning of the country team's work
4. Country team training on preparing the NIS and climate change analysis tools
5. Organization of national workshops on the UNFCCC
6. Drafting of national implementation strategy
7. Organization of national consultative meetings
8. Finalization of national implementation strategy
9. Presentation of NIS at the national conference on implementing the UNFCCC
10. Regional exchange of national implementation strategies
11. Identification and development of national and/or regional projects
12. Evaluation

RATIONALE FOR GEF FINANCING

19. The project has been developed and structured in conformity with the guidance provided to the financial mechanism of the UNFCCC to give priority to enabling activities and the preparation of national communications. It effects a cost-effective programme to enable countries to implement the UNFCCC in a sustainable and country-driven manner. It builds on the experience and lessons learned in the pilot phase and the outputs of past and ongoing enabling projects and programmes. It presents a unique opportunity to leverage the strategy and training materials developed in the pilot phase for the benefit of an expanded group of countries at substantially lower costs - including hispanophone and francophone countries.

20. The proposed project has been requested, at all stages of its development, by developing countries and has been designed based on the experience gained in the pilot phase. The

programme is designed to maximize public involvement and to be adapted by the participating countries to their specific needs and priorities.

PROJECT SUSTAINABILITY AND PARTICIPATION

21. The success of sustaining the national mechanism and process established during the programme would depend on the positive perception of the national governments and non-governmental stakeholders of the benefits of implementing the UNFCCC. By integrating national benefits in the design and implementation of the programme and by identifying implementation responsibilities within existing national institutions, it is more probable that the participating countries will take over the mechanism and process introduced during the programme and allocate local resources to continue them. By including the non-governmental sector in the programme approach and activities, public involvement is maximized. By designing the programme to be determined in all of its aspects by country teams, it ensures that national interests are incorporated. By promoting South-South cooperation and strengthening regional institutions, the programme creates an environment for regional cooperation.

22. In addition, the training methodology and materials developed during the pilot phase and improved during the proposed phase would make the project replicable in a cost-effective manner and would allow other institutions and programmes to leverage other funds to increase the scope of its implementation. This would contribute to the timely and wide-spread delivery of enabling technical assistance to the Parties of the Convention.

LESSONS LEARNED AND TECHNICAL REVIEW

23. The design and proposed implementation scheme of CC:TRAIN Phase 2 evolved from the experience in the pilot phase and the recommendations of the UNDP evaluation and the STAP review. The following considerations, confirmed during the pilot phase, have been taken fully into account in the formulatoin of the Phase II project:

- that the Convention and the issue of climate change are not well known or understood in many countries;
- that the implementation of the Convention calls for decisions and actions involving multiple governmental and non-governmental actors;
- that the Convention requires developing country parties to build sustainable capacities to prepare national communications that involve technical and policy decisions reflecting broader national policies;
- that the Convention, its financial mechanism and other associated activities, provide opportunities for countries to respond to climate change in ways that also address national economic, social and environmental goals.

24. On the basis of these considerations, CC:TRAIN has evolved a "country team" approach which involves inviting participating countries to designate national experts from various

government agencies, industry, NGOs and the research/academic community to form a country team. The country team is charged with organizing the activities under CC:TRAIN and preparing the national implementation strategy and national communication. In turn, the country team is provided with the resources and training necessary to undertake the programme's activities and tasks. The country team approach has been shown to have the following advantages:

- it focuses the training and technical assistance effort on a well-defined group of national experts;
- it stimulates a process for inter-agency dialogue and consensus building;
- it facilitates the establishment of a participatory decision-making process among existing institutions;
- it ensures ownership of the outputs by the country and facilitates the implementation of follow-on activities.

25. The proposed implementation scheme to deliver the programme and training through regional partner institutions was recommended in the evaluation of the pilot phase and the review of the initial phase two proposal. The implementation scheme builds on the work already accomplished and planned by other programmes such as the UNEP methodological studies, the US Country Study Programme's technical training materials on climate change analysis tools. In addition, it would build capacity at the regional level, which could be used by other programmes and projects, and seize the opportunity to network various programmes that have developed and intend to develop climate change training materials and courses and to build regional capacities to deliver those materials in a cost-effective and sustainable manner.

26. *Pilot Phase Evaluation* - A mid-stream evaluation of CC:TRAIN was conducted by UNDP in October 1994 to assess the progress of the pilot phase and to provide recommendations for the next phase. The UNDP evaluation confirmed the validity of the programme's objectives and approach. In particular, the evaluation suggested that (a) the time frame of the programme be increased to at least 30 months, (b) a full-time natinal focal point be identified and made responsible for the implementation of the programme at the national level, (c) more resources be allocated to the operation of the country team, (d) the delivery and timeliness of technical assistance be improved through the involvement of regional expert institutions, and (e) the training packages should be finalized before proceeding to the next phase. These recommendations have been fully incorporated in the proposed second phase.

27. *STAP Reviews* - The STAP reviews also confirmed the project's approach and design and suggested changes which have also been integrated into this proposal.

PROJECT FINANCING AND BUDGET

28. The project would cost a total of US$ 3.2 million or an average of $228,000 per country in Africa and Latin America and $126,000 per country in the Pacific region. It is proposed that the project be funded by the GEF up to $2.7 million or $192,000 per country in Africa and Latin

America and $107,000 in the Pacific region, with the difference financed by each of the participating countries as part of their contribution to implement the programme. These contributions are estimated to amount to at least $40,000 per country in Africa and Latin America and $18,000 per country in the Pacific region. At the minimum, these contributions will cover the following: (a) staff time of members of the country team, (b) operational costs incurred by the country team, (c) logistical costs for organizing the in-country activities of the country team. The contributions would vary from country to country but can be estimated to account for between 20 to 30 percent of the total cost of programme implementation. Of the total GEF budget, 81% will be spent on developing country regions and countries.

29. The proposed GEF financing is broken down as follows:

Component 1 : Establishing Network of Regional Partners	219,000
Component 2 : Establishing and Training Country Teams	753,400
Component 3 : Facilitating a National Policy Development Process	400,000
Component 4 : Preparing a National Implementation Strategy	480,000
Component 5 : Carrying out the National Implementation Strategy	186,000
Component 6 : Use of the CC:TRAIN Package by Other Institutions	60,000
Project Implementation Costs	593,000
Net Administrative Overheads	596
TOTAL	$ 2,691,996

30. UNITAR will use its overhead to provide the full-time project manager; therefore, the net administrative overhead for the project will be insignificant.

31. Significant contributions are expected from other programmes in the form of training and technical material, which would save significant resources and time in the delivery of the programme. The UNFCCC Secretariat plans to produce a version of the CC:INFO database for the use of the GEF Secretariat in producing a programmatic framework for all GEF-supported enabling activities. CC:INFO will also produce a version of the CC:INFO database for use at the national level, which when ready, will be provided to the participating countries within the activities under component 2. In addition, technical assistance and additional resources can be expected to be leveraged by the regional partners from bilateral donors.

Issues, Actions and Risks

32. The primary risk involved in the proposed project concerns the political stability of the participating countries. Changes in government and administration may delay or derail the

efforts at policy development. This risk is mitigated by working with technical staff of key government agencies under the overall coordination of an implementing ministry and by involving the public through workshops, conferences and consultative meetings.

INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

33. The project is proposed to be executed by UNITAR. UNITAR is a training institute with considerable experience in implementing environmental training. It has developed training programmes in chemical and waste management, the application of geographical information systems to environmental and natural resource management, coastal resource management, and has been developing training programmes in cooperation with UNEP to implement the London Guidelines and Basel Convention. UNITAR will provide programme management, training expertise, inter-agency and intra-national coordination, and the administrative support to implement the programme. The programme manager will report directly to the Acting Executive Director of UNITAR and the Steering Group of the programme. UNDP will provide project oversight, substantive and administrative support from the UNDP country offices, and ensure coordination with other GEF-funded UNDP projects. UNITAR will provide programme management, administrative support and training expertise to implement the project. The programme manager of the project will report directly to the Executive Director of UNITAR and the Steering Group of the programme.

34. *Steering Group* - UNITAR will manage CC:TRAIN and seek advice from a Steering Group, comprised of the secretariats of the UNFCCC, GEF, UNDP, World Bank, UNEP and the Intergovernmental Panel on Climate Change (IPCC). The Steering Group will advise on key issues, particularly on programme development and implementation, programme evaluation and selection of priority activities within the selected countries to ensure compliance with overall guidance on enabling activities.

35. *Network of Regional and Global Partner Institutions* - A network of regional partners is proposed to be established to implement the programme and to deliver training. It is proposed to be comprised of the following and coordinated by UNITAR:

Francophone Africa:	Environnement et Développement du Tiers-Monde (ENDA), Dakar, Senegal
Anglophone Africa:	Southern Centre for Energy and the Environment (SCEE), Harare, Zimbabwe
Latin America:	Organisation Latino-Americana de Energía (OLADE), Quito, Ecuador
Pacific Region:	South Pacific Regional Environmental Programme (SPREP), Apia, Western Samoa

36. It is expected that the regional partners will attract further assistance and support from other institutions. A number of institutions such as the International Academy of the Environment (IAE) have agreed to assist in organizing the regional workshops and in jointly implementing the CC:TRAIN programme in other countries not covered by the proposed second phase. The IAE and other institutions like it will eventually form a global network of CC:TRAIN partners.

TECHNICAL REVIEW

GLOBAL: ENABLING ACTIVITY
(CC:TRAIN PHASE TWO
TRAINING PROGRAMME TO SUPPORT THE IMPLEMENTATION OF THE UNFCCC)

(Project proposal by UNITAR & UNDP to the GEF Project no. GLO/91/G31)

1. This is a very well-conceived project which appears to embody considerable thought and experience. I had to think long and hard trying to come up with serious criticisms. I present here a number of specific suggestions that may help to enhance the project further. I have focused on the structure and content of the project, rather than the financing which I am not in a good position to judge.

CONCEPTION OF THE PROJECT

2. The project addresses a clear need in a focused way, building upon and integrating experience from the pilot phase. Specifically, I like the approach of initiating with a general training and awareness-raising initiative and then focusing upon developing the institutional capabilities of a "stakeholder" team, which can both develop the expertise to analyze options and act as a bridge between the many different institutions that must be involved in any implementation.

