

UNITED NATIONS ENVIRONMENT PROGRAMME

PROJECT PROPOSAL

SECTION 1 - PROJECT IDENTIFICATION

- 1.1 Sub-Programme PROTECTION OF THE ATMOSPHERE
- 1.2 Title of Project: ECONOMICS OF GHG LIMITATIONS - PHASE I:
ESTABLISHMENT OF A METHODOLOGICAL
FRAMEWORK FOR CLIMATE CHANGE MITIGATION
ASSESSMENT
- 1.3 Project number : GF/0103-95-02
- 1.4 Geographical Scope: 10 Global, 24 Argentina , 135 Ecuador, 381 Senegal, 520
Vietnam, Estonia, 207 Indonesia, 195 Hungary, 283
Mauritius, 36 Andean Zone, Africa 60, Asia 70, Latin
America 50, Eastern Europe 30.
- 1.5 Implementation : Supporting organization: UNEP Collaborating Centre on
Energy and Environment, Risø National Laboratory,
Denmark
- 1.6 Duration of project : 24 months
- Commencing: 1 January 1996
Completion : 30 December 1997
- 1.7 Cost of project : (Expressed in US \$)

	US\$	Total	%
GEF	3,000,000	92	
UCCEE (in kind)	270,000	8	*
TOTAL	3,270,000	100	

Signatures :

For Risø National Laboratory

For the Environment Fund

H.Bjerrum Møller, Director

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Date : _____

Date : _____

(* The contribution is provided through the UNEP Centre contract with UNEP, Danida and Risø

1.8 Project Summary

Countries that are parties to the United Nations Framework Convention on Climate Change (UNFCCC) are committed to prepare national communications containing national inventories of greenhouse gases (GHG) emissions and information on programmes on measures to mitigate and/or adapt to climate change. Common methodological frameworks in all relevant areas (impacts, inventories, abatement and mitigation analysis) are generally required in order to secure a satisfactory basis for consistent national reporting to the UNFCCC.

In the context of GEF, the need for common guidelines and best practice approaches is also emphasized in the operational criteria for enabling activities.

This project aims to assist countries and the international community with economic analysis of climate change mitigation strategies by establishing, applying and testing a consistent methodological framework.

The project activities will include:

- * establishment of a common methodological framework for calculating the cost of climate change mitigation activities at national level through testing and applying this framework in eight country studies;
- * establishment of an initial framework for integrated assessment of mitigation options and strategies at sub-regional level;
- * undertaking consistent and transparent assessments of the mitigation costs for the eight participating countries as an input to their national mitigation strategies and national reporting under the UNFCCC;
- * integration of the analyzed mitigation options with the national development priorities and identification of factors which might hinder the implementation of identified options in the participating countries;
- * establishment or enhancement of the national capacity in the participating countries to comply with the requirements of the UNFCCC, specifically the capabilities of relevant institutions to fully participate in the project activities so that they are able to undertake future mitigation assessments.

Section 2 - Background and Project contribution to Overall Sub-Programme Implementation

2.1 Background

Scientific studies conducted in recent years, particularly under the World Climate Programme (WCP) and the Intergovernmental Panel on Climate Change (IPCC), have investigated the link between greenhouse gases (GHG) and global climate change. A consensus has emerged that such emissions need to be reduced significantly worldwide in order to combat the threat of rapid and serious climatic changes. In June 1992, the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) (hereafter the "Convention") requires that concentrations of atmospheric GHG should be stabilized through a coordinated and concerted international effort.

Since the Convention entered into force on 21 March 1994, the Parties, *inter alia*, are required to report on GHG emissions and, where relevant, on mitigation plans, including assessment of full and incremental costs. The developing country Parties have three years to undertake their first national reporting. In order to meet this commitment, enabling activities and capacity building will be a priority of the GEF, the international entity entrusted to operate the financial mechanism of the UNFCCC on an interim basis.

The Convention states that Climate Change (CC) mitigation should be done in a cost effective way. This will require global coordination. It follows that there is a need for a consistent and widely accepted approach to assess the economic costs of mitigation options. These costs are important indicators for the technological and financial transfers which will have to take place, either bilaterally or multilaterally, or both, when the Convention is fully implemented. Such an approach to CC mitigation assessment may be developed and refined by applying a consistent methodological framework to coordinated country case studies on mitigation strategies and options.

The limitation of GHG emissions is a complex issue, intimately connected with economic development at national, regional and global levels. This complexity stems from the fact that key economic sectors such as energy, agriculture, industry and forestry all produce GHGs, and it will be affected directly and indirectly by any mitigation policy.

As a first attempt to address this complex issue, UNEP initiated the project "*National Greenhouse Gas Abatement Costing Studies*" in 1991, which aimed at clarifying the many approaches within economic assessment and modelling of GHG emission limitation, through practical application in specific countries. The project comprised a set of country studies based on comparable assumptions and a common analytical approach. It was coordinated by the UNEP Collaborating Centre on Energy and Environment (UCCEE) at the Risø National Laboratory (RNL), Denmark.

The first phase of the project consisted of detailed studies of the underlying issues in estimating abatement costs, including review of modelling options and existing cost estimates, and a limited set of assessments of national studies. The second phase of the project, which

was completed at the end of 1993, developed and tested a set of broad methodological guidelines for abatement costing through a series of national case studies. (Brazil, Denmark, Egypt, France, India, the Netherlands, Senegal, Thailand, Venezuela and Zimbabwe). This phase focused on CO₂ emissions from the energy sector. A more limited Phase III including studies in Venezuela and Zimbabwe in 1994, has facilitated the expansion of the methodological guidelines to better address non-energy and non-CO₂ mitigation options.

Methodological frameworks in all relevant areas (impacts, sources and sinks, abatement and mitigation analysis) are generally required in order to secure a satisfactory basis for consistent national reporting under the UNFCCC. At the first Conference of the Parties to the UNFCCC (COP I), Decision 4/CP.1 presents the first guidance to governments on the methodologies to be used for the preparation of national communications. For mitigation analysis, it was decided that the Subsidiary Body for Scientific and Technical Advice established by COP I shall review the available approaches and advise the COP on "further development, refinement, improvement and use of comparable methodologies".

The experience of the UNEP abatement costing project clearly shows that a large scale effort is required to develop and implement a comprehensive cross-sectoral methodological framework for national mitigation analysis.

The present project proposal builds on the earlier UNEP project, but will also benefit substantially from the guidance on mitigation methods prepared for the US Country Study Programme by Lawrence Berkeley Laboratory (LBL). The project uses the draft IPCC report chapters relevant for mitigation analysis from Working Group II especially "Methods for assessment of mitigation options", a chapter which, to a large extent, is based on the work of UCCEE and LBL and includes personnel from both institutions as lead authors. Similarly, from Working Group III the chapters on "Estimating the cost of mitigating GHGs" and "A review of mitigation cost studies", where, again, staff has been involved as lead authors, have been taken into account.

Although the focus of the project is on the methodological aspects, institutional capacity building is given high priority in the project case studies. Activities have been designed to interact with and contribute to enabling activities in the participating countries.

The wide selection of countries for the case studies ensure that the developed methodological framework will be generally applicable. It appears that a minimum of 8 studies will be necessary to provide sufficient coverage geographically and methodologically.

The list includes countries in Asia, Africa, Eastern Europe and Latin America, with a range of levels of economic development.

The involvement of countries will follow the guidance given by the GEF Council, and the studies are closely coordinated with the GEF financed regional country studies and other enabling activities, the PRINCE program and the relevant bilateral country study programmes, as can be seen in the attached briefs on the national projects (Annex VII).

Regional and sub-regional interaction between countries will be addressed as separate analytical activities in order to identify and assess cost-efficient regional options, such as interconnection of power systems, which may not be fully captured in the national analysis. With the GEF regional projects for Asia and Pacific and for the Mahgreb regions already active, it has been decided to focus the two regional analysis activities on the Southern African sub-region and the Andean Pact sub-region of Latin America. These two regions represent both a significant potential for collaboration and, in both cases, the regional work can benefit from national climate change studies financed by bilateral support.

Following the GEF mandate, the project targets towards developing countries and countries with economies in transition. In order to broaden the methodological scope and to provide useful inspiration to national teams, comparable studies in a few industrialized countries will be pursued in parallel. Funding for such activities would be provided directly by the countries themselves.

Links to the GEF Pilot Phase

This UNEP-GEF proposal was reviewed by the Scientific and Technical Advisory Panel (STAP) in 1994 and recommended high priority. It was envisaged then that the project should receive funding in the final stage of the pilot phase, but resources did not permit this. The proposal was therefore forwarded as part of the first work programme 1995 for the GEF Council. The project has been modified to reflect the developments in the relevant areas since 1994 and now has an even firmer methodological basis.

The cooperating organizations UCCEE and LBL have, since formulating the original proposal, expanded their activities in mitigation analysis both in terms of methodological work and practical country level implementation. These two institutions comprise the major available expertise on the subject and with LBL having been charged with supporting all the countries in the US Country Study Programme involved in mitigation analysis, the experience base has been widened considerably and firm links to the largest bilateral country study programme are in place. Similarly, UCCEE has initiated activities with the German and Danish bilateral programmes. Thus, the two institutions will be able to supplement the proposed project with parallel application of the methodology in additional countries to provide a broader basis for testing and application.

Links to the GEF financed Programme for Measuring Incremental Costs for the Environment (PRINCE) will be important in relation to the methodological work, especially in operationalizing the incremental cost concept in national mitigation analysis.

Strong links between the UCCEE, LBL and the PRINCE project already exist through mutual participation in project related workshops since the beginning of the UNEP abatement project and these have been further enhanced after the start of PRINCE as a formal programme. In 1994, a joint international conference on National Action to Mitigate Climate Change was convened in Copenhagen.

Close contacts and direct collaborative activities already exist between UCCEE, LBL and UNDP, as described in the next section.

Other Related Activities

With the international focus on climate change issues, several activities of relevance for the proposed project have been initiated or are under preparation.