3. I tried to contrast the approach with the way that national strategies have emerged in some developed countries. The experience has been varied, but generally has involved one or more "task forces" - eg. the business sector - in parallel with more government-directed processes which vary from being controlled and written largely by the Ministry of Environment, to being quite broad and relatively open processes with drafts open to public consultation. The national team approach suggested in CC:TRAIN seems to me good in comparison with many of these experiences, but of course a team with broad stakeholder participation and supported from abroad is unlikely to have authority over government policy (see discussions below).

4. I think the project is a bit simplistic in appearing to aim for a "national implementation strategy" as a definitive, clearly defined product accepted by all parties. Even in the most dedicated and best coordinated countries, climate policy tends to emerge more as a continually iterative process of proposals, initiatives, and seizing of opportunities provided by other events (eg. decisions to privatize power systems), guided by a general conception of goals and important elements - pushing forward where possible, revising where proposals are blocked. However, I do acknowledge that focusing upon development of "a strategy" is a useful focus that can galvanize a lot of productive activity and analysis, and publication of it can be an important landmark in the evolution of implementation. Perhaps if people see it more in this context, the experience will be both less threatening to those in a country that are very cautious about climate policy, and it will reduce the danger of the "strategy" being seen as an end point which can then, after approval at the conference, be put on a shelf to gather dust; it will invoke more attention to the follow up (see below).

5. This is partly implicit in the list of aims on page 6, but the "strategy" might be more explicitly represented as having multiple purposes: the basis for the communication to the Convention, a focus for the other activities, a springboard for future work, and first guiding text for starting the implementation process.

6. One other aspect of the conception which might be considered is the question of crossnational dissemination of ideas and experience. I am unclear how much of the follow up section 4 (p.26) is intended to be supported as an integral part of the package, but a regional or sub-regional meeting (4.3) could also be considered at a much earlier stage. This would introduce people in neighboring countries at a much earlier stage who may be facing similar problems, allowing cross-feeding of ideas between some of the most able people in each team. This would also of course incur additional costs, though there might be scope for exploring if this could also give economies (eg. of scale, in involvement of CC:TRAIN personnel in early presentations).

DEFINITION OF COMPONENTS

I have a few minor comments here.

7. Keeping training package up-to-date. Understanding of climate change, response options, technologies etc all evolve, as do the international discussions. The project proposal states (item 5) that provisions exist for improving and updating the CC:TRAIN training package without further detail. I assume that adequate mechanisms will be established for carrying this out, and for distributing updated versions to national teams. Perhaps exploration of a regular (annual or biannual) update process, and associated seminar in each country, could be built into the process; such update meetings might also serve as a focal point for the national teams to meet and review progress long after the main project has been formally completed?

8. Expected "end of Project" situation. See comments about the national strategy above. Also in the list on p.6, I doubt that a country team can really be "responsible for the implementation of the Convention"; that is formally the responsibility of the government itself. The responsibility of the country team could be further clarified in this context (obviously linked to its composition and the status of the strategy as discussed below) - but this presumably would depend in part on country specifics.

9. Composition of the national teams. This seems well conceived, with appropriate emphasis upon government and non-government stakeholders. I would supplement this with three comments.

(a) One is to underline the importance of the industry sector (whether government or not); in particular, in almost all countries I think it would be important to have someone from the power/electric sector (probably strategic planning department) and (for many countries) someone involved in agricultural / land use activities (eg. Farmer's Unions).

(b) Remember that relevant policies will often be components of other policy areas - notably energy policy and land use policy. In forming the country teams it would be useful to try and get people who may be particularly influential and/or knowledgeable

about these policy areas, and may be involved with studies on other aspects of these sectors.

(c) Third, because I see continuity as an important aspect, it is important to ensure that there are some participants who are likely to remain interested and involved in the longer term, after the formal project itself has finished. Given the tendency of both governments and industries to move people around, involving a senior figure from a respected policy or economic research institute in the national team, who can bring in younger analysts to work on specific aspects, could be a way of encouraging this.

SEQUENCES AND TIMESCALES.

10. Perhaps the thing I am most missing from this proposal is a good sense of the sequences and timescales involved. I recognize that to a significant extent climate policy is a "spiral" process, with a continuing loop of analysis leading to proposals which are then developed towards implementation, which both requires further analytic support and generates experience. Nevertheless, some things must precede others; I assume this will be built into the second part of the CC:TRAIN training package (formulation of national strategies and national guidelines) but it is not clear from the proposal.

11. For example, in addressing mitigation, the initial emphasis must be upon generating (or synthesizing) a tolerably good emissions inventory and set of rough scenarios as to how these emissions may develop, at subsector level, over subsequent decades. Only then can one have a clear picture of which subsectors really deserve analytic attention and policy effort in the development of a national strategy (which may in turn have implications for the composition of the national team). This would then need to be followed by assessments of both technical and policy options - perhaps carried out in parallel - which would need to be brought together at the sectoral and finally national level. Similarly, analysis of adaptation strategies has to be built upon some understanding of both plausible climatic changes, and demographic and land-use trends. Some of these elements may be available from other programmes (eg. CC:COPE), and the guidelines should usefully clarify this.

12. Finally in this context, the project proposal does not indicate clearly the timescale over which national strategies might be developed. Perhaps this is appropriate, since it will depend upon national capabilities and starting positions, and other factors; but an indication of whether the expected timespan is nearer 1 or 5 years would be helpful. My own guess is that a timescale of 15 to 30 months could be involved from initiation to the presentation of the strategy at a national conference, depending on national circumstances.

13. Again in the spirit of making sure that results are informed by and influence related policy areas, the timing of some aspects (eg. workshops) could be related to that of processes in related areas (eg. the climate strategy should aim feed into a Consultative Paper on energy policy).

Status of the national implementation strategy

14. More thought / clarification could be given to the status of the national team and resulting strategy. This is important because it will affect expectations for, and the freedom of, the process. If it is a very informal process with limited political status, non-governmental participants may tempted to load it as a "wish list" of possibilities, but with rather little impact. On the other hand, it can hardly be a statement of detailed government policy, which would need to be agreed at more senior levels across a range of relevant departments and would tie the timescales to official policy machinery; attempting to make it too close to government policy might also unduly cramp the analysis or risk it getting bogged down in internal political disputes.

15. Most governments have procedures for "consultative papers" of various sorts (eg. Green Papers); seeking to fit the implementation strategy process into such a structure might give it valuable political status, and ease dissemination and acceptance of the findings.

16. Another aspect of this is the relationship between implementation plans and the national report to the climate convention. Concerning inventories at least, and hopefully more broadly, presumably it would be possible to develop some aspects of national plans in accordance with internationally-accepted guidelines (insofar as they exist) for national strategies under the UNFCCC.

Relationship to other national country study efforts

17. The CC:TRAIN proposal does not clarify its relationship to other country study efforts. It seems close enough to the US-sponsored effort on climate strategies that I assume that different countries would be chosen, unless it can clearly be shown that there is value in collaborating on the same country. But there are also some bilateral efforts; presumably the existing programmes will be surveyed carefully first.

18. Also, I assume that every effort will be made to learn from and cooperate with other such programmes. Notably, it might be appropriate to have someone helping to manage the US country study programme on the advisory group of CC:TRAIN, and *vice versa*.

Links with international research on the development of climate policy

19. Finally, I believe that it would be beneficial to link the very practical focus of this project with broader research into the nature of obstacles in the implementation of climate policy. Specifically, a major research project proposal on the economic, institutional and political obstacles to implementing climate policy in developing countries (IPAGE-II) has been developed under the direction of the Dutch research institute IVM, led by Pier Vellinga, in association with a number of other relevant research centres in other countries. Assuming this project gets approval, I believe that there would be mutual benefit to arranging some kind of collaboration with the CC:TRAIN programme, perhaps in the form of involving one or more of their leading researchers on the advisory group of CC:TRAIN.

Proposal for Review

Project Title:	**Lithuania: Klaipeda Geothermal Demonstration Project**
GEF Focal Area:	Global Warming
Country Eligibility:	Lithuania ratified the IFCC on March 24, 1995 IBRD Eligible (1992 GNP/capita of $1310)
Total Project Costs:	$25.72 million
GEF Financing:	$6.9 million
Government Counterpart Financing of GEF Component:	$3.8 million
Cofinancing/ Parallel Financing:	IBRD US $4.3 million JEXIM US $8.0 million Government of Denmark US $2.6 million European Union (Phare) US $0.12 million
Associated Project:	Modification of Network Connections in Klaipeda District Heating System, World Bank, $8 million (included in Total Project Costs)
GEF Implementing Agency:	World Bank
Executing Agency:	World Bank
Local Counterpart Agency:	Ministry of Energy Lithuanian State Power System (LSPS)
Estimated Starting Date (Effectiveness):	November 9, 1995
Project Duration:	3 years
GEF Preparation Costs:	Funded by Danish Environmental Protection Agency

LITHUANIA: KLAIPEDA GEOTHERMAL DEMONSTRATION PROJECT

COUNTRY BACKGROUND

1. The Bank's overall strategy in Lithuania is to support the country's efforts to accelerate structural reforms leading to a full transition to a market-based economy and, at the same time, to support efficient investments in high priority sectors in order to facilitate a return to economic growth. The Government of Lithuania (GOL) ratified the framework Convention on Climate Change in March 1995. The recently completed Public Expenditure Review, jointly prepared by the Government of Lithuania and the Bank, highlights the need to support priority investments in energy, transport and environmental services. The proposed Project is in line with the National Energy Strategy, which supports the development of indigenous and renewable energy sources. The use of geothermal energy as a replacement for imported fossil fuels in district heating systems could ultimately replace up to 50% of current fuel consumption.

2. During 1989-1993 a Danish consultant group financed by the Danish EPA carried out a comprehensive study to determine the size and quality of geothermal resources in Latvia and Lithuania. The main reason for the study was to assess the potential of utilizing geothermal energy to replace the currently used fossil fuel for heat generation. The study also determined that the largest and most promising storage areas are located in Lithuania, where the geothermal energy can be utilized by at least 18 identified municipalities.

3. The GOL encouraged the Danish EPA to continue the study through the preparation of a feasibility study focusing on the construction of a geothermal demonstration plant in Klaipeda, which was identified as being the best location for a demonstration. The feasibility study also showed that future utilization of geothermal energy is the least cost alternative of all indigenous energy resources when compared to peat and wood chips. Furthermore, the study showed that a reduction of the temperature regime in the district heating network, through modifying the network connections, enables an increase of the extraction of energy from the geothermal water by about 25%. Compared with the current level of heat demand for Klaipeda, the proposed Project would reduce consumption of fossil fuels more than 20%, resulting in an equivalent reduction of greenhouse gases (GHG) and sulfur dioxide (SO_2) from the boiler houses in Klaipeda. The available geothermal resource in Klaipeda is estimated to have a lifetime of more than 100 years.

4. The proposed project would be the first geothermal project for supply of heat to a district heating system in the Baltic States, and it would be the first geothermal project financed by the Bank where the geothermal energy is transferred to a district heating system using heat pump technology. The best use of the geothermal low temperature water is in connection with a large energy consumer, such as district heating systems. Due to similar geological formations in the East European countries and the Former Soviet Union republics, and extensive use of district heating systems for heat supply, the future utilization of geothermal resources must be considered as very likely. Furthermore, the resources in these countries are regarded as even being of a higher quality, that is, larger resources at a higher temperature. It is foreseen that the extraction of the geothermal energy can be obtained with lower investments, as the transfer technology might be based on heat exchanger instead of heat

pump technology. In Ukraine and Georgia the temperature is high enough to produce electricity from the geothermal resource in some locations. The Project could therefore become a reference for further development of similar geothermal energy resources in the region and worldwide.

PROJECT OBJECTIVES

5. The Project would demonstrate the feasibility of developing the indigenous Lithuanian geothermal energy resources, thereby decreasing the dependence on imported fossil fuel for heating purposes, which in turn would reduce emission of greenhouse gases and SO_2. The Project also seeks to provide energy security, highlighted as a priority in the National Energy Strategy, and improve the quality, reliability, and cost efficiency of heat distribution in Klaipeda.

6. Implementation of the proposed Project would have positive environmental benefits as no emissions would be generated, and in fact, through replacing heavy fuel oil with high sulfur content (mazut at 3.5% sulfur content) with geothermal energy, project implementation would lead to annual reductions in emissions of CO_2 and SO_2 by 56,200 tons and 1,200 tons respectively, as well as reductions of NO_x and TPM. The energy savings generated as a result of the network modifications, in addition to cost savings, would generate a further nearly twofold environmental benefit in terms of reduced emissions of pollutants. The project also will result in the cost-effective utilization of an indigenous energy resource (as recommended in the Lithuanian Energy Development Program), and savings in foreign exchange used to import fossil fuel for heating purposes.

PROJECT DESCRIPTION

7. The project would consist of two complementary components to optimize use of the available geothermal energy resources in Klaipeda: (a) the Klaipeda Geothermal Demonstration Plant (US $17.6 million); and (b) modification of network connections in the Klaipeda District Heating System (US $8.0 million). The *Klaipeda Geothermal Demonstration Plant Component* (KGDPC) includes **Technical Assistance and Training** provided under a Danish grant; and implementation of a **Geothermal Demonstration Plant,** financed partly by a GEF grant, as well as loans from the Bank and JEXIM. The TA component would include design of the necessary equipment for extraction and transfer of geothermal energy for district heating systems; preparation of a detailed drilling program; management support to the PIU; training of local personnel; and supervision of project implementation. The Demonstration Plant sub-component would include establishment of production and injection wells; above ground facilities; and piping for the entire extraction and distribution system. The *Modification of Network Connections Component* (MNCC) includes the replacement of obsolete equipment, including the installation of new thermostats and circulation pumps; and the establishment of a workshop for assembly of the sub-stations, as well as technical assistance for technology transfer and supervision of equipment installation.

8. The proposed geothermal project involves the circulation of 42° C geothermal water from 1,200 meters depth via a closed geothermal loop, utilizing heat exchangers and heat pumps for the retrieval and subsequent supply of heat into the existing district heating network in Klaipeda. The geothermal water would be extracted from two production wells, and returned to the same depth with

reduced temperature The project is based on well established technology and the utilization of proven operational equipment. Geological risks are negligible.

9. Background documents include several feasibility studies financed by the Danish Government, and a detailed technical annex (white cover). These are available from ENVGC, fax: 522-3256.

IMPLEMENTATION

10. The construction of the geothermal plant is estimated to take a maximum of three years, during which time district heating network modifications, which will take two years, can be made. The Lithuanian State Power System (LSPS) will have overall supervising responsibility, while its subsidiaries, Enterprise Geoterma (EG) and Klaipeda District Heating Enterprise (KDHE), will be responsible for implementation of the two components. LSPS would be turned into a joint stock company during 1995, which also includes all the subsidiaries, such as KDHE and EG. EG was established during 1993 in order to develop existing geothermal resources. Procurement of the investment component and any TA financed by the loan will be in accordance with WB guidelines, and handled by LSPS.

11. The Project would be implemented under the general supervision of the Ministry of Energy (MOE). A Project Steering Committee (PSC), chaired by the MOE, would be established to provide overall guidance for the proposed Project and to facilitate national and local government coordination issues. Management of the proposed Project would be the responsibility of a Project Coordinator within the LSPS, who would be formally appointed by the Minister. The implementation of the KGDPC would be delegated to EG and the implementation of the MNCC would be delegated to the KDHE on behalf of the GOL. In order to effectively implement these activities, a Lithuanian staffed Project Implementation Unit (PIU) would be established within EG. EG would be provided technical assistance and training from a Danish consultant group through proposed technical assistance covered by the Danish EPA grant. This group would provide expertise to guarantee the quality control during implementation, start-up, and return. Project implementation would receive frequent supervision, including support by Bank staff from the Regional Office for the Baltic Countries in Riga and the local office in Vilnius. Performance indicators for each Project objective, to guide supervision, will be developed during appraisal.

RATIONALE FOR BANK AND GEF INVOLVEMENT

12. The involvement of the Bank/GEF in the proposed project would provide an opportunity to support Lithuanian efforts to reduce dependence on imported fossil fuels for heating, and improve national environmental quality through the reduction of greenhouse gases and SO_2. In the absence of Bank involvement, it is unlikely that the country would be able to mobilize the technical assistance and financial resources required to implement a demonstration project of this nature.

13. The project would provide a mechanism for the GEF to test the feasibility of low temperature geothermal energy as a means of reducing greenhouse gas emissions, and reduce the dependence on fossil fuels in district heating systems. With successful implementation, the Project could serve as a paradigm for other successor states to the former Soviet Union, which all have extensive district

heating systems and extensive renewable geothermal energy resources. The project is eligible for GEF funding as it conforms to the Guidance for Programming GEF Resources in 1995 in that (a) it is sustainable; (b) it is a national priority in the National Energy Strategy; (c) it provides the means of abating GHG at a cost below US $25 per ton carbon; (d) it includes an essential transfer of technology; (e) it would develop an indigenous and renewable energy resource; and (f) it would demonstrate that a further extraction of geothermal energy is achievable, when combined with other energy conserving measures in the Klaipeda district heating system.

PROJECT SUSTAINABILITY AND PARTICIPATION

14. Important elements in assuring sustainability of the KGDPC include: (a) timely implementation of an Action Plan for further development of identified geothermal resources by LSPS/EG, which would promote the establishment of an autonomous and efficient company; and (b) development of a realistic tariff structure for transferring extracted energy to district heating companies on a wholesale basis. The sustainability of the MNCC will be determined by the development of a detailed plan and time schedule for exchanging the sub-stations in the district heating system, and the agreements of all concerned housing associations to proposed network modifications.

15. The project has received broad television and print media coverage because of its innovative aspects. The Municipality of Klaipeda has been involved in the discussions and analyses undertaken thus far. It is expected that the Municipality will hold additional consultations prior to and during project appraisal with local NGOs and users of the heating system, both to determine user receptiveness to the change and as a way of explaining the new heating system.

LESSONS FROM PREVIOUS BANK INVOLVEMENT AND TECHNICAL REVIEW

16. Bank experience in the implementation of geothermal energy projects in Central and Eastern Europe is limited to ongoing work in Poland and Slovakia. In Poland, a project in Zakopane (US $130 million) has been identified, as well as two projects in Zyrardow outside Warsaw (US $60 million), and in Szczecin (US $120 million). In Slovakia, a project in Kosice (US $120 million) has been identified. All projects would use geothermal water at a temperature of 85-95°C (higher temperatures than would be used in the Klaipeda Geothermal Demonstration Project), and the heat would be transferred using existing district heating networks through the use of heat exchangers. The heat production cost based on geothermal energy is estimated to about 70% of the heat production cost based on natural gas. The Bank has recently approved a geothermal development project in the Philippines, to generate up to 700 MW of steam for Leyte-Cebu and Leyte-Luzon. (It should be noted that the proposed project will not emit air- or water-borne pollutants. The project would reduce the current emissions from heat generation plants in Klaipeda by a factor of over 20%.)

17. The project was reviewed by a geothermal engineer/energy planner from the STAP roster in February, 1995. His comments were supportive of the project, especially with regard to its potential demonstration impact in the region (see Annex 2).

PROJECT FINANCING AND BUDGET

18. The total project cost is estimated at US $25.72 million and the specific costs for each sub component are described in Annex 1. Sixty-nine percent of this is for the KGDPC (US $17.72 million), which is the component supported by GEF, and 31% for the MNCC (US $8 million). It is proposed that a Bank loan of about US $4.3 million, a loan from JEXIM of US $8 million, and grant financing of US $9.62 million from a number of donors (GEF, Denmark, and European Union [Phare]) would finance the foreign exchange requirements of the project and up to 85% of total project cost. A US $6.9 million GEF grant to cover the incremental costs is requested. The remaining 15%, US $3.8 million equivalent, would be covered by the GOL. The Government of Denmark, through the Ministry of Environment, would provide a grant of approximately US $2.6 million equivalent. The European Union would provide a grant of approximately US $0.12 million for supporting the establishment of the PIU. Other donors have declared an interest in participating in the project.

INCREMENTAL COST

19. The calculation of the incremental cost is described in Annex 2. However, to prepare this calculation the investment cost for the Geothermal Plant was reassessed to US $15.6 million, as the ICB-procedures are expected to reduce the actual cost. The baseline cost is the discounted present cost of providing 500 TJ/year heat supply over 25 years through a planned mix of heavy fuel oil and natural gas. The alternative cost is the investment cost of the GEF project plus annual operations and maintenance charges for the geothermal installation, converted to present value terms at a 10% discount rate. The difference of US $6.9 million represents the increment to be covered by GEF.