In the pilot phase, GEF has approved financing of regional projects on the development of least cost GHG emission reduction plans for Africa, the Arab region and Asia, and similar national projects specifically for China and India.

The Asian Development Bank has recently completed a regional study on Climate Change in Asia and the relevant experiences will be incorporated.

Bilateral country study support programmes are undertaken by the US, Germany and the Netherlands. Other countries, such as Denmark and Sweden, provide support on a request basis without having a formalized programme. These bilateral agencies represent both important partners for the proposed project and potential users of the methodologies developed. As described earlier, LBL is the key institution responsible for mitigation activities under the US programme. UCCEE is involved in support to the German programme on specific mitigation project activities and in addition undertakes a number of national and regional activities for Danida.

Finally, a number of new GEF projects will inevitably provide collaboration possibilities and also present specific needs for methodological guidance.

UNDP, as the GEF implementing agency responsible for capacity building, is initiating a number of country level enabling activities, including support to mitigation analysis. In addition, UNDP is now implementing three regional projects for Asia, the Arab region and Africa funded under the GEF pilot phase. These activities provide additional valuable country experience to the proposed project, which, in turn, could assist the regional activities through methodological input.

The plethora of upcoming national projects illustrates the urgent need for methodological guidance, as it would be highly unproductive and undesirable if each project or country should develop its own approach.

UNEP is in close contact with UNDP on these activities and formal coordination, especially regarding the countries involved in this project and the regional activities, has been established between UNDP, UNEP and UCCEE.

The case of Argentina can be used to illustrate the coordination. Argentina has, through UNDP, been granted a broad country study project by the GEF Council while it has also stated its formal commitment to participate in this project. Coordination is here ensured at three levels:

- Implementing agencies, UNDP and UNEP have initiated formal coordination on the projects

- Government level coordination is ensured as the same institution (CONICET/SECYT) will be responsible for both projects
- Implementation level where the responsible Argentinean institution, Institute for Energy Economics (IDEE), is already collaborating with UCCEE on related project activities.

The two projects will together be able to take the mitigation analysis further towards an integrated national strategy than can either project individually.

Direct coordination of the project with other activities is therefore evident, but in addition every effort will be made within the proposed project to incorporate experiences and results from the bilateral and multilateral programmes.

With the establishment of the "informal consultative forum for the exchange of experience on climate change project development, implementation and follow-up" (CC:FORUM) by the Climate Change Secretariat, the coordination of national climate change activities has been operationalised. UNEP and UCCEE both participate in the FORUM along with the key bilateral and multilateral organisations, and at its first meeting held in November 1995 in New York, the main issues from this proposal were presented and specific coordination issues discussed.

2.2 Legislative authority

GC Decision 17/24: *Climate, B: Progress and future activities of the World Climate Impact Assessment and Response Strategies Programme*, particularly with reference to the following provisions:

"The Governing Council,

.....

2. Requests the Executive Director, within the constraints of available resources, to further develop the World Climate Impact Assessment and Response Strategies Programme and, in particular:

.....

(c): "To assist developing countries to develop and operate national climate impact assessment and response strategies programmes as part of national climate programmes and encourage their participation in the World Climate Programme through the initiation of country studies, including inventories of the sources and sinks of greenhouse gases; identification of the technology required; climate impact and response option assessments; and greenhouse abatement costing studies;

(d) To assist developing countries to build, within national climate programmes, provision for education, training and public information, with the aim of promoting endogenous capacity building".

2.3 Project contribution to overall sub-programme implementation

The project contributes to the World Climate Impact Assessment and Response Strategies Programme (WCIRP) in meeting the need for developing methodologies for addressing climate change. It also promotes capacity building through increasing institutional capacity and through training and enablement of national scientists. These issues are recommended for high priority within the WCIRP by the Scientific Advisory Body appointed by UNEP to guide the programme. The issues also meet the needs identified in the Second World Climate Conference Geneva 1990, the Intergovernmental Meeting on the World Climate Programme (1992) and the new thrusts contained in the Climate Agenda adopted in Decision GC 18/20 and by other governing bodies of ongoing actions involved in international climate programmes.

Section 3 - Needs and Results

3.1 Needs

With the entry into force of the UNFCCC, countries that are parties to the Convention are committed to prepare national communications containing national inventories of GHG emissions and information on programmes on measures to mitigate and/or adapt to climate change. Commitments also include promotion and cooperation in the areas of information exchange and research on all relevant issues, including specifically economic and social consequences of various response strategies.

As mentioned above, common methodological frameworks in all relevant areas (impacts, sources and sinks, abatement and mitigation analysis) are generally required in order to secure a satisfactory basis for consistent national reporting to the UNFCCC, and the first guidance to governments on the methodologies to be used for the preparation of national communications was provided by Decision 4/CP.1 of the COP I.

In the context of GEF, the need for common guidelines and best practice approaches is also emphasized in the operational guidance for enabling activities.

Enabling activities are defined by the COP as measures that will facilitate implementation of effective response measures in developing countries and increase their ability to fulfil the responsibilities under the Convention. Both the COP and the GEF Council have decided that enabling activities shall be a programme priority for the GEF.

Enabling activities broadly comprise planning and endogenous capacity building, reflecting the needs of developing countries and countries with economies in transition for support in the areas of institutional strengthening, training, research and education.

The need for enabling activities and specifically support for the development of national capacity and strategy in the area of CC mitigation has been expressed directly by the participating countries. So far between 60 and 70 countries have initiated national studies with bilateral or multilateral support. This magnitude of activities underscores the need for methodological guidance and commonly agreed approaches.

3.2 Results

The longer term results of the project will contribute to climate change mitigation by providing input to the process of integrating environmental and specifically climate change concerns with national and regional development priorities.

This will gradually be achieved through the short-term and more direct results of the project, which include:

- providing a methodological framework for national CC mitigation analysis and strategy development;
- contributing to the common methodological basis for national communications, as required by the UNFCCC;
- identifying cost-effective national and regional options for CC mitigation; and
- enhancing institutional capacity in the participating countries and in the participating regional "centres of excellence".

3.3 Assumptions to achieve results

Since the project is building on the experiences and results obtained by UNEP and UCCEE from the GHG abatement costing projects, the work of the IPCC Groups II and III and the bilateral country study activities especially from the largest programme by the US; there is a solid basis for assuming that the described results can be obtained.

The level of achievement on the different shorter term results, as described above, will depend on several different assumptions such as:

- progress in the negotiations of specific national commitments under the UNFCCC;
- future agreement by the COP to recommend common methods and guidelines for mitigation assessment and economic analysis;
- economic and institutional development both nationally and internationally, for example, in the energy sector where the identification and implementation of cost-effective mitigation options will be closely related to price developments on the key fossil fuels, further deregulation of national energy markets leading towards more competitive conditions; and
- ability of the participating national institutions to influence policy for the key sectors.

While the project is able to influence the latter aspect through the establishment of the appropriate national teams, the development with regard to the other assumptions are in the hands of national and intergovernmental institutions and companies. It is, however, important to stress that these assumptions mainly concern the longer term results of the

project while they will have little or no impact on the direct achievements and outputs within the project lifetime. In addition, the aim is to make the analytical framework flexible enough to assess development under different assumptions and test the sensitivity of the results against key parameters.

Section 4 - Outputs, activities, workplan and follow-up

4.1 Outputs

The project will have four principal types of output:

- (a) Operational guidelines for integrated CC mitigation analysis (implemented and tested in a broad variety of country settings);
- (b) Enhanced local capacity in government and/or relevant organizations through training and actual participation in the project activities, together with improved capacity at the regional level;
- (c) Input to the national UNFCCC communication including data base and strategy analysis for the main GHG emitting sectors; and
- (d) Establishment of key components of the first national mitigation strategy integrated with national development priorities including, as stated under (b), also the local capacity to continue the planning of additional activities. It must be emphasized that the strategy development and the implementation must be seen as a long term process where the commitments under the Convention are likely to be strengthened.

The specific deliverables of the project include:

- * A report presenting the methodological guidelines and the broader framework for national assessment of the cost of climate change mitigation activities. This report will provide an important input to a possible common structure for national reporting under the UNFCCC. This guideline report will be supported by a more detailed "handbook" containing methodological guidance papers, presentation of relevant tools, information sources, etc.
- * Country reports for the eight participating countries assessing mitigation costs for key sectors and analysis of key options including evaluation of cost-effectiveness, identifying specific policy measures, investment options and factors which may hinder their implementation. The reports will conclude with an assessment of mitigation strategies including:
 - construction of reference and mitigation scenarios;
 - calculation of mitigation costs at sector level;
 - analysis of cost-effectiveness for key options;
 - assessment of macro-level impacts;
 - analysis of implementation aspects and barriers;

- assessment of other environmental effects; and
 - analysis of possible policy tools and measures.
- * Country reports will include an extensive description of the methods used and the assumptions and data will be formulated in a uniform structure and reviewed by the project team and international experts.
 - * Two Regional reports which will contain an assessment of specific regional mitigation options and costs, identifying specific policy measures that could be undertaken jointly; investment opportunities and financing; and factors which may hinder the implementation of regional collaboration.
 - * Proceedings from project workshops.
 - * A final overall report, summarizing the country studies in a comparative analysis framework and identifying lessons learned from applying the methodological framework.
 - * Trained personnel (3-5 per country) in the use of the methodological framework and enhanced institutional capacities in the participating countries.
 - * Discussion papers covering some of the key methodological issues that require a specific development and testing effort. This will include a review of the approaches used by other recent CC mitigation activities and relevant sector studies e.g. by the development banks.
 - * Presentations at international conferences and, if appropriate, COP sessions.
 - * Input to GEF enabling activities, including, for example, ALGAS (Asian Least-cost Greenhouse Abatement Strategy), CC:Train, and bilateral country study support programmes.

4.2 Activities

The project activities can be divided into five distinct but closely interlinked and interdependent activities:

1. Preparatory activities for national and regional studies
2. Guideline and methodology development
3. National mitigation studies, technical assistance and interaction between teams
4. Regional mitigation studies; and
5. Information dissemination and international collaboration.