ISSUES, ACTIONS AND RISKS

20. The project would demonstrate utilization of low temperature geothermal water as an efficient energy resource for district heating through the use of established heat pump technology successfully used in several European countries (Denmark, Germany, and Sweden). The main risks underscoring the demonstration character of the project are as follows: (a) **Technical Risks**: (i) lower than expected supply of geothermal energy (amount of water and water temperature); (ii) fluctuations in the temperature of return water in the district heating system (as this water is the water to be heated by the geothermal water); (b) **Implementation Risks**: (i) a longer implementation period due to limited implementation capacity; and (ii) a limited administrative capacity in Lithuania for future development of the geothermal resources. These risks would be reduced by: (a) careful monitoring during drilling of production wells; (b) hydraulic analysis, currently under preparation, of the actual district heating system; (c) ensuring that appropriate project management arrangements are in place in a timely manner; and (d) preparing an Action Plan for development of the Enterprise Geoterma (EG). Furthermore, there is an **Economic Risk** that the price of available low priced HFO would fall to the point where its use would be competitive with geothermal resources. Given the global outlook for fuel oil prices this is unlikely. Moreover it is doubtful that the Lithuanian Ministry of Environmental Protection will continue to sanction the use of the available HFO of relatively high sulfur content. It is therefore anticipated that the cost of current fossil fuel-based production will surpass the cost of geothermal energy within a relatively short time.

othermal Demonstration ant		1996			1997			1998			1999			TOTAL				FINANCING				
		L	F	T	L	F	T	L	F	T	L	F	T	L	F	T	L	F	T	%	WB	GoI	EU-Phar	Denmark	JEXIM
Drilling Operation	ICB	0.18	0.90	1.08	0.42	0.93	1.35																	
Physical Contingencies - 5%		0 01	0 05	0 05	0 02	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	1.83	2.43						
Sub Total		0 19	0 95	1.13	0 44	0 98	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.12						
Price Contingencies %		15 00	2 00		6 00	2 50		5 00	2.70		5.00	2 50		5 00	2.60		0.63	1.92	2.55						
US$		0 03	0 02	0 05	0 10	0 04	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.06	0.19						
TOTAL		0 22	0 96	1 18	0 54	1 02	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	1.98	2.74						
Completion of Wells	ICB	0.08	0.30	0.38	0.05	0.25	0.30			0.00							0.13	0.55	0.68						
Physical Contingencies - 5%		0 00	0 02	0 02	0 00	0 01	0 02	0.00	0.00	0.00	0.00	0.00	0 00	0.00	0.00	0.00	0 01	0 03	0 03						
Sub Total		0 08	0 32	0 40	0 05	0 26	0 32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.58	0.71						
Price Contingencies %		15 00	2.00		6 00	2 50		5.00	2.70		5.00	2.50		5.00	2.60										
US$		0 01	0.01	0 02	0 01	0 01	0 02	0 00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.04						
TOTAL		0 10	0 32	0.42	0 06	0.27	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.60	0.76						
Control and Evaluation of illing Operations	SHORT LISTING		0.07	0.07		0.04	0.04										0.00	0.11	0.11						
Physical Contingencies - 5%		0 00	0 00	0 00	0 00	0 00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01						
Sub Total		0 00	0 07	0.07	0 00	0 04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12						
Price Contingencies %		15 00	2 00		6 00	2 50		5 00	2.70		5.00	2.50		5.00	2.60										
JS$		0 00	0 00	0 00	0 00	0 00	0.00	0 00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
TOTAL		0 00	0 07	0 07	0 00	0 04	0 04	0 00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12						
Building and Civil Works	ICB				0.24	0.11	0.35	0.12	0.05	0.17							0.36	0.16	0.52						
Physical Contingencies - 5%		0 00	0 00	0 00	0 01	0.01	0 02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.03						
Sub Total		0 00	0.00	0.00	0 25	0.12	0.37	0 13	0.05	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0 38	0.17	0.55						
Price Contingencies %		15 00	2.00		6 00	2 50		5.00	2.70		5.00	2.50		5.00	2.60										
JS$		0 00	0 00	0 00	0 06	0 01	0.06	0 04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.10						
TOTAL		0 00	0 00	0 00	0.31	0.12	0.43	0.16	0.06	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.18	0 65						
Connection to Boiler House d External Pipeline	ICB				0.54	0.20	0.74										0.54	0.19	0.74						
Physical Contingencies - 5%		0 00	0 00	0 00	0 03	0 01	0 04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.04						
Sub Total		0 00	0 00	0 00	0.57	0 21	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.20	0.78						
Price Contingencies %		15 00	2 00		6 00	2 50		5.00	2.70		5.00	2.50		5.00	2.60										
JS$		0 00	0.00	0 00	0.12	0 01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01	0.13						
TOTAL		0 00	0.00	0 00	0 69	0.22	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.21	0.91						
Heat Exchangers	ICB							0.02	0.35	0.37	0.02	0.32	0.34				0.04	0.67	0.71						
Physical Contingencies - 5%		0 00	0 00	0 00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.03	0.04						
Sub Total		0 00	0.00	0.00	0.00	0.00	0.00	0.02	0.37	0.39	0.02	0.34	0.36	0.00	0.00	0.00	0.04	0.70	0.75						
Price Contingencies %		15 00	2.00		6.00	2.50		5.00	2.70		5.00	2.50		5.00	2.60										
JS$		0 00	0 00	0 00	0 00	0 00	0.00	0.01	0.03	0.03	0.01	0.03	0.04	0.00	0.00	0.00	0.01	0.06	0.07						
TOTAL		0 00	0.00	0 00	0.00	0.00	0.00	0.03	0.39	0.42	0.03	0.37	0.40	0.00	0.00	0.00	0.06	0.76	0.82						
7. Absorption Heat Pumps	ICB				0.10	1.84	1.94	0.15	3.00	3.15	0.05	1.20	1.25				0.30	6.04	6.34						
Physical Contingencies - 5%		0 00	0.00	0 00	0 01	0 09	0.10	0.01	0.15	0.16	0.00	0.06	0.06	0.00	0.00	0.00	0.02	0.30	0.32						
Sub Total		0 00	0.00	0.00	0 11	1.93	2.04	0.16	3.15	3.31	0.05	1.26	1.31	0.00	0.00	0.00	0.32	6.34	6.66						
Price Contingencies %		15 00	2.00		6 00	2.50		5 00	2.70		5.00	2.50		5.00	2.60										
JS$		0 00	0 00	0 00	0.02	0.09	0 11	0.04	0.23	0.28	0.02	0.13	0.14	0.00	0.00	0.00	0.09	0.45	0.53						
TOTAL		0 00	0.00	0.00	0 13	2.02	2.15	0.20	3.38	3.58	0.07	1.39	1.46	0.00	0.00	0.00	0.40	6.79	7.19						
Filters, Valves and Internal ing	ICB				0.05	0.36	0.41	0.04	0.36	0.40							0.09	0.72	0.81						
Physical Conting 5%		0 00	0.00	0 00	0.00	0.02	0.02	0.00	0.02	0.02		0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04						
Sub Total		0 00	0 00	0.00	0.05	0.38	0.43	0.04	0.38	0.42		1.00	0.00	0.00	0.00	0.00	0.09	0.76	0.85						
Price Contingencies		15 00	2 00		6.00	2 50		5.00	2.70			.50		5.00	2.60										

US$		0.00	0.00	0.00	0.01	0.02	0.03	0.01	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.07
TOTAL		0.00	0.00	0.00	0.06	0.40	0.46	0.05	0.41	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.80	0.92
. Power, Control and Regulation	ICB				0.03	0.21	0.24	0.04	0.35	0.39	0.02	0.07	0.09				0.09	0.63	0.72
Physical Contingencies - 5%		0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04
Sub Total		0.00	0.00	0.00	0.03	0.22	0.25	0.04	0.37	0.41	0.02	0.07	0.09	0.00	0.00	0.00	0.09	0.66	0.76
Price Contingencies %		15.00	2.00		6.00	2.50		5.00	2.70		5.00	2.50		5.00	2.60				
US$		0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.03	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.03	0.04	0.07
TOTAL		0.00	0.00	0.00	0.04	0.23	0.27	0.05	0.39	0.45	0.03	0.08	0.11	0.00	0.00	0.00	0.12	0.71	0.83
10. Project Iplementation Unit	NBF	0.03	0.08	0.11	0.03	0.04	0.07	0.03		0.03	0.03		0.03				0.12	0.12	0.24
Price Contingencies %		15.00	2.00		6.00	2.50		5.00	2.70		5.00	2.50		5.00	2.60				
US$		0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.00	0.03
TOTAL		0.03	0.08	0.12	0.04	0.04	0.08	0.04	0.00	0.04	0.04	0.00	0.04	0.00	0.00	0.00	0.15	0.12	0.27
BASE COST		0.29	1.35	1.64	1.46	3.98	5.44	0.40	4.11	4.51	0.12	1.59	1.71	0.00	0.00	0.00	2.27	11.02	13.30
Physical Contingencies - 5%		0.01	0.07	0.08	0.07	0.20	0.27	0.02	0.21	0.23	0.01	0.08	0.09	0.00	0.00	0.00	0.11	0.55	0.67
Subtotal		0.30	1.42	1.72	1.53	4.18	5.71	0.42	4.32	4.74	0.13	1.67	1.80				2.38	11.58	13.97
Price Contingencies %		15.00	2.00		6.00	2.50		5.00	2.70		5.00	2.50		5.00	2.60				
US$		0.05	0.03	0.07	0.34	0.19	0.53	0.12	0.32	0.44	0.04	0.17	0.21	0.00	0.00	0.00	0.54	0.70	1.25
otal Geothermal emonstration Plant		0.35	1.45	1.80	1.87	4.37	6.24	0.54	4.63	5.17	0.17	1.84	2.01	0.00	0.00	0.00	2.93	12.29	15.21
lodification of Network onnections																			
Equipment for Network lodifications	ICB	0.15	0.25	0.40	0.40	3.20	3.60	0.25	1.95	2.20	0.10	0.74	0.84						
Physical Contingencies - 5%		0.01	0.01	0.02	0.02	0.16	0.18	0.01	0.10	0.11	0.01	0.04	0.04	0.00	0.00	0.00	0.90	6.14	7.04
Sub Total		0.16	0.26	0.42	0.42	3.36	3.78	0.26	2.05	2.31	0.11	0.78	0.88	0.00	0.00	0.00	0.05	0.31	0.35
Price Contingencies %		15.00	2.00		6.00	2.50		5.00	2.70		5.00	2.50		5.00	2.60				
US$		0.02	0.01	0.03	0.09	0.15	0.24	0.07	0.15	0.22	0.04	0.08	0.11	0.00	0.00	0.00	0.23	0.39	0.61
otal Modification of etwork connections		0.18	0.27	0.45	0.51	3.51	4.02	0.34	2.20	2.53	0.14	0.86	1.00	0.00	0.00	0.00	1.17	6.83	8.00
raining, Technical ssistance, Contract oordination & Supervision	N.B.F.	0.04	0.95	0.99	0.04	0.70	0.74	0.04	0.25	0.29	0.04	0.20	0.24						
Physical Contingencies - 5%		0.00	0.05	0.05	0.00	0.04	0.04	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.16	2.10	2.26
Sub Total		0.04	1.00	1.04	0.04	0.74	0.78	0.04	0.26	0.30	0.04	0.21	0.25	0.00	0.00	0.00	0.01	0.11	0.11
Price Contingencies %		15.00	2.00		6.00	2.50		5.00	2.70		5.00	2.50		5.00	2.60				
US$		0.01	0.02	0.03	0.01	0.03	0.04	0.01	0.02	0.03	0.01	0.02	0.04	0.00	0.00	0.00	0.04	0.09	0.14
TOTAL		0.05	1.02	1.07	0.05	0.77	0.82	0.05	0.28	0.34	0.06	0.23	0.29	0.00	0.00	0.00	0.21	2.30	2.51
OTAL PROJECT COST		0.58	2.73	3.31	2.43	8.65	11.08	0.93	7.11	8.04	0.37	2.92	3.29	0.00	0.00	0.00	4.31	21.42	25.72
otal Physical Contingencies		0.20	0.38	0.58	0.59	0.39	0.49	0.03	0.32	0.35	0.01	0.13	0.14	0.00	0.00	0.00	0.17	0.96	1.13
otal Price Contingencies		0.08	0.05	0.13	0.44	0.38	0.81	0.20	0.49	0.69	0.09	0.27	0.36	0.00	0.00	0.00	0.81	1.19	1.99
otal Contingencies		0.27	0.44	0.71	1.02	0.77	1.30	0.24	0.80	1.04	0.11	0.39	0.50	0.00	0.00	0.00	0.98	2.15	3.12
otal Base Cost		0.31	2.29	2.60	1.41	7.88	9.78	0.69	6.31	7.00	0.26	2.63	2.79	0.00	0.00	0.00	3.33	19.27	22.60