1. *Preparatory activities for national and regional studies*

These activities have been undertaken by the UCCEE since the GEF Council approval of the project until the submission for approval by UNEP.

Activities have included:

- (a) Preparation of country studies

A total of 8 countries were selected for participation, distributed between the four "developing regions": Africa, Asia, Latin America and Eastern Europe. The criteria for the selection include:

- Extent of coverage of main emitting sectors and gases, regionally and globally.
- Availability of initial country level GHG emission assessments.
- Different economic development levels and industrial structures.
- Relationships to other country studies and avoidance of overlap and duplication of efforts.
- Political and institutional ability to participate fully and contribute to the project process.

Establishment of country teams and official confirmation by the national institutions responsible for climate change matters have been obtained and is attached as Annex VI.

Missions have been undertaken by UCCEE staff to all participating countries: Argentina, Ecuador, Estonia, Hungary, Indonesia, Mauritius, Senegal and Vietnam.

For each country, a framework project description has been established describing the activities, institutional set-up, coordination with other activities and the general budget. The individual detailed workplans, time schedules and budgets will be established after the first project workshop has been convened and these will form the basis for the contracts to be signed between UCCEE and the designated national project coordination institution.

The national mitigation studies will be the responsibility of the designated national institutions, but they will be supported by technical assistance provided by UCCEE, LBL or another relevant institution. A strong national involvement in the studies is crucial and this will ensure that the analysis is firmly rooted in official economic planning activities, as well as establishing local expertise and consensus on the methodology.

(b) Preparation of regional studies

The eight country studies will be supplemented by two analytical activities at sub-regional level undertaken by regional "centres of excellence" in collaboration with UCCEE and, if relevant, supported by selected institutions. The regional analysis activities will include specific regional mitigation assessment for the power sector and broader studies of possible regional and sub-regional cooperation in energy markets, trade, transport, etc.

Regional implementation is mentioned specifically in the Convention, but, so far, very limited analytical work has been undertaken at this level. Through two studies, the project will establish an initial framework for the analysis and identify key possibilities and constraints. The regional focus will be further enhanced through the regional workshops. While the main focus of these regional workshops will be on exchange of national experiences, the regional level analysis will provide an important supplement.

The project was originally conceived to have regional activities in all the four regions where national studies have been established, but in the GEF priority setting process the funding for this component was reduced to two regions. Taking into consideration other existing regional GEF climate change activities, such as ALGAS (Asian Least-cost Greenhouse Abatement Strategy) and the Arab Mahgreb capacity building project, it was decided to focus on Sub-Saharan Africa and Latin America. The realistic level of collaboration for specific mitigation activities will, however, rarely be at the level of full regions, but rather for more coherent sub-regions with a tradition of economic and/or technical collaboration.

Based on these considerations, the SADC (Southern African Development Community) and the Andean Pact sub-regions were identified as appropriate for the two regional case studies. For both areas, there are existing political and institutional set-ups for collaboration and there is clearly identified potential for joint mitigation activities, for example, in power supply. In addition, the regional work will be able, in both cases, to benefit from existing mitigation activities in most of the member countries.

Regional “centres of excellence”, based on their track record and recommendations from national institutions, have been identified for the implementation of the two studies.

For the SADC region, the study will be a joint activity between the Southern Centre for Energy and Environment in Zimbabwe and the Centre for Energy, Environment, Science and Technology in Tanzania. For the Andean region, the study will be coordinated by the Latin American Energy Organization located in Ecuador and technical support will be provided by the Bariloche Foundation from Argentina.

2. *Guideline and methodology development*

The methodological framework for mitigation assessment will be based on the existing UCCEE and LBL mitigation guidance documents and the draft reports from UNEP/WMO IPCC Working Groups II and III (see Annex VI). In the preparatory process, two meetings have been held with UCCEE and LBL staff to identify the key areas for further development and to discuss the structure of the framework manual. It is aimed to have the first draft of the framework ready for the first project workshop (see workplan).

As noted under Outputs in Section 4.1, the guideline report will, throughout the project period, be supplemented by a handbook with more detailed methodological guidance papers, presentation of relevant analysis tools, information sources, key assumptions, reporting formats, etc.

Development and refinement of both the framework and the supporting material will take place as an iterative process throughout the project.

From experience, it is clear that several areas of mitigation analysis will require further development, testing and application especially in a developing country context. In particular, the following five areas require special mention:

- integration of mitigation analysis in the broader national economic development strategy, including evaluation of secondary environmental and equity effects, etc.;
- construction of baselines and GHG mitigation cost curves with the inclusion of several GHG, and treatment of dynamic relationships between emission reduction targets, different options, etc.;
- assessment of implementation issues and transaction costs to overcome institutional barriers to the implementation of mitigation measures;
- assessment of cost-effectiveness of key identified programmes and individual projects;
- methods for simplified assessment of macro level impacts of CC mitigation programmes in developing and transitional countries.

The three project workshops, bringing together all the country teams and project

participants, will be used to enhance the methodological framework and serve as a forum for exchange of application experience. These workshops will be convened, early, midway and late in the project (see Figure 2).

As part of the common methodological guidance, the following issues will be discussed at the first workshop in order to reach agreement on realistic common assumptions and analysis formats:

- specification of time horizon for studies, covering the short term and the long term;
- assumptions on global and regional economic and technological development, including international market conditions, fuel prices, etc.;
- criteria for construction of national baseline and mitigation scenarios;
- definition of cost concepts to be reported relating to mitigation options, sectoral economic assessment, macroeconomic impact and joint products.

Discussion with country teams and regional study coordinators on requirements for supplementary information, training, institutional backup, methodological guidance, etc. will also take place at the workshop in order to identify the needs for technical assistance. Agreement on the detailed project schedule for the individual countries will be finalized at this stage.

The aim is, to the extent possible, to involve individual members of different national teams in the development of specific methodological issues of particular relevance for their national analyses. In addition, provisions are made in the budget to engage individual experts or institutions to develop specific methodological components for areas not covered by the expertise at UCCEE and LBL.

Comparative assessment of the strengths and limitations of selected technical and economic models for national climate change mitigation analysis, relating to the most important emitting sectors will be undertaken based on the national experiences. One output of that analysis will be an overview of energy sector, forestry and agriculture models describing relevance and levels of detail in relation to national GHG costing analysis, concluding with further recommendations for model development.

Finally, UCCEE and LBL will undertake a review and critical comparison of national cost estimates in order to expand the understanding of the national differences and enhance the individual national analysis through identification of gaps and by facilitating cross country learning.

3. National mitigation studies, technical assistance and interaction between teams

Endorsed national project framework descriptions have been established for all eight countries outlining the general activities, institutional set-up, links to other related national

activities, etc. As noted earlier, the detailed focus of the individual national activities will be elaborated at the first workshop based on an assessment of the coverage of other activities and the national priorities in terms of sectoral focus, cross sectoral assessments, macroeconomic analysis, etc.

As described in the country projects, the mitigation study will take into account existing or planned national environmental policies. National priorities in terms of local, regional and global environmental issues and steps taken or planned to address them. The workplan will build on prior and ongoing assistance for Climate Change studies, key sectoral projects, and the institutional arrangements for the study will reflect the existing institutional structures for environmental policy development, especially for climate change where such bodies have been established. (See Annex VII for country briefs).

The general framework for the national studies include activities in the following areas:

- construction of baseline and mitigation scenarios for relevant sectors;
- calculation of mitigation costs at sector level;
- assessment of cost-effectiveness of key options;
- assessment of macro-level impacts;
- assessment of joint products e.g. other environmental impacts;
- examination of implementation possibilities; and
- integration of mitigation options in economic development planning.

Awareness raising workshops at policy level and capacity building in the involved institutions will be key elements of the national studies. Capacity building in the national institutions will be a key activity under the project, while broader awareness building activities will draw on the experience of the UNFCCC Secretariat and UNITAR, and utilize the CC:TRAIN and CC:INFO programmes. Technical training will take place either in participating institutes or in regional centres on the basis of identified needs, examples of the different components are listed below:

Training activities are a significant component of this project at all levels, as described above. The training element of the project comprises three kinds of inputs: technical experts and consultants, in-service training, and national, regional and international workshops. The personnel inputs for training will include technical experts in climate change, climate change mitigation, energy and forestry, the UNFCCC, etc.

Technical and Economic Training

Extensive support by technical and economic experts will be provided to the countries during the project to strengthen the national capacity for CC mitigation studies and analyses, e.g. specifically to train the participating national governmental and non-governmental organizations in the key methodological areas of the climate change mitigation guidelines. In addition, provisions are made for one or two key experts from each of the national teams to work at UCCEE or LBL for an extended period.

In-Service Training

In-service training will include participation of the nominated governmental and non-governmental representatives in the specific project workshops (national, regional and project team), as well as other national and international meetings.

The project itself will include:

- *National Workshops:* Awareness raising workshops at policy level will draw on the experience of the UNFCCC Secretariat and UNITAR and utilize the CC:TRAIN and CC:INFO programmes. Support and facilitation will be provided by UCCEE and LBL.
- *Project Team Workshops:* Three project workshops bringing together all country teams and project participants. The workshops will be used to enhance the methodological framework and serve as forum for exchange of application experience. These workshops will be convened early, midway and late in the project.
- *Regional workshops:* These will be organized for countries in Africa, Asia, Latin America and for countries with economies in transition. They will serve as a forum for presentation of the preliminary results and experiences of the national studies, their relevance and replicability in the region and the methodological framework. Participants from other countries will also be requested to contribute, and the two sub-regional activities will be presented at the relevant workshops.

4. Regional mitigation studies

In order to test the concept of regional mitigation assessment and implementation, two sub-regional analysis activities of joint mitigation options and strategies will be undertaken. As mentioned in Section 4.2 (b), the Southern African Development Community and the Andean pact sub-regions have been selected based on the described criteria.

This regional-level analysis will include aspects like:

- identification of regional cooperation possibilities: electricity trade, fuel markets, infrastructure developments, general trade and transport options, etc.;
- analysis of specific regional mitigation options in the power sector;
- identification of institutional cooperation barriers and policy and training requirements;
- critical discussion of overall project assumptions applicability on the regional level;
- assessment of the possibilities for application of the methodological framework in other countries of the region;

Regional workshops will be held in all four regions, as described above.

For the SADC region, an overview of the regional mitigation issues has been prepared by the selected institutions, SCEE (Southern Centre for Energy and Environment) and CEEST (Centre for Energy, Environment, Science and Technology), under the first phase of a Danida sponsored capacity building project for three countries in the region (Botswana, Tanzania and Zambia). Danish support will be sought for continuing the project in parallel with the regional component of this project. It is envisaged that a national mitigation study will be initiated in South Africa with bilateral support, possibly from Germany and the US. Both these activities will provide input to the regional analysis and contribute to the regional workshop.

For the Andean Pact region, a key analytical component will be the assessment of mitigation options in the electricity sector by OLADE (Organization Latino Americana de Energia), building on an earlier activity undertaken in collaboration with the PRINCE programme under the GEF Secretariat.

5. Information dissemination and international collaboration

Since the key role of the project is to develop an acceptable common approach for national mitigation analysis and communication under the UNFCCC, it is important that the results and experiences from this project are communicated widely both during and after the project.

With the close involvement of UNEP and the supporting organizations in the multilateral enabling and capacity building activities and bilateral country support programmes, it will be possible to disseminate interim and final reports, guidance papers, etc. quickly and directly to the relevant target audience.

UNEP and UCCEE participate in the informal consultative forum on experience with climate change project development, implementation and follow-up ("CC:FORUM") convened by the Convention Secretariat. This forum will also provide an important channel for communicating the developed guidance material and experiences from the national and regional projects.

Guidelines and experiences will also be presented at relevant international and intergovernmental fora, as appropriate.

Electronic communication will be utilised fully both to facilitate information exchange between the project teams and to present the results and guidance to other interested users. UCCEE already has a World Wide Web based presentation of its activities and this will be further expanded.

Close contact will be maintained directly with the other GEF partners during the project implementation, both formally through the project advisory committee (see Section 5.1 below) and informally through regular contacts and coordination with key staff members of the GEF Secretariat, UNDP and the WB. Similarly, the links with other bilateral and

multilateral programmes have been described earlier along with the CC:FORUM.

Finally UCCEE and LBL, as two of the main institutions involved in CC mitigation enabling activities, will be able to directly disseminate and apply the results of the project in other countries. In fact, it will be the aim to have other countries participate in the project team workshops to the extent that their workplans and budgets make this relevant and possible.

4.3 Workplan and timetable

The project is divided into five work components, consistent with the activities described above. The relationship between the components is shown in Figure 1 and the tentative timetable for formally implementing the project is shown in Figure 2.

4.3.1 Preparatory activities for national and regional studies

Carried out before formal start of the project.

4.3.2 Guideline and methodology development

This activity will be carried out throughout the entire project culminating in the writing of a final description of the methodological issues for inclusion in the final report (see Annex VI). The activity will comprise, *inter alia*, the following components, which will be operated in parallel throughout the project producing output when appropriate:

- a) preparation of methodological handbook/sheets on specific issues;
- b) evaluation and development of analysis tools;
- c) interaction with country study and regional teams;
- d) production of methodological discussion papers.

Workshops

A. Project team workshops

Three Project Workshops will be held early, midway and at the end of the project. Exact timing for these workshops will be decided later. Minimum participation in the Project Workshops will be country study coordinators and UCCEE and LBL project teams. They will take place at Riso National Laboratory, Denmark, unless otherwise decided, and will be of the duration of between two and four days. They may be held in conjunction with more technical sessions for project team personnel.

Project Workshop 1

Purpose: To introduce teams to the methodological framework, discuss and agree on individual detailed objectives and timetable of country studies, discuss project related

technical matters. Establish information links between teams.

Project Workshop 2

Purpose: To present and discuss work carried out by country teams at mid-project stage, primarily related to the national baseline. Draft Interim Report on project to be presented and discussed. Methodological issues will be presented by the project teams and discussed. Plans and timetable for remaining half of the project to be discussed and agreed.

Project Workshop 3.

Purpose: To present and discuss individual country reports, present and discuss Final Report Draft and evaluate the experiences in accordance with the methodological guidelines.

National workshops

These will be held in each of the participating countries at two stages during the period of the project.

National Workshop 1: immediately following the Project Workshop 1. **Purpose:** To discuss in details issues, methodology and work schedule specific to the country. **Participants:** country study coordinator, country team, UCCEE/LBL responsible staff, representatives from country ministries or steering committee.

National Workshop 2: immediately prior to Project Workshop 3, after preparation of draft Country Report. **Purpose:** To finalize the Country Report.

Regional workshops

Regional Workshops or Conferences will be held in all four regions: Africa, Asia, Latin America and Eastern Europe. They will be scheduled after Project Team Workshop 3. The Workshops will comprise presentation/discussion of the methodology and the completed country studies associated with the respective regions, as well as the results of the sub-regional studies where relevant. They will be sufficiently broad in scope to allow discussion of parallel activities carried out in other projects, with a view to synthesizing all relevant experience.

4.3.3 National mitigation studies

The country studies will follow the procedure set out in detail in the methodological framework document to be supplied at the start of the project and discussed at the first Project Workshop. The recommended general approach will be to first define the National Baseline. This will be followed by the analysis and quantification of factors involved in GHG mitigation and the establishment of integrated mitigation scenarios, followed by assessment of macroeconomic and other impacts of their implementation.

The components of the studies are described below: In general national teams are recommended to follow the sequence given. These components, to the extent possible, will be carried out in parallel.

- a) establishment of national baseline scenario;
- b) screening of mitigation options;
- c) assessment of financial cost at project (option) level;
- d) assessment of financial cost at sector level;
- e) assessment of joint environmental products;
- f) evaluation of implementation barriers;
- g) construction of integrated mitigation scenarios;
- h) assessment of macroeconomic, social and developmental impacts.

Training

Formal and informal training will be carried throughout the period of the project in parallel and in conjunction with other activities.

4.3.5 Regional studies

The two (sub-)regional studies (SADC and the Andean Pact) will be carried out in parallel with the national studies. Preparatory meetings, identifying issues and detailed schedules, will be held with involved parties shortly after the project commences. The regional activities will comprise description of regional mitigation issues, as far as possible in quantitative terms, followed by identification of possible regional policies for addressing these issues. Results of the regional studies will be published in separate Regional Reports and presented at the relevant Regional Workshops.

4.4 Budget

(See attached budget in Annex I).

Costs of professional staff as quoted in the budget are based on standard RNL salary levels. In addition, it is accepted that RNL shall include a service charge to cover other costs incurred by RNL. This budget format is similar to the UNEP Collaborating Centre projects Phases I, II and III and to those used in RNL agreements with other UN agencies, CEC, and Danida. The expenses covered by the service charge are for the following items: secretarial assistance, general administration, office premises, heating and lighting, canteen and guest house, reproduction services, library, central electronics and electrical services, central computer services, laundry, non-nuclear waste treatment plant, service and maintenance, a conventional safety including fire and medical, and site security.

Price level: Professional staff costs are calculated on the basis of average RNL salaries for 1995 - 97. An exchange rate of 1 US\$ = 5.50 DKr has been used as a basis for budget calculations.

In addition to the funds provided by the GEF, the UCCEE will make an in kind contribution of approx. one man-year per year through its tripartite agreement between UNEP, the Danish International Development Agency (Danida) and Risø National Laboratory. This is reflected in the total cost of the project on the front page of the document, but not in the budget and accounting sections, as this would lead to "double counting" since the resources are already allocated in another UNEP project.

4.5 Cash Advance Requirements

An initial cash advance will be made by UNEP to RNL, which will open an account for this purpose, and assign a certifying officer, after signature of this project document by all parties. The first advance will be based on expenditures expected to be incurred by RNL during the first three months from the UNEP administered funds. Subsequent advances are to be made quarterly, subject to:

(i) Confirmation by RNL, at least one month before the payment is due, that the expected rate of expenditure and actual cash position necessitate the payment, including a reasonable advance to cover approximately three months lead time for the next remittance. This confirmation and advance request will be submitted to UNEP using the format given in Annex II;

(ii) The presentation of

1. a satisfactory financial report showing expenditures incurred for the past quarter using the format given in Annex III;
2. timely and satisfactory progress reports on project implementation.

4.6 Follow-up action

The project was originally conceived to include activities that would advance the national mitigation strategy development activities in the participating countries towards the development planning context and establish a set of priority mitigation projects that the country could submit for GEF or other multi/bilateral funding. The total budget was estimated to be US\$ 4.9 million.

In view of the many enabling activities under way in some of the participating countries, it has been decided to focus the present project on the methodological development, testing and application together with the national and regional capacity building. The requested funding from GEF is for this first phase US\$ 3.0 million. The relevance of undertaking a Phase II will be assessed during the implementation of the first phase taking into account all other relevant national, bilateral and international activities in the participating countries.

Other possible follow-up actions have been described extensively in previous section, touching upon possible use and further development of the guidelines for UNFCCC and GEF uses, application of the guidelines and experiences in other enabling activities, etc.

The methodological framework established by the project will provide a "generalized methodology" for national CC mitigation assessment that can be applied by the participating institutions in their continued work on national strategy and reporting to the UNFCCC, after the project activities have ended.

The trained personnel and enhanced institutional capabilities will facilitate this further analysis and possible implementation of CC mitigation options.

Furthermore, the methodological framework could be directly applied or adapted for the large number of country study activities under preparation or implementation financed by GEF and bilateral agencies, as described in the section on other related activities.

The regional workshops will provide the basis for outreach in terms of directly informing and supporting other countries in the region on the methodological aspects and specific experiences obtained by the participating countries, including national and regional mitigation collaboration possibilities.

The national project experiences and assessments may also provide important background information for other Parties in the region and facilitate interaction that would help them meet their reporting obligations under the UNFCCC, Article 4.1(b).