AMOUNT OF FUELS REPLACED BY GEOTHERMAL ENERGY

4. The heat demand for Klaipeda is currently 5600 Terajoules (TJ), and is expected to increase to about 7,500 TJ by the year 2000. The heat is delivered by the Klaipeda District Heating Enterprise and generated by the use of mazut (Russian heavy fuel oil with a sulfur content of 3.5%), and natural gas.

5. The geothermal demonstration plant would produce 500 TJ by extracting this energy from geothermal water by use of absorption heat pump technology. Use of electrical heat pumps is not a competitive alternative because of the high and increasing cost of electricity.

6. The extracted energy will replace an equivalent amount of energy produced from fossil fuels in boilers with an efficiency of 80%. The extracted 500 TJ corresponds to an annual reduction of 15625 tons of mazut or 18.382 million m^3 of natural gas. The current fuel mix for supplying heat is 65% mazut and 35% natural gas, which is used as the basis for calculating the amount of fuel replaced by the geothermal energy.

	Mazut	Natural gas
Demand covered by	325 TJ	175 TJ
Energy content in	40 GJ/ton	34 GJ/1000 m^3
Energy replaced at 80% efficiency	10,156 ton	6,434 M m^3

REDUCTION OF CARBON DIOXIDE EMISSIONS

7. Based on the assumption that the geothermal energy would replace either mazut or natural gas over the (25 year) lifetime of the project, the reduction in carbon dioxide would be 1.225 million tons and 1.132 million tons respectively (reduction is based on 3,136 kg CO_2/ton of mazut, and 2,463 kg CO_2/1000 m^3 of natural gas). The actual fuel mix gives a reduction of 1.196 million tons over the lifetime of the project.

INCREMENTAL COST FINANCED BY GEF

8. The investment cost for the Geothermal Demonstration Plant was **originally estimated at US $17.6 million, which is the investment used in the PID and the white-cover staff appraisal report.** This cost has recently been reassessed, and it is expected that it will be **reduced to US $15.6 million due to procurement under International Competitive Bidding (ICB) and reevaluation of the basic cost estimates.**

9. The investment will include the following sub-components:

		US $M
1)	Drilling Operations and Well Completion	3.00
2)	Control and Evaluation of Drilling Operations	0.12
3)	Building and Civil Works	0.61
4)	Connection to Boiler House and External Pipeline	0.70
5)	Absorption Heat Pumps	7.00

6)	Power Control and Regulation	0.80
7)	Project Implementation Unit	0.27
8)	Design and Technical Assistance	2.50
	TOTAL INVESTMENT COST	**15.60**

Assumptions for calculation of IRR without environmental benefits

1) Project lifetime: 25 years
2) Investment cost: US $15.6 million
3) Recurrent cost: US $0.71-0.84 million
4) Revenues are equal to projected cost of replaced fuel
5) Recurrent cost includes replacement of certain equipment, to maintain the investment in full operative capacity.

10. The IRR of the Geothermal Demonstration Plant is 4.2% based on an investment of US$ 15.6 million and a reduction of fuel use in proportion with the actual fuel mix. To achieve an IRR of 10% the investment has to be reduced to US $8.6 million. The calculations for the mentioned IRRs, based on investment cost, operational cost and benefits are described in Annex 1-2 of the detailed staff appraisal report.

11. Based on the calculations of IRR without environmental benefits, the increment necessary to make the demonstration plant viable as an investment reducing global warming from carbon dioxide, is estimated at US $6.9 million. The reduced emission of CO2 during the lifetime of the project is, as mentioned in paragraph 7, 1196 million tons. The cost-effectiveness of emissions reduction is calculated as US $5.85/ton CO2 or US $21.45/ton C.

SUSTAINABILITY

12. The future development of geothermal resources is dependent upon the possibility of implementing similar plants at a lower cost, as it cannot be expected that grant support would be available after the implementation of the demonstration plant.

13. During the preparation of the project it became clear that a reduced temperature regime in the district heating network would increase the energy extraction from the geothermal water without any increase in investment and operational costs. In order to maximize utility, the overall World Bank project includes another component which will finance the modification of network connections (sub-stations).

14. The Modification of Network Connections Component, MNCC, will finance exchange of all sub-stations in the network to a cost of US $8 million, and give an IRR of over 20%. In view of the very high IRR, it must be anticipated that these kind of measures would be implemented in all district heating systems. The resulting reduced temperature regime will enable an increased extraction of energy from the geothermal water of 24%, which means that the amount of energy in future installations will be 620 TJ instead of 500 TJ.

ANNEX 2

SUMMARY AND OUTCOMES OF TECHNICAL REVIEW

SUMMARY OF TECHNICAL COMMENTS

1. The technical reviewer was supportive of the project, calling it an "innovative and potentially very important project not only for the Government of Lithuania (GOL) but also for other governments of the Former Soviet Union" that operate energy-inefficient district heating systems relying on expensive and often imported fossil fuels. In many cases, these district heating systems are becoming virtually unusable because of fuel costs and must to be converted to indigenous fuel sources to remain operational. By converting such systems to geothermal power sources, governments would not need to make the enormous investments in district heating infrastructure that traditionally render geothermal district heating projects uneconomic under most fuel price scenarios and the most optimistic assumptions regarding the geothermal resource and well technology performance.

2. The reviewer confirmed the project to be reasonably matched in scale to the heating demands, and the geothermal resource to be recoverable at a standard depth with standard technology. The district heating system in question will require only modest infrastructural upgrading for successful conversion to the geothermal resource. The economics of the project also "seem reasonable given the potential long-term benefits to the GOL, both in terms of hard currency savings and environmental benefits". The economics, for Lithuania as well as for other nations of the Former Soviet Union, would be improved when tapping geothermal potential is coupled with energy pricing reforms. This project could spawn an infant industry in the Former Soviet Union to promote geothermal technology. Thus the demonstration value is expected to be large.

RECOMMENDATIONS

3. The reviewer did not have any specific design recommendations. Given the potential demonstration value of the project, efforts will be made to disseminate lessons learned from the project so that future geothermal initiatives can benefit fully from the Klaipeda project.

ANNEX 3

LITHUANIA
KLAIPEDA GEOTHERMAL DEMONSTRATION PROJECT

CALCULATION OF THE INCREMENTAL COST TO BE COVERED BY GEF

1. The basic methodology for estimating the incremental cost of a project is to compare the proposed project with the cost of an alternative way to produce the same amount of energy. In the early stages of preparing this project, the use of other energy resources such as peat, wood chips, coal, gas, and low sulfur oil was compared with the energy (500 TJ) produced from this geothermal model, based on the preparatory technical assistance. The result of the study was as follows:

Energy Production Alternative	Investment Cost US $M	Annual O/M Cost US $M	ERR excl. Env. Benefits
HFO (1% sulfur)	0.7	1.68-1.71	14.4
Coal	2.3	1.51-1.55	11.0
Natural Gas	0.6	1.99-2.00	<< 0
Peat	5.6	1.32-1.37	6.3
Wood Chips	7.8	2.43-2.47	<< 0
Geothermal Demo	17.0	0.64-0.78	3.4
Geothermal Subsequent	9.6	0.44-0.60	15.2

2. The purpose of the study was to assess the viability of developing geothermal resources in the region, and not to perform a detailed analysis of alternative fuels. Therefore the comparison was based on only investments in the existing boiler house (where the geothermal plant will be built) that would be needed to accommodate other types of fuel. The revenues of heat produced by the different energy sources was based on a fuel oil price of US $110/ton. The results clearly demonstrated that subsequent geothermal plants did have an advantage compared to the other alternatives examined.

3. Among the energy sources considered, only peat, wood chips and geothermal water are indigenous. Peat is not renewable, and furthermore, the sparse resources available have been allocated for the agricultural sector. The limited quantity of wood chips available in Lithuania is available mainly in the Eastern part of the country, which would result in quite high transportation costs. Furthermore, to feed the boiler in Klaipeda with wood chips to produce the 500 TJ required would result in the utilization of all Lithuanian forests for thinning operations, and this is not a sustainable option.