The outputs of the project could contribute to the information needed to identify the incremental cost of individual options or more extensive programmes for GHG emission limitations, and provide a basis for realistic analysis of possible GHG emission trading or joint implementation schemes (in collaboration with PRINCE).

The regional level analytical activities will provide the basis for further methodological development at this level and allow countries in the selected sub-regions to start preparing joint projects and programmes, as appropriate.

During the project there will be different types of follow-up activities as described in other parts of the proposal. The project will be implemented in close collaboration with UNEP's Atmosphere unit and during the last year of the project, it will be decided if there is any scope in preparing a Phase II project, as originally envisaged.

The project performance and direction will be reviewed by the international steering committee every half year with the first meeting being scheduled shortly after the project has started. The members of the Steering Committee are listed under Section 5.1: Institutional framework and inputs of the organizations.

In terms of follow-up on the national level activities there are several mechanisms built into the project. Firstly, there are the three project team workshops bringing together all teams. Secondly, the national projects include formal progress reports and tripartite review meetings every half year.

Section 5 - Institutional Framework and Evaluation

5.1 Institutional framework and inputs of the organizations

The UNEP Collaborating Centre on Energy and Environment (UCCEE) will, as supporting organization, be responsible for the overall coordination of the project, including methodological development activities and the eight country studies. UNEP will assign a staff member to liaise with the project to maintain close links with other UNEP activities and ensure full interagency coordination.

UCCEE will work closely with Lawrence Berkeley Laboratory (LBL) on the implementation of the project. This collaboration will involve both country support and methodological development activities. Furthermore, UCCEE will contract the activities at the regional and national participating institutions, as well as from other institutions and individual experts required for technical assistance and methodological development.

Support to the national studies: Technical assistance for each of the national studies in the implementation of the project will be the responsibility of UCCEE with specific functions contracted to LBL. Other institutions and individual experts will be contracted by UCCEE and LBL for specific support functions, as required. UCCEE will have a designated task manager for each of the country studies, as part of the specific technical assistance, including participation in national workshops, progress review meetings, etc.. In addition, UCCEE will provide the core technical assistance to the countries in Africa and Eastern Europe. LBL will similarly provide the core technical assistance to the countries in Asia and Latin America. It is envisaged that where relevant, local institutions will be engaged in the technical assistance to enhance the capacity building aspect (e.g. ENDA (Environnement et Developpement du Tiers Monde) for Senegal, IDEE (Institute for Energy and Economy) for Argentina, SEI (Stockholm Environment Institute)-Tallin for Estonia, etc.).

National studies will be undertaken in the participating 8 countries. Institutions within each country have been selected by the government to undertake the studies with support and training, as indicated above. Briefs of the national institutional arrangements are attached as Annex VII.

Regional analysis will be undertaken by the identified regional "centres of excellence". For SADC, it will be the Southern Centre on Energy and Environment, Zimbabwe, jointly with the Centre for Energy Environment, Science and Technology, Tanzania. For the Andean Pact region, the activity will be undertaken by OLADE with support from IDEE. Both regional activities will be supported by the UCCEE and LBL teams.

Coordination of the methodological development will be the responsibility of UCCEE in close cooperation with LBL. Additional input will be provided by all the participating institutions and experts. Specific in-depth methodological development input will be contracted to internationally renowned experts and institutions where appropriate.

An international steering committee will be established to secure coordination with other

ongoing and planned activities and to provide advice on the overall implementation of the project. The committee will include representatives from UNDP, UNEP, the World Bank, the Convention and GEF Secretariats and three leading international experts in the area of mitigation analysis and economics. The experts to be invited are Mr. Karekezi, FWD (GEF/STAP), Mr. Markandya, HIID, Mr. Hourcade, CIRED.

Finally, formalized links with UNDP and bilateral country study programmes will be enhanced both in the participating countries and at programme management level.

5.2 Correspondence

All correspondence regarding this project should be addressed to:

At RNL:

The Head, UNEP Collaborating Centre
Systems Analysis Department
Riso National Laboratory
4000 Roskilde, Denmark

With a copy to those mentioned below.

At UNEP, on substantive and technical matters to:

Director, UNEP/IEPAC
Tour Mirabeau
39-43 Quai Andre Citroen
75739 Paris Cedex 15
France

with a copy to

Mr. Y. Adebayo
Programme Officer
United Nations Environment Programme
P.O Box 30552
Nairobi, Kenya

and a copy to the others mentioned herein.

At UNEP, on Fund, financial and budgetary matters to:

Chief, Fund Programme Management Branch
United Nations Environment Programme
P.O Box 30552
Nairobi, Kenya

with a copy to those mentioned above.

5.3 Evaluation

The project will be subject to an evaluation at the end of the project.

Section 6 Monitoring and reporting, other terms and conditions

6.1 Project Progress reports

Within 30 days of the end of each half year, as at 30 June and 31 December, RNL shall submit to UNEP, half-yearly progress reports on this project using the format given in Annex IV.

Taking into account the central role of the Management and Policy Committee (MPC), the progress reports must include full copies of MPC minutes and copies of any documents approved by the MPC, in particular guidelines, agreed outputs, detailed workplans, status and performance reports, terms of reference, job descriptions and contracts (but not including contracts of employment for professional staff of the Centre).

In addition to the project document, progress reports must, in general, reflect and refer to the relevant decisions of the MPC.

6.2 Terminal report

Within 60 days of completion of this project, RNL will submit to UNEP a terminal report of the project, using the format provided in Annex V.

As for half-yearly progress reports, the terminal report should fully take into account the decisions of the MPC.

6.3 Financial reports

(a) Project Expenditure Accounts:

- (1) RNL will report quarterly and cumulative annual details of project expenditure to UNEP in line with the budget objects of expenditure as set out in the Project Budget (Annex I) as at 31 March, 30 June, 30 September and 31 December in accordance with the standard format given in Annex III to this project.**

RNL shall provide a separate report on the use of Environment Fund and Counterpart Contribution funds in accordance with the project budget.

In connection with the quarterly expenditure report, RNL will provide a

separate financial report on the RNL contribution in kind indicating the basis of the calculation of the amounts reported.

All expenditure reports will be dispatched to UNEP within 30 days of the end of the period they refer to, certified by a duly authorized officer of RNL.

- (2) The expenditure accounts as at 31 December, certified by a duly authorized official, should be dispatched to UNEP within 30 days, as for other quarters, but, in addition UNEP requires that the end of the year expenditure accounts shall be certified by or supported by an opinion of a recognized firm of public accountants or Danish government auditors, whichever is applicable, which shall be dispatched to UNEP by 31 March. In particular, the auditors should be asked to report whether, in their opinion:
 1. Proper books of account and records have been maintained;
 2. All project expenditures are supported by vouchers and adequate documentation;
 3. Expenditures have been incurred in accordance with the activities outlined in the project document.
 - (3) Within 90 days of the completion of the project, RNL will supply UNEP with a final statement of account in the same format as for the quarterly statement, certified by or supported by an opinion of a recognized firm of public accountants or Danish government auditors. If requested RNL shall facilitate an audit by the United Nations Board of Auditors and/or the Audit Service of the accounts of the project.
 - (4) Any portion of cash advances remaining unspent or uncommitted by RNL on completion on the project will be reimbursed to UNEP within one month of the presentation of the final statement of accounts. In the event of any delay in such reimbursement, RNL will be financially responsible for any adverse movement in the exchange rates.
- (b) Cash advance accounts
- A statement and request of advances of cash provided by UNEP shall be submitted by RNL quarterly in the format shown in Annex II as at 31 March, 30 June, 30 September and 31 December.
- (c) Counterpart funds
- UNEP shall make available to Danida, upon request, annual and final accounts of the use of the Danish counterpart contributions in cash towards this project.

6.4 Other terms and conditions

6.4.2 Non-expendable equipment

RNL will maintain records of non-expendable equipment (items costing \$1500 or more and with a serviceable lifetime of 5 years or more, as well as items of attraction such as pocket calculators, cameras etc. costing \$500 or more) purchased with UNEP funds (or with Trust Fund or Counterpart Contribution Funds administered by UNEP), and will submit an inventory of all such equipment to UNEP twice a year, attached to the half-yearly progress report, indicating description, date of purchase, cost and present condition of each item. Non-expendable equipment purchased with funds administered by UNEP will remain the property of UNEP until its disposal is authorized by UNEP, in consultation with RNL. RNL shall be responsible for any loss of or damage to equipment purchased with UNEP funds.

The proceeds from the sale of equipment (duly authorized by UNEP) shall be credited to the accounts of UNEP, or of the appropriate Trust Fund or Counterpart Contribution.

RNL will attach to the terminal report mentioned in para 6.2 a final inventory of all non-expendable equipment purchased under this project, indicating the following:

Date of purchase, description, serial number, quantity, cost, location and present conditions, together with a proposal for the disposal of said equipment.

6.4.3 Responsibilities for cost overruns

Any cost overrun, defined as expenditure in excess of the amount budgeted at the sub-component level of the project budget (for example: 11 Professional staff or 42 Non-expendable equipment), shall be met by the organization responsible for authorizing the expenditure, unless written agreement has been received in advance, from UNEP. In cases where UNEP has indicated its agreement to a cost overrun by transfer of funds from one sub-component to another, a revision to the project document will be issued by UNEP.

6.4.4 Rate of exchange and responsibility for losses in exchange

UNEP will provide all cash advances in US Dollars and RNL will maintain project accounts and report all expenditure correspondingly in US Dollars. Any funds

Estonia

The core institutional structure of the Estonian project will be composed as follows:

Project Advisory Committee

The project will be executed under the coordination of the Estonian Commission on the Implementation of the UN-FCCC. The commission will oversee and advise on project execution. The Ministry of Environment, as designated lead agency on climate change issues, will be heading committee.

Project coordinator

Project coordination will be the responsibility of a designated expert associated with the Ministry of Environment. The coordinator will be responsible for project execution at the designated institutions for the individual tasks.

Technical Working Group (TWG)

A technical working group is being established to implement the project activities. The TWG includes experts on relevant issues like energy, forestry, ecology, etc.

Coordination with other country studies

Estonia is receiving support for climate change studies from the US-CSP for activities on:

- * Establishment of an inventory of GHG emissions and sinks.

This activity is coordinated by the Ministry of Environment and the relevant participating institutions are included in the above mentioned TWG in order to ensure that the project activities will build directly on the inventory work.

Focal areas of the project

The project will based on the results of the inventory project identify the key sectors and options for CC mitigation and undertake a full integrated mitigation strategy development process focusing on:

- Integration of existing energy sector studies in the common methodological assessment framework
- Analysis of mitigation strategies for energy and non-energy sectors
- Cross-sectoral economic analysis incl. macroeconomic impacts.

In addition the country team will be engaged in the methodological development activities in their key interest areas.

MINISTRY OF THE ENVIRONMENT EE 0100 Tallinn
REPUBLIC OF ESTONIA

24 Toompuiestee

TELEFAX MESSAGE

Date: 07.11.95
Number of pages: 1

To: Mr. Jorgen Fenhann
UNEP collaborating Centre on Energy and Environment
Ph. No. 45 46 77 51 05
Fax No. 45 46 32 19 99

From: Ministry of Environment of Estonia
Andres Kratovits
Ph. No. (372 2) 45 58 55
Fax No. (372 2) 45 33 10

Dear Mr. Fenhann,

Thank you for your fax of 16. 10. 1995. Sorry for the delayed answer but now after having talked to our experts, we can confirm our support to the final text with your last amendments and explanations.

We are looking forward to next steps and we hope very much to start with the implementation of the project already this year.

Yours sincerely,



Andres Tarand

Andres Kratovits

- Analysis of mitigation strategies for non-energy sectors
- Cross-sectoral assessment and national strategy development.

In addition the country team will be engaged in the methodological development activities in their key interest areas.

Ecuador

The core institutional structure of the Ecuadorian project will be composed as follows:

Advisory Commission

The Presidential Environmental Advisory Commission (CAAM) will be charged with the overall policy coordination for all aspects of the project. The CAAM will provide the technical team with the general guidelines according to strategies and policies adopted by the Government

Project coordinator

Project coordination will be the responsibility of the National Meteorological Institute. The coordinator will be responsible for project execution at the designated institutions for the individual tasks.

Technical Working Group (TWG)

A technical working group including experts from the Ministry of Energy and Mines and the Ministry of Agriculture will be charged with the implementation of the project activities. FEDEMA (Ecuadorian Foundation for Energy and Environmental Studies) will, as part of the national team provide substantive support to the working group.

Coordination with other country studies

Ecuador is receiving support for climate studies from the US-CSP covering:

- * inventory of sources and sinks
- * vulnerability assessment
- * assessment of mitigation options
- * strategy development
- * provision of input to national communication

These activities are coordinated by the National Meteorological Institute, which will head the steering committee for the present project.

Focal areas of the project

Ecuadorian country study will be directly utilised in the present project and coordination will be facilitated by the involvement of the same national team and the technical assistance being provided by LBL for both activities. Since the mitigation part of the US sponsored study is in its initial stages a coordinated workprogramme will be established to maximise the synergy between the two projects. Activities will jointly focus on:

- Detailed mitigation strategy development for the energy sector

Presidencia de la República
Comisión Asesora Ambiental

Av. 10 de Agosto N° 3560 y Mariana de Jesús, Edif. METROCAR, 4to. piso - Quito - Ecuador
Telf.: (5932) 540455 / 524304 / 547387 / 540920 - Fax: (5932) 565809

Quito, 31 de octubre de 1995
OFICIO CAAM-95-1656

Señor
John Christensen
UNEP COLLABORATING CENTRE ON ENERGY AND ENVIRONMENT
Riso National Laboratory
Roskilde, Dinamarca

REF.: Economics of GHG Limitations-Phase I: Establishment of a Methodological Framework for Climate Change Mitigation Assessment

Estimado Dr. Christensen:

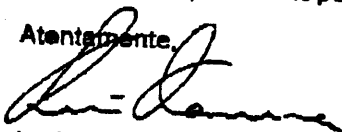
En seguimiento a la misión de trabajo efectuada por los señores J. Fenhann y A. Villavicencio me permito ratificarle el interés de la Comisión Asesora Ambiental en la participación del Ecuador en el proyecto en referencia.

Las reuniones mantenidas con los funcionarios del UNEP Centre han confirmado la complementaridad y concurrencia de objetivos entre el proyecto en referencia y el estudio "Ecuador Country Study" sobre el Cambio Climático, cuya coordinación lleva a cabo el Instituto Ecuatoriano de Meteorología (INAMHI) con apoyo del Gobierno de los Estados Unidos.

Por consiguiente, el INAMHI conjuntamente con la Dirección de Energía Alternas y la Subsecretaría de Medio Ambiente del Ministerio de Energía y Minas serán las instituciones responsables para la ejecución del mencionado proyecto. La Fundación Ecuatoriana de Energía y Medio Ambiente - FEDEMA apoyará y asistirá a las mencionadas instituciones en la realización de los estudios y análisis requeridos en el marco del proyecto.

Aprovecho la oportunidad para expresar a usted mis sentimientos de consideración y estima.

Atentamente,



Ing. Luis Carrera de la Torre
PRESIDENTE DE LA CAAM

- methods for simplified assessment of macro level impacts

The country team will in several of these areas be engaged in the methodological development activities.

Argentina

The core institutional structure of the Argentinean project will be composed as follows:

Advisory Commission

The National Commission on Global Change (CNCG) will be charged with the overall policy coordination for all aspects of the project. The CNCG will provide the technical team with the general guidelines according to strategies and policies adopted by the Government

Project coordination

Project coordination will be the responsibility of the State Secretariat for Science and Technology (SECYT).

Executing organisations

The Bariloche Foundation and the Institute for Energy Economy (IDEE) will be charged with the implementation of the project activities.

Coordination with other country studies

Argentina will be receiving support for climate studies from the GEF and US-CSP covering:

- * inventory of sources and sinks
- * vulnerability assessment for selected areas
- * assessment of mitigation options
- * provision of input to national communication

These activities are coordinated by the State Secretariat for Science and Technology, which will also coordinate the present project. For each component different working teams have been established and for mitigation the executing organisations are mentioned above.

Focal areas of the project

Country study activities are fully internally coordinated and for the mitigation part the parallel timing of the enabling project and this methodology project means that they jointly can widen the analysis towards a comprehensive evaluation of economic and broader social and political aspects of implementing a mitigation strategy. Activities under the present project will in particular focus on:

- integration of mitigation analysis in broader national development planning, including evaluation of secondary environmental and equity effects
- assessment of cost-effectiveness of key identified programmes and individual projects
- assessment of implementation issues and transactions cost related to overcoming institutional and policy barriers



Presidencia de la Nación
Secretaría de Ciencia y Tecnología

Por tal motivo, se designa a IDEE/FE como entidad ejecutante del proyecto de referencia y se delega en esta institución todo lo concerniente a la implementación y coordinación con el "UNEP Collaborating Centre on Energy and Environment".

En su oportunidad, la SECYT remitirá, a través de los canales oficiales que correspondan, el informe final.

Sin otro particular, saluda a Ud. atentamente.

Carlos MUNDT
Director Proyecto Nacional
sobre Cambio Climático

copia a:
* Dr. Burkun
* Dr. Zaballa
* IDEE/FE



Presidencia de la Nación
Secretaría de Ciencia y Tecnología

Buenos Aires, 3 de agosto de 1995.-

Dr.
John M. Christensen
UNEP Collaborating Centre
on Energy and Environment
RISO National Laboratory
PO Box 49
DK-4000 Roskilde
Dinamarca

Ref.: Aspectos Económicos Concernientes a la Limitación
de la Emisión de los Gases de Efecto Invernadero
(Economics of GHG Limitations - Phase I :
Establishment of a Methodological Framework for
Climate Change Mitigation Assessment)

Estimado Dr. Christensen:

Por medio de la presente deseo reafirmarle el interés de la Secretaría de Ciencia y Tecnología (SECYT) en la participación de Argentina en el proyecto de referencia.

La misión del Dr. Fenhan y el Dr. Villavicencio ha sido de mucha importancia para la coordinación de las diferentes actividades referidas a la problemática de la mitigación y ha permitido la interacción con diferentes especialistas y entidades vinculadas al tema.

Las reuniones mantenidas con los funcionarios de RISO/UNEP ha confirmado la complementariedad y concurrencia de objetivos entre el proyecto de referencia y el subproyecto de Mitigación del Proyecto Argentino sobre el Cambio Climático que está a cargo del Instituto de Economía Energética asociado a Fundación Bariloche (IDEE/FB).

ANNEX VII

Country Study Organisation and Coordination

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Mauritius	Country study sub-project format (example - similar documents available for all 8 countries)	25 - 41

Annex VII

Country study organization and coordination (to be attached)

- Long-term sustainability issues should include, for example, inter-generational equity, irreversibility in eco-system development, exhaustible resources.

The formal CC mitigation analysis should lead up to a broad national dialogue on the full policy context of GHG mitigation, including discussion of policy instruments, organizational set-up and funding possibilities. One important outcome will be the identification of cost-effective projects which warrant more detailed investigation to clarify project design and funding possibilities.

procedure for simplified macroeconomic impact assessment using existing national account statistics. The simplified macroeconomic assessments will, together with national economic development plans covering a short to medium term time frame, in most cases, provide sufficient basis for assessing trade-off between national development goals and CC mitigation.

Structural economic development in a longer time frame, however, needs to be addressed by formalized medium to long term macroeconomic models such as CGE models. The framework will consider how specific categories of national CGE models can be developed to reflect main potential macroeconomic impacts of CC mitigation.

The analysis will include the assessment of economic costs as well as a number of other effects which, for example, relates to equity and other environmental impacts than the climate effect.