15. The Lithuanian Design Institute has calculated the investment cost for subsequent plants built entirely along the lines of the Lithuanian model, after having received the training included in this project, at US $9.6 million. This cost will be re-examined in the very near future. However, assuming that the investment may increase by 25% to US $12 million, the investment based on an extraction of 620 TJ is still acceptable. The IRR for investments of US $9.6 million and US $12.0 million is 13.0% and 10.2% respectively.

Proposal for Reveiw

Project Title:	**Global: Alternatives to Slash and Burn Agriculture (ASB), Phase II**
GEF Focal Area:	Climate Change
Country Eligibility/ Date of Ratification:	Indonesia 22.8.94; Cameroon 19.10.94; Brazil 28.2.94; Thailand 28.12.94; Peru 7.6.93
Total Project Costs:	$7,700,000
GEF Financing:	$3,000,000
Government Counterpart Financing of GEF Component:	$2,500,000
Cofinancing/ Parallel Financing:	$2,200,000
Associated Project:	None
GEF Implementing Agency:	UNDP
Executing Agency:	UN/OPS with ICRAF
Local Counterpart Agencies:	EMBRAPA, Brasil; AARD, Indonesia; IRA, Cameroon; INIA, Peru; MAC, Thailand and NGOs
Estimated Starting Date:	01 June, 1995
Project Duration:	12 months
GEF Preparation Costs:	None

GLOBAL: ALTERNATIVES TO SLASH AND BURN AGRICULTURE

SECTOR/BACKGROUND/CONTEXT

1. One of the major global environmental concerns is tropical deforestation. The following estimated changes have been attributed to it: (1) global warming (23% of the total carbon emissions to the atmosphere), (2) reduction of plant and animal diversity (5,800 higher plant species lost annually), and (3) watershed instability (erosion rates as high as 200t/ha/yr of soil have been measured in recently deforested lands). In addition, policies leading to declines in agricultural productivity and increased migration have resulted in exacerbated rural poverty near the forest margins of the humid tropics. Rates of deforestation have doubled over the last two decades and are likely to continue increasing as population pressures mount and development at the forest margins increases.

2. The Alternatives to Slash-and-Burn (ASB) Initiative involves interdisciplinary research and dissemination at global, regional and local levels. The mode of operation is a joint strategy by several international institutions at eight benchmark sites in partnership with NARS and NGOs. These sites were identified by the scientific community at a UNDP sponsored inaugural workshop in Rondonia,Brasil in February 1992. Participants consisted of 26 policy makers and research leaders from 8 tropical countries and representatives from 5 non- governmental organizations, 6 international research centres, 3 regional research organizations and 6 donor agencies. During the first phase, which was approved by GEF in December, 1993, activities were initiated in Brasil, Indonesia and Cameroon in 1994. This proposal is for a second one-year phase of what is essentially a long-term project.

3. Approximately two-thirds of the 15.4 million hectares of tropical forest currently being destroyed every year are the result of farmers clearing forest to open up new land for crops or pastures. The ASB initiative is based on the principle that deforestation can be reduced by eliminating the need to clear additional land through improved methods of agricultural land use. The strategy has three main parts: (1) developing and testing alternative technologies to slash-and-burn agriculture for small-scale farms on the forest margins, (2) identifying appropriate policies that provide incentives for such technologies and disincentives to further deforestation, and (3) enhancing the capacity of NARS, NGOs, decision makers and investment institutions to support sustainable alternatives to slash-and-burn agriculture. The project focuses on two main targets: (1) reclamation of already deforested and degraded lands, and (2) prevention of further deforestation.

4. To implement the project, eight international centres and programmes have joined efforts with eight national agricultural research systems as well as one international and seven local non-governmental organizations to formulate a research and development initiative that provides viable alternatives to slash-and-burn agriculture on a worldwide basis.

5. During the second phase, activities will continue to be implemented in the invited countries (Brasil,Cameroon,Indonesia) along with characterization studies to be conducted in Peru and Thailand. Training and information activities will continue to take place at all 8 sites.

PROJECT OBJECTIVES

6. The long-term goal of this project is to reduce global warming, conserve biodiversity and alleviate poverty in the tropical forest margins by promoting the development of alternatives to slash-and-burn agriculture that are ecologically sound, economically viable and culturally acceptable.

7. **Anticipated global environmental benefits in the long-term will be gained from:**

- Geo-referenced data sets within the benchmark sites on carbon dynamics parameters such as: above and below ground carbon mass, carbon pools (fractionated to account for active and labile fractions) and measurements on carbon flux (emission versus sequestration) in representative land-use practices and the forest margin;

- Global geo-referenced databases and maps quantifying current rates of deforestation, extent of yearly slash-and-burn activities and areas of major land use systems including secondary forests and bush fallows;

- Standardized procedures and methods documented in manuals for an array of actions such as: biodiversity assessment, carbon emission/carbon sequestration dynamics, organic/inorganic nutrient use and efficiency models and geo-referenced databases incorporating socioeconomic with ecological and physical parameters;

- Methods for policy research on marketing, land tenure, migration, valuation of trees and forests, evaluation of alternative institutional approaches to forest management, rehabilitation of abandoned land and fallow systems; and

- Key policy decision-makers, farmers and scientists informed about policies, investment opportunities and technologies that will lessen the deforestation caused by slash-and-burn agriculture and redress concomitant land degradation.

8. **Phase II will be a second one-year component of the project with the specific objectives of initiating work in the following areas:**

(a) Evaluate the environmental benefits, in terms of reduced carbon emissions and maintenance of biodiversity, of alternative land-uses and agricultural practices **(environmental)**;

(b) Identify, evaluate and, where necessary, modify and develop land-use systems and technologies that lead to sustainable alternatives to slash-and-burn agriculture and the reclamation of degraded lands **(technology)**;

(c) Identify, evaluate and design policies, as well as the tools and methods by which they are implemented, that will protect the environment by reducing the area deforested by the practice of slash-and-burn and promote the establishment of sustainable systems **(policy)**;

(d) Enhance the human-resource capacity for informed policy decision making and the dissemination and application of research results **(capacity building)**; and

(e) Establish viable institutional structures and mechanisms with strengthened research and implementation capacities to ensure that the long-term objectives of ASB are realized and sustained **(institutional)**.

PROJECT DESCRIPTION

9. Phase II involves the development of standardized methods, the implementation of research on 3 hypotheses and training.

10. **Development of standardized methods:** To ensure the quality of research at all the sites and the replicability of results across regions, emphasis has been placed on developing standardized research methods and guidelines for collaborators. Work in Phase II includes activities such as the development of methods for monitoring key processes and factors affecting: nutrient cycling; resource competition; carbon sequestration/emission dynamics; rapid and reliable assessment of biodiversity at the species, ecosystem and landscape levels; as well as remote-sensing methods for monitoring deforestation trends. This activity is implicit in components (a) through (d) below and therefore has no seperate budget.

11. **Three hypotheses** which relate to (a) global warming, (b) food security and human welfare and (c) biodiversity were generated to demonstrate well-defined project objectives, activities and anticipated project outputs, thereby emphasising the project's contribution to the implementation of some of the objectives of the biodiversity and climate conventions.

(a) **Global Warming Hypothesis**
Currently 1.6 G-tonnes, 23% of total global emissions of carbon, are released into the atmosphere annually through deforestation caused mainly by forms of slash-and-burn agriculture. Projected rates are 6.0 G-tonnes of carbon per year if current deforestation rates are maintained. **Agroforestry and agropastorial systems that accumulate biomass quickly and produce greater reservoirs of soil carbon will increase carbon sequestration, thereby decreasing carbon dioxide emissions.**

The focus of research will be on carbon dynamics in the major land uses encountered in the humid tropics (forests, secondary forests, agricultural land, pastures and abandoned lands). Unlike the forest belts of the high- and mid-latitude zones where soil carbon stocks are five and two times greater, respectively, than in vegetation biomass, the low-latitude forested areas have equal carbon pools in their vegetation and soils. Sustainable alternatives to slash- and-burn, therefore, need to focus on above-ground carbon pools as much as on soil carbon stocks. Major activities to be continued or initiated in Phase II are:

- Development of multistrata systems comprising a mixture of fast- and slow-growing tree species that occupy different above- and below-ground strata and incorporate a range of litter quality to enhance nutrient cycling and soil organic matter (SOM) formation (Objectives 1 and 2 - Environmental and Technology);
- Utilization of agropastoral rotational systems that increase SOM content, particularly in the subsoil, through the root systems of aluminium-tolerant species (Objectives 1 and 2 - Environmental and Technology);
- Development of short-duration fallow systems incorporating rapid biomass accumulation and enhanced nutrient-cycling capabilities (Objective 2 - Technology);
- Identification of policy incentives that are most likely to induce local people to incorporate managed fallow, multistrata and rotational agropastoral systems as standard farming practices (Objectives 3 and 4 - Policy and Capacity building);
- Quantification of the slow and passive pools of soil organic matter and its synergistic and complementary relationship with carbon, nitrogen and phosphorus under different land-use systems (Objective 2 - Technology);
- Utilization of different ground-covers on sloping lands to reduce soil erosion, especially the highly vulnerable light carbon fraction, and its effect on above- and below-ground nutrient dynamics (Objective 2 - Technology);
- Monitoring of greenhouse gas emissions from soil in alternative land-use practices in collaboration with GCTE (Objective 1 - Environmental); Policy research to better understand the relationship between land use, poverty, population growth and land tenure on rehabilitated abandoned lands (Objective 3 - Policy); and
- Development of options, in collaboration with policy-makers, on mechanisms for the implementation of policy guidelines to promote sustainable land management (Objective 5 - Institutional).

(b) Food Security - Human Welfare Hypothesis

Two-thirds of current tropical deforestation is caused by small-scale farmers practising shifting cultivation to produce food at subsistence levels. Rapid decline in the productivity of land is largely caused by soil erosion, nutrient depletion and weed invasion. **Alternative technological interventions that will maintain or enhance soil**

fertility and diminish weed invasion will prolong the productivity of recently cleared land, thereby reducing the need for further forest clearance. In addition, interventions that enable farmers to grow a wide range of products to diversify their agroecosystems' output will increase household food security, improve nutritional status and reallocate labour within the farm to more productive activities.

Under conditions of food shortage and poverty, farmers' decisions are governed more by the extent to which their basic needs for survival are met in the short run than by considerations of longer-term sustainability. Deforestation is a low cost but environmentally destructive solution to immediate food and income shortfalls. Sustainable alternatives to slash-and-burn therefore need to focus on production methods that encourage farmers to intensify and diversify land use rather than to clear the forest. Major activities in Phase II are:

- Documentation and analysis of indigenous knowledge as a basis for the development of diversified production systems that prolong productivity of recently cleared land (Objective 4 - Capacity building);
- Increased participation of farmers and local organizations/communities in the design, implementation and dissemination of improved technologies and/or other changes for sustainable land use (Objectives 4 and 5 - Capacity building and Institutional);
- Selection and introduction into existing farming systems of plant species that perform better in low-fertility soils with low nutrient availability and that are highly competitive with weeds (Objectives 1 and 2 - Environmental and Technology);
- Investigation of the benefits of combining organic and inorganic sources of nutrients to enhance soil quality and nutrient supply for maintaining higher crop yields (Objective 2 - Technology);
- Utilization of short-duration managed fallow systems within crop-production systems to depress weed invasion (Objective 2 - Technology); and
- Increase in farmer access to sustainable production technologies through incentive policies and technical assistance, (Objectives 4 and 5 - Capacity building and Institutional).

(c) Biodiversity Hypothesis

The greatest diversity of plant and animal species in the world are found in moist tropical forests. It is in this agroecological zone that unsustainable slash-and-burn agriculture is practised, causing the greatest loss of biodiversity through deforestation. **Development of sustainable alternatives to slash-and-burn consisting of the productive use of an increased number of plant species will bring benefits to farmers and society at large and at the same time reduce biodiversity loss by minimizing further deforestation.**

Many tropical agroecosystems are biologically diverse. They incorporate a range of plant species that fulfil multiple production goals. The species richness of the plant subsystem in turn encourages a higher diversity in the associated vertebrate, invertebrate and microbial species, both above and below ground. As a result, traditional shifting cultivation systems often possess a degree of biodiversity that approaches and sometimes exceeds that of the natural ecosystem from which they are derived. As agricultural intensification proceeds, diversity usually decreases. The ASB approach is to utilize multiple-species systems to achieve production goals and preserve and promote biodiversity. Major activities are:

- Case studies for developing and testing biodiversity accounting methods (Objective 1 - Environmental);
- Utilization of a wide range of plant species by incorporating them into ecologically sustainable systems such as multistrata systems, improved fallows and silvopastoral systems (Objective 2 - Technology);
- Investigation of the relationship between land use, soil biodiversity and ecosystem functions such as nutrient cycling and soil-nutrient maintenance (2 - Technology);
- Utilization of minimum disturbance techniques in forest management that enhance sustainable growth of high-value tree species (Objectives 1 and 2 - Environmental and Technology);
- Policy research on marketing of non-timber tree crops; local-market commercialization and consumer preference; and institutional arrangements that promote local processing of primary products (Objectives 3 and 5 Policy and Institutional);
- Linkages between various forms of land-tenure and land-use systems, such as usufruct rights and common property resources; and quantification of the costs and benefits of biodiversity to different groups and individuals conserving biodiversity, (Objective 3 - Policy);
- Policy research to identify the most effective and equitable policy instruments for increasing on-farm biodiversity to socially optimal levels, (Objectives 3 and 5 - Policy and Institutional);
- Analysis and support of local indigenous practices that conserve and/or enhance diversity (Objective 1 and 5 - Environmental and Institutional); and
- Investigation of the relationships between the agriculturally, "planned" diversity (e.g. of crop species) and the total biodiversity of agroecosystems (Objective 2 - Technology).

(d) Training

The training component of the ASB project is integrated with the identified research activities. The focus is on key techniques and aspects of the programme and is intended to enhance the human-resource capacity of the scientists and policy-makers from the national and local institutions participating in the ASB activities. The training workshops will involve on-the-job training and field exercises at the same time as the research.

Global/Regional Training Activities

	Activity	Expected Outputs	Responsiblilty	Target Date
1.	Sustainability Working Group Workshop	16 participants trained on methodologies for C-cycling experimentation; workshop report published.	TSBF, ICRAF	November
2.	Regional characterization and diagnosis workshop	12 participants from Brasil, Peru and Mexico trained on characterization and diagnosis methods; workshop report prepared	ICRAF, CIAT	December
3.	Policy training workshop	16 policy makers and development agents trained through discussion of field socioeconomic issues; workshop report prepared	WRI, ICRAF	October
4.	Policy sustainable land-use systems workshop	20 participants from the benchmark sites in Southeast Asia will be trained in diagnosis of farmers' problems, developing research plans for ASB; workshop report will be published	ICRAF, IRRI	November
5.	Strategy and Synthesis Working Group	20 participants trained on development of hypotheses, selection of methodology, experimental design and analysis and scientific writing	IITA, ICRAF	September

RATIONALE FOR GEF FUNDING

12. Aproximately 10 million hectares of tropical forests are cleared and burned every year contributing to 23% of the total carbon emission to the atmosphere. This project is an enabling activity to assist those key countries where tropical deforestation is recognized by their government as a major environmental concern. Phase I established the project effectively in the three initial countries. Phase II builds on this achievement.

13. The structure of the ASB project is bottom up and country driven. NARS and NGOs participation is integrated into all aspects of project design and implementation and they contribute to 32% of total project cost.

14. Since it was originally planned that Phase I would be completed at the end of 1994, project funds have almost been exhausted. The NARS and NGOs are having difficulty maintaining their

teams without complimentary project support. Phase II funding is urgently required to maintain high quality project teams and the momentum of their work which has been positively evaluated.

15. The project is innovative in that it demands an inter-institutional and inter-disciplinary approach to finding sustainable landuse solutions for small farmers living on the forest margins. GEF funding is the catalyst that binds local, national and international institutions to a common focus.

16. GEF contribution is matched 1.6 times by ASB member countries and research institutions.

SUSTAINABILITY AND PARTICIPATION

17. Co-financing from a variety of sources has been utilized by the partner institutions. Commitments have also been made in terms of their own funds, time and number of scientists actively participating in ASB at each site by each institution. It is important to note that all the personnel from NARS and NGOs are funded from their own resources. UNDP/GEF funds support only their travel and operational costs and short-term consultants where needed.

18. CIRAD (France) has become a partner by placing a CIRAD senior scientist at ICRAF's headquarters (February, 1995) in Nairobi to work on remote sensing. For Phase II, the French GEF plans to allocate FF1,000,000 for this operational support.

19. The IARCs co-financing contribution comes from a large number of sources and is equal to the contribution from UNDP/GEF to IARCs. The total amount of financing to ASB for Phase II is about US$7.7 million against the UNDP/GEF's contribution of US$3.0 million dollars.

LESSONS LEARNED AND TECHNICAL REVIEW

20. In line with the requirements of UNDP and the GEF Secretariat, Phase I of the project was subjected to an independent evaluation in January/February 1995. The Phase II proposal was also reviewed by an expert from the STAP roster. The major lessons learned from the evaluation and review are: (i) importance of searching for solutions to ASB using a 'holistic' landuse systems analysis approach; (ii) need for uniform formats for database management and progress reports; (iii) need for a data quality mechanism applied to data being generated and a peer review process by national scientific advisory teams that include IARC scientists; (vi) need to build in the Project Document measures and/or indicators of achievements (milestones) to enable monitoring of Project progress; and (v) plan for a phased in approach on incorporation of all 8 benchmark sites to minimize institutional management bottlenecks and enable the construction of a robust baseline database for each site.

PROJECT FINANCING AND BUDGET

21. The funding proposal to GEF/UNDP for US$3,000,000 in 1995 is shown in Table 1. The majority of the funds will be utilized in the benchmark sites: 76% of the total is allocated to the five sites (31% to Brazil, 20% to Indonesia, 18% to Cameroon, 3% to Peru and 4% to Thailand), and 24% for global and regional research activities, international workshops, training and dissemination. In spite of their small allocations under this project, Peru and Thailand will participate using bilateral contributions through ICRAF and IRRI or parallel contributions through NARS. The major donor for Peru is the InterAmerican Development Bank, while the major donors for Thailand are the Asian Development Bank, the Japanese Government and the Ford Foundation. **GEF funds for Peru and Thailand will only be used to initiate site characterization activities during 1995.**

Table 1. GEF Project Financing by Component (US$000s)

		Component Distribution			
ASB Partners	1985 Request	Global Warming	Food Security	Biodiversity	Training/ Equipment
IRA	200	65	70	20	45
IITA	200	65	30	85	20
EMBRAPA	200	50	80	43	27
CIFOR	100	40	0	50	10
CIAT	200	80	35	60	25
AARD	200	50	40	65	45
IRRI	150	55	50	25	20
WRI	100	10	10	10	70
TSBF	200	110	20	50	20
IFDC	100	10	75	0	15
IPPRI	200	0	90	90	20
INIA	50	0	0	0	50
MAC	50	0	0	0	50
ICRAF (research)	400	100	100	125	75
COORD + DISSEMINATION	338*	0	0	0	88
OPS OVERHEAD	312	0	0	0	0
TOTAL	3000	635	600	623	580

INCREMENTAL COSTS

22. **Baseline:** Under the baseline, this project cannot be carried out. Any agricultural research project would focus only on the national benefits of agricultural production, ignoring the environmental impact of slash-and-burn agriculture on biodiversity and as an emitter of GHG's. The

research to be carried out might be agroforestry research, but would not pay attention either to GHG's, local participation, or broad-scale networking to the same extent.

23. **GEF Alternatives:** The project proposed here is a targeted research project designed to analyse slash-and-burn agriculture with an eye towards its contribution of global GHG emissions; to verify the level of carbon sequestration in areas cultivated under tropical slash and burn agriculture; and to identify, with the participation of local farmers, agricultural practices that are at least as economically beneficial as slash and burn agriculture but which result in reduced GHG emissions. The participation of local farmers and NGO's is an essential component in achieving the project objective.

24. **System Boundary:** The system is defined to include the forest margins of the humid tropics.

25. Additional Domestic Benefits: From this project, which is a targeted research project, per se, there are no additional domestic benefits to be considered. From any follow-on investments, the project benefits should at least equal the baseline benefits.