The cost assessment focuses on measuring the cost to society of implementing GHG mitigation projects and strategies. CC mitigation strategies can impose the following main economic effects:

- Direct project costs: Investment, O&M, fuel costs, land use costs etc.
- Other direct economic effects such as employment effects, foreign exchange and capital requirements as well as implementation costs.
- Secondary economic effects in other sectors or at macroeconomic level (multiplier effects, relative price changes, structural changes).
- Economic implications of other environmental effects at national, regional or global scale.

The aim is to assess mitigation costs in a "bottom-up" way. The cost assessment begins in this way at the individual project level, moves up to integrated sector level assessment and ends finally with an assessment of main macroeconomic impacts. The complexity of the cost assessment increases with this upward movement in the project-sector-macro-economy hierarchy simply because the inclusion of more projects and sectors imposes significant structural and macroeconomic impacts.

The cost assessment can be supplemented with other variables including, for example:

- Non-market goods as, for example, environmental quality influenced by mitigation projects where monetary externality assessments are found inappropriate.
- Broader development criteria than the traditional economic welfare concepts including for example equity and urbanization.

The "data" comprise all the numerical information for the country studies which are exogenous to the modeling and assessment procedure. This includes common technical and economic national and international scenario parameters and information on mitigation options.

Main "data" elements will be:

- macroeconomic forecast with activity projections for the main economic sectors. The activities should be related to the most important GHG emitting sources and sinks in the energy sector, transportation, industry, agriculture, waste management, forestry and other land use activities.
- technology and emission data for main GHG emission sources and sinks.
- technical mitigation options and policy options.

A common analytical structure will be generically defined to provide the basis for comparative national studies using different models. The analysis comprises:

1. Establishment of baseline scenarios for the various sectors.
2. Identification and ranking of individual mitigation options.
3. Construction of mitigation scenarios for the sectors.
4. Macroeconomic assessment.
5. Social, political and economic assessment of strategies.

The country studies will exhibit differences in sophistication regarding the coverage of analytical steps. In particular, macroeconomic assessment and social, political and economic assessment will be a broad qualitative discussion rather than a formal assessment for some of the country studies.

It is a preference to use already established national models as background for the formal analysis. The country studies should therefore include reviews of national sector and macroeconomic models concerning assumptions, structure and existing results in perspective of CC mitigation. An important benefit of the modeling review process will be to establish a consistency between national development plans and CC mitigation strategies.

The modeling tools will include: Macroeconomic models, energy sector models, agricultural models, forestry models and specific forecasting models for other main emission sources.

In many countries, formalized macroeconomic models are not available or inappropriate for CC mitigation studies. The methodological framework will therefore define a

Annex VI

Key concepts of the analytical framework

The basic idea of the analytical framework is to define a common structure and set of assumption for national and regional CC mitigation studies as background for international co-ordinated efforts. The framework will define key uniform concepts regarding baseline and mitigation scenarios, economic cost concepts, technology assumptions, time-frame and discounting.

The aim is to conduct a comparable analysis of mitigation efforts relating to the most important GHG emission sources and sinks in the energy sector, transportation, industry, agriculture, waste management, forestry and other land use activities.

The analytical framework will encourage uniformity in country study structure including the following steps:

- construction of sector baseline scenarios on the basis of national development plans, including a macroeconomic forecast and GHG inventory. The baseline scenarios project sector activities for the most important sources and sinks of GHG.
- identification of mitigation options. Assessment of mitigation potential and cost of individual projects.
- assessment of mitigation potential and cost at sector level for mitigation scenarios. Macroeconomic impact assessment.
- assessment of joint environmental products and other non-market effects of the mitigation scenarios.
- comprehensive evaluation of implementation issues, costs and other impacts of the national mitigation strategy.

The formal analysis is going to be followed by a comprehensive evaluation of economic and broader social and political aspects of implementing a mitigation strategy.

Main formal elements of the country studies

A country study can be broken down into three main areas:

- data.
- analysis and assessment.
- modeling tools.

4. Use of outputs

State the use made of the outputs.

5. Degree of achievement of the objectives/results

On the basis of facts obtained during the follow-up phase, describe how the project document outputs and their use were or were not instrumental in realizing the objectives/results of the project.

6. Conclusions

Enumerate the lessons learned during the project execution. Concentrate on the management of the project, indicating the principal factors which determined success or failure in meeting the objectives set down in the project document.

7. Recommendations

Make recommendations to:

- (a) Improve effect and impact of similar projects in the future;
- (b) Indicate what further action might be needed to meet the project objectives/results.

8. Non-expendable equipment (value over US\$1,500)

Please attach to the terminal report a final inventory of all non-expendable equipment (if any) purchased under this project, indicating the following:

Date of purchase, description, serial number, quantity, cost, location and present condition,
together with your proposal for the disposal of the said equipment.

(c) TECHNICAL INFORMATION PUBLIC INFORMATION

Description _____

Date _____

(d) TECHNICAL COOPERATION

Grants and Fellowships Advisory Services Others(describe)

Purpose _____

Place and duration _____

For Grants/Fellowships, please indicate:

<u>Beneficiaries</u>	<u>Countries/Nationalities</u>	<u>Cost(in US\$</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(e) OTHER OUTPUTS

For Example: Centre of excellence, Network, Environmental Academy, Convention, Protocol, University Chair, etc.

ANNEX V
FORMAT OF TERMINAL REPORT

Implementing Organization _____

Project No.: _____

Project Title: _____

1. Project objectives

Re-state the objectives, needs and results of the project.

2. Project activities

Describe the activities actually undertaken under the project, giving reasons why some activities were not undertaken, if any.

3. Project outputs

Compare the outputs generated with the ones listed in the project document. List the actual outputs* produced under the following headings where appropriate:

(Please tick appropriate box)

(a) MEETINGS (envisaged under the project)

Inter-governmental (IG) Mtg. Expert Group Mtg. Training Seminar/Workshop Others

Title: _____

Venue and dates: _____

Convened by: _____ Organized by: _____

Report issued as doc. No/Symbol _____ Languages _____ Dated _____

For Training Seminar/Workshop, please indicate: No. of participants _____ and attach annex giving names and nationalities of participants.

(b) PRINTED MATERIALS

Report to IG Mtg. Technical Publication Technical Report Others

Title: _____

Author(s)/Editor(s) _____

Publisher _____

Symbol (UN/UNEP/ISBN/ISSN) _____

Date of publication _____

(When technical reports/publications have been distributed, attach distribution list.)

* Please see the definitions attached to the format of Half Yearly Progress Report

1. **Publications**

- (a) Books, reports, yearbooks, chronicles and biographical notes.
- (b) Periodical bulletins, newsletters, magazines and booklets.
- (c) Pamphlets, brochures, fact sheets and wall sheets.

2. **Other public information services**

- (d) Press releases.
- (e) Exhibits and other visual materials.
- (f) Films and videotapes.
- (g) Radio broadcasts and tapes of news, documentary and feature programmes.
- (h) Guided tours, group briefings, lectures and seminars.
- (i) Organization of special events.

GRANTS AND FELLOWSHIPS. These are funds awarded to individuals, organizations, etc. for specific activities/training. Grants and fellowships are considered final outputs.

ADVISORY SERVICES. Assistance provided to developing countries on environmental matters through the provision of consultants and/or UN staff expertise.

OTHER TECHNICAL COOPERATION. This includes among others, materials and equipment donated to developing countries for the implementation of certain projects.

DEFINITIONS (BASED ON UN TERMINOLOGIES)

ACTIVITY. In general terms, Activity denotes a programme, subprogramme, programme element or project. Specifically, it refers to action taken to transform inputs into outputs.

OUTPUTS. These are specific products or services which an activity is expected to produce in order to achieve its objectives; eg., trained personnel, meetings serviced, reports, publications or advisory, editorial, translation and security services. Activities may also have intermediate outputs, which in turn may serve as inputs to other activities or final outputs.

INTER-GOVERNMENTAL MEETING. A meeting is intergovernmental when the participants are representatives of Governments.

EXPERT GROUP MEETING. The objective of an expert group meeting is to advise the secretariat on a specific subject. Participants at these meetings act in their individual capacities, even when they are nominated by their Governments.

REPORTS SUBMITTED TO INTER-GOVERNMENTAL MEETINGS. These are official documents brought for the consideration of intergovernmental meetings. These reports are identified by a United Nations symbol; eg. the 1988 Annual Report of the Executive Director bears symbol UNEP/GC.15/4. SWMTEP 1990-1995 bears symbol UNEP/GCSS.I/7/Add.1.

TECHNICAL PUBLICATIONS. These include (i) sales publications, published internally or externally; or (ii) technical or scientific bulletins, journals, newsletters and similar publications distributed free of charge when they are intended primarily for users external to the Secretariat. A technical publication is generally identified by an international standard book number (ISBN) or an international standard serial number (ISSN) for periodical publications.

TECHNICAL REPORTS. These include reports of a technical nature which are not widely distributed outside the Secretariat. Generally technical reports are intermediate outputs which are used as inputs into other activities.

TECHNICAL INFORMATION. These include information of a technical nature provided to recipients outside the Secretariat. Typical technical information in UNEP is provided by INFOTERRA, IRPTC and IE/PAC; such as responses to queries of technical nature.

PUBLIC INFORMATION. This category includes all material which are generally of non-technical nature, whether free of charge or sold, that is distributed by the United Nations directly or through intermediaries to the general public. The material falls into two main groups of outputs:

(iii) TECHNICAL INFORMATION PUBLIC INFORMATION

Description _____

Dates _____

(iv) TECHNICAL COOPERATION

Grants and Fellowships Advisory Services Others(describe)

Purpose _____

Place and duration _____

For Grants/Fellowships, please indicate:

<u>Beneficiaries</u>	<u>Countries/Nationalities</u>	<u>Cost(in US\$)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- (b) Status of activities/outputs underway:
- (i) Meetings, seminars, workshops study tours, training courses, fellowships under preparation
 - (ii) Status of documents, reports, manuals, guidelines being prepared
 - (iii) Status of studies, surveys underway
 - (iv) Status of implementation of other activities

4. Summary of the problems encountered in project delivery (if any)
5. Actions taken or required to solve the problems identified in (4) above

ANNEX IV

PROG REP. EXT

FORMAT OF HALF-YEARLY PROGRESS REPORT
as at 30 June and 31 December

Implementing Organization _____

Project NO: _____

Project Title: _____

Reporting Period _____

1. Experts/consultants required, including duration of contract:

Name, nationality, duration of contract, fee and brief terms of reference

2. Major items of equipment ordered: (Value over \$1,500)

Please attach to the half-yearly progress report an inventory of all non-expendable equipment, indicating date of purchase, description, serial number, quantity, location, cost and remarks, for vehicles, give mileage report

3. Status of the implementation of the activities listed under WORKPLAN in the project document, and status of documents, reports, manuals, guidelines, etc.