26. **Costs:** The total costs of the project are taken to be US$7.7 million, of which US$4.7 million is considered funds which would be spent on agricultural research without the project, and US$3 million is the incremental cost.

ISSUES, ACTIONS AND RISKS

- GHG monitoring and biodiversity assessment: These are innovative tasks in agriculture research and they require new scientific approaches for implementation by NARS; the project needs to train, provide equipment and methodology for NARS to accept this technology.
- The project has included farmer participation from the characterization and diagnosis stage through installation of on-farm research as a priority. Structurally, the Local Steering Group has incorporated farmers' groups and NGOs to maintain continuous participation and increase the adoption potential.
- National decision-makers accepting new or reformulated policies; the project makes a serious effort to have policy specialists incorporated in the project and provides for their continuous input through workshops, etc.
- ASB is a global initiative involving 18 institutions comprised of international centers and programs, national research systems and NGOs; it thus requires a fully participative management structure which the project has installed through the 4 steering groups and 5 working groups.
- Multi-institutional and multi-disciplinary research; this has been fully incorporated in project goals and activities during Phase I. Technological options alone will not be sufficient, social and policy issues have to be fully integrated.
- To achieve its goals, ASB must be funded over the long term. A practical target would be a 5-year funding period with a mid-term review as recommended by the external evaluator.

INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

Steering groups

27. The ASB initiative has adopted a fully participatory mode of operation. The process for generating ideas, setting priorities and implementing activities is guided by four levels of steering group.

- **The global steering group (GSG):** comprising representatives of the ASB consortium, sets general policy guidelines. It is chaired by the Director General of ICRAF and composed of designated representatives from seventeen institutions.

- **The regional steering groups:** led by IARCs, are ecoregional to ensure regional co-ordination, setting of priorities and sharing of institutional responsibilities among the region's benchmark sites. CIAT chairs the RSG for Latin America. IRRI for Asia and IITA for West Africa.

- **The national steering groups:** chaired by the NARS Director for each country, focuses on maintaining the involvement of government officials, government research and extension institutions, local NGOs and universities. AARD chairs the NSG in Indonesia, IRA in Cameroon and EMBRAPA in Brazil.

- **The local steering groups:** chaired by the NARS-ASB representative, comprise farmer- producer organizations, NGOs, community leaders, state governments and others. This group is charged with implementing the identified and prioritized project goals at the local level and is responsible for maintaining the quality of research and execution of training and dissemination activities.

28. The structure of the steering groups combines two essential factors for the project. It provides an opportunity for the participation of all contributors to the project in the discussion leading to formulation of policy and division of responsibility. It also provides a means of "scaling-up" project activities from those of individual scientists to the policy decisions of the Global Steering Group.

29. The project coordinator, with ICRAF backstopping, has established a project monitoring and financial accounting system to enable ICRAF to manage this worldwide, multi-institutional project in accordance with accepted procedures of UNDP and GEF.

ACRONYMS

ASB	Alternatives to Slash and Burn
NARS	National Agricultural Research Systems
NGOs	Non-Governmental Organizations
GCTE	Global Change in Terrestrial Ecosystems Programme
IGBP	International Geosphere-Biosphere Programme
ICRAF	International Centre for Research in Agroforestry
CIAT	Centro Internacional de Agricultura Tropical
AARD	Agency for Agricultural Research and Development, Indonesia, Indonesia
IITA	Internationl Institute of Tropical Agriculture
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuaria, Brasil.
TSBF	Tropical Soils Biology and Fertility Programme
IRRI	International Rice Research Institute
IFDC	International Fertilizer Development Centre
IFPRI	International Food Policy Institute
CIFOR	Centre for International Forestry Research
WRI	World Resources Institute
PESACRE	Pesquisadors do Acre, Brasil
EMATER	Empressa de Assistencia Tecnica e Extensao Rural, Brasil
IPHAE	Instituto para o Homem, Agricultura e Ecologia, Brasil
FUNDEAGRO	Fundacion para el Desarrollo del Agro, Peru I
GAC	International Global Atmospheric Chemistry
START	Global Change Systems for Analysis, Research and Training
IPCC	Intergovernmental Panel on Climate Change
UNEP	United Nations Environmental Programme
IARCs	International Agricultural Research Centres
RSG	Regional Steering Group
NSG	National Steering Group
GEF	Global Environment Facility
CGIAR	Consultative Group in International Agricultural Research
INIA	Instituto Nacional de Investigacion y Agropecuaria, Peru
INIFAP	Instituto Nacional de Investigacion Forestal y Agropecuaria, Mexico
MAFF	Ministry of Agriculture, Food and Fisheries, Zambia
MAC	Ministry of Agriculture and Cooperatives, Thailand
DGIP	Division for Global and International Programmes
OPS	Office For Project Services
CASER	Centre for Agro Socioeconomic Research, Indonesia
CRIFC	Central Research Institute for Food Crops, Indonesia
UNILA	University of Lampung, Indonesia,
UNIBRAW	University of Brawijaya, Indonesia
UGM	University of Gaja Mada, Indonesia
AFRD	Agency for Forestry Research and Development, Indonesia Agricultural University of Bogor,
IPB	Indonesia
BIOTROP	Southeast Asian Regional Center for Tropical Biology
CSAR	Centre for Soil and Agroclimate Research
IRA	Institute de la Recherche Agronomique, Cameroon
INADES	L'Institut Africain pour la Developpement Economique et Social, Cameroon University of Yaounde, Cameroon

TECHNICAL REVIEW

GLOBAL: ALTERNATIVES TO SLASH AND BURN AGRICULTURE (ASB), PHASE II

1. I have been able to read in detail both the Phase I & II proposals and will restrict my comments to the technical aspects of Phase II only. I will also comment briefly on the budget and personnel aspects which are obviously crucial to the success of such a large and complex project.

(a) **Relevance to GEF**
The overall goals related to global warming, biodiversity and poverty are highly relevant to GEF's aims.

(b) **Objectives**
These are broad, covering process assessment (biophysical and socioeconomic), methodology and policy research and formulation, and various aspects of capacity building. The objectives are admirable but appear very ambitious and may not be achievable unless a long term project is envisaged. The objectives are, however, clearly defined based on the considerable experience of the main organizations.

(c) **Approach**
The approaches ar clearly defined and detailed in "Specific Research Activities". The proposed activities are technically achievable but my concern is the short time scale and great number of researchers, organizations, sites, training courses (of undefined durations), and steering and working groups.

The countries and sites proposed into Phase III seem well selected.

(d) **Background Information**
This is excellent and well documented, as would be expected from the proposers.

(e) **Funding Level**
With such a broad-objective project and with so many activities and actors, a large budget is required. In fact, the funds may be spread too thinly to achieve the near-term objectives of obtaining concrete results which may have desirable, long-term effects.

(f) **Innovation**
In my opinion a real attempt to understand and influence policy on agroforestry systems and how they interact with GEF objectives (instead of just discussing such topics) is the significant innovative aspect of the project.

(g) **Strengths/Weaknesses**

The most important strength is the collaboration of the main protagonists of the benefits of agroforestry systems, in a single project, with clear objectives.

2. The main weakness appears to be that too many activities, organizations and people are involved in the project which will thus preclude obtaining good short-term results - even though the long-term objectives could be achievable given continued funding. It may be difficult at this stage to focus down on key activities but it certainly may be worthwhile considering how best to achieve this.

30th December 1994

TECHNICAL REVIEW (PART II)

GLOBAL: ALTERNATIVES TO SLASH AND BURN AGRICULTURE (ASB), PHASE II

1. After your call of December 22nd I would like to elaborate in more detail on points 2, 3 & 7 from my original letter of December 8th 1994.

2. To start with, I should make it very clear that I am sympathetic with the aims of the project and aware of the good track record of the main organizations involved. I would very much like to see such an important project succeed in the long run, as I believe that it would have significant environmental and social advantages.

3. However, my main concern, as I wrote in my previous Review, is that the project is much too ambitious and underestimates the problems in attaining the objectives (p.2) designated in both the short term (Phase I, one year; see p.13, Annex I) and the medium term (Phase II, end of the second year; see p.14 and p.13, Annex I). Three benchmark "sites" have been started in Phase I, but in reality only one specific site (M'Balmayo, Cameroon) has been designated, while in Indonesia and Brazil large regions of entire States have been designated and "on-farm sites have been selected" (p.5). In Phase II "characterization studies will be conducted in Peru and Thailand" (p.3). Three further sites are envisaged in Phase III.

4. Herein lie my concerns. Already there are at least 10 Teams, Groups and Task Forces so far for only 3 "sites". Research methodologies are being formulated and standardized, ranging from biophysical to socio-economic work; training workshops, extension and communication is being conducted with various aims and duration (unspecified), policy makers are (rightly) being consulted and becoming involved in work and policy; etc. I find it difficult to envisage how such a structure could function effectively with the 3 sites in Phase I, let alone the 5 envisaged for Phase II. My experience with coordinating research - in 5 countries around the world over the past 16 years at a much lower degree in intensity than that proposed for ASB - is that it is extremely difficult to proceed on so many fronts while trying to maintain reasonably even quality and ensuring that as much decision-making and work as possible is locally controlled.

5. If you would like my considered opinion, I would propose that the project focus down drastically on only 3 "sites", that these are thoroughly understood (Annex I, p.11) and that the methodologies of all types for monitoring and implementing alternative technologies are extensively tested for success; specific analysis of previous attempts to modify slash and burn should be widely presented and discussed, emphasizing both physical and social aspects (Annex I, p.9). The work should also focus on and specify clearly how short and long-term benefits to local people can be optimized while ensuring optimum global benefits.

6. Training, workshops, extension and discussions are difficult to perform well and should be a specialized activity, not just an adjunct in an overstretched person's agenda. They should be well defined with clear objectives, targeted participants and follow-up. Institution and capacity-building

for the sites needs a long-term and targeted structure if it is to be successful ultimately in a global context.

7. As presented, the project proposal appears like an open-ended and very expansive long-term commitment. There are no clear bench marks for evaluating achievements after, say, years 2 and 4, both at the "site" or local scale and at the global scale. Short-term targets and medium-term objectives have been proposed for Phases I and II, but how and when these will be checked is unclear.

8. In conclusion, I very much hope that this ASB project proceeds with adequate funding for a substantial effort to practically evaluate the alternatives which can benefit local people and the global environment. However, I think a more focused effort would have a much greater chance of cost-effectively achieving the long-term aims.