(a) List actual activities/outputs* completed/produced under the following headings where appropriate:

(Please tick appropriate box)

(i) MEETINGS (envisaged under the project)

Intergovernmental (IG) Mtg Expert Group Mtg. Training Seminar/Workshop Others

Title _____

Venue and dates _____

Convened by _____ Organized by _____

Report issued as doc. No./Symbol _____ Languages _____ Dated _____

For Training Seminar/Workshop, please indicate: No. of participants _____ and attach annex giving names and nationalities of participants

(ii) PRINTED MATERIALS

Report to IG Mtg. Technical Publication Technical Report Others

Title _____

Author(s)/Editor(s) _____

Publisher _____

Symbol (UN/UNEP/ISBN/ISSN) _____

Date of publication _____

(When the above reports have been distributed, attach the distribution list)

* Please see attached definitions

ANNEX III

FORMAT OF QUARTERLY PROJECT EXPENDITURE ACCOUNTS FOR SUPPORTING ORGANIZATIONS

Quarterly project statement of allocation (budget), expenditure and balance (Expressed in US\$) covering the period

Project No.: to:
 Project title: Supporting organization:
 Project commencing: Project ending:

Object of expenditure by UNEP budget code	Project budget allocation for year.....		Expenditure incurred for the quarter		Cumulative expenditures this year		Unspent balance of budget allocation for year.....	
	m/m	Amount	m/m	Amount	m/m	Amount	m/m	Amount
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(2)-(6)
1100 Project personnel								
1200 Consultants								
1300 Administrative support								
1400 Volunteers								
1600 Travel								
2100 Sub-contracts								
2200 Sub-contracts								
2300 Sub-contracts								
3100 Fellowships								
3200 Group training								
3300 Fellowships								
4100 Expendable equipment								
4200 Non-expendable equipment								
4300 Premises								
6100 Operation								
6200 Reporting costs								
6300 Sundry								
6400 Hospitality								
99 GRAND TOTAL								

Signed:
 Duly authorized official of supporting organization

NB: The expenditures should be reported in line with the specific object of expenditures as per project budget.

ANNEX II

CASH ADVANCE STATEMENT

Statement of cash advance as at.....
 And cash requirements for the quarter of.....

Name of co-operating agency/
 Supporting organization _____

Project No. _____
 Project title _____

I. Cash statement

- 1. Opening cash balance as at.....\$ _____
- 2. Add: cash advances received: _____

Date	Amount
.....
.....
.....
.....

- 3. Total cash advanced to date \$ _____
- 4. Less: total cumulative expenditures incurred (_____)
- 5. Closing cash balance as at.....\$ _____

II. Cash requirements forecast

- 6. Estimated disbursements for quarter ending.....\$ _____
- 7. Less: closing cash balance (see item 5, above) (_____)
- 8. Total cash requirements for the quarter.....\$ _____

Prepared by _____ Request approved by: _____

Duly authorized official of co-operating agency/
 supporting organization

BUDGET

ECONOMICS OF GHG LIMITATIONS - PHASE I

3 - MEETINGS&TRAINING

3200 Training

3201 Training workshop I	80,000	0	80,000
3202 Training workshop II	80,000	0	80,000
3203 Guest research (UCC/LBL)	60,000	20,000	80,000

3300 Meetings

3301 - Project team workshops	100,000	50,000	150,000
3303 - Africa regional conf.	0	50,000	50,000
3304 - Asia regional conf.	0	50,000	50,000
3305 - Latin Am regional conf.	0	50,000	50,000
3306 - Eastern Europe reg. con.	0	50,000	50,000
3307 - Advisory group meetings	50,000	25,000	75,000

3 - TOTAL MEETINGS & TRAINING

	370,000	295,000	665,000
--	---------	---------	---------

5 - MISCELLANEOUS

5200 - Reporting cost

5201 - Report & info material	25,000	50,000	75,000
-------------------------------	--------	--------	--------

5300 - Sundry

5301 - Miscellaneous cost	15,000	10,000	25,000
---------------------------	--------	--------	--------

5 - TOTAL MISCELLANEOUS

	40,000	60,000	100,000
--	--------	--------	---------

6 - UNEP PARTICIPATION

6111 - Staff

	25,000	25,000	50,000
--	--------	--------	--------

6160 - Travel

	13,000	12,000	25,000
--	--------	--------	--------

6530 - Sundry

	5,000	5,000	10,000
--	-------	-------	--------

6550 - Evaluation

	0	25,000	25,000
--	---	--------	--------

6 - TOTAL UNEP PARTICIPATION

	43,000	67,000	110,000
--	--------	--------	---------

GRAND TOTAL

	1 556 000	1 442 000	3,000,000
--	-----------	-----------	-----------

ANNEX I

BUDGET
ECONOMICS OF GHG LIMITATIONS - PHASE I

4.4.2 BUDGET

	1996	1997	TOTAL
	wm	wm	
1 - PERSONNEL COMPONENT			
11 - Professional staff (net cost)			
1101 Coordination	48,000	48,000	96,000
1102 Methodology development	72,000	72,000	144,000
11 - Total, Prof. staff	120,000	120,000	240,000
12 - Consultants			
1200 Methodology/sector experts	100,000	50,000	150,000
13 - Administrative support			
1301 Administrative staff	30,000	30,000	60,000
16 - Staff Travel			
1600 Staff travel on off. busin.	75,000	50,000	125,000
1. TOTAL, PERSONNEL	325,000	250,000	575,000

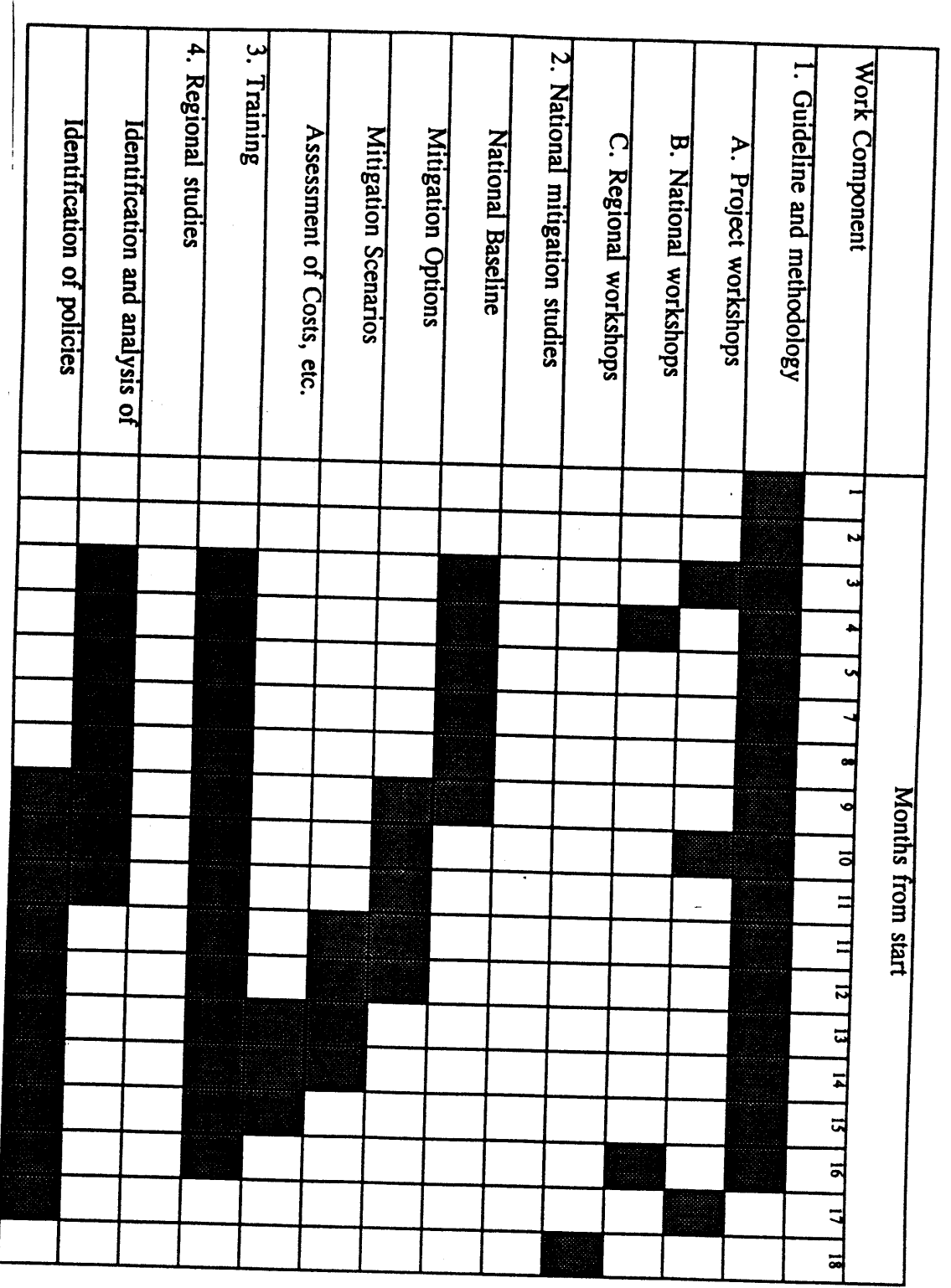


Figure 2. Tentative timetable for implementing the project.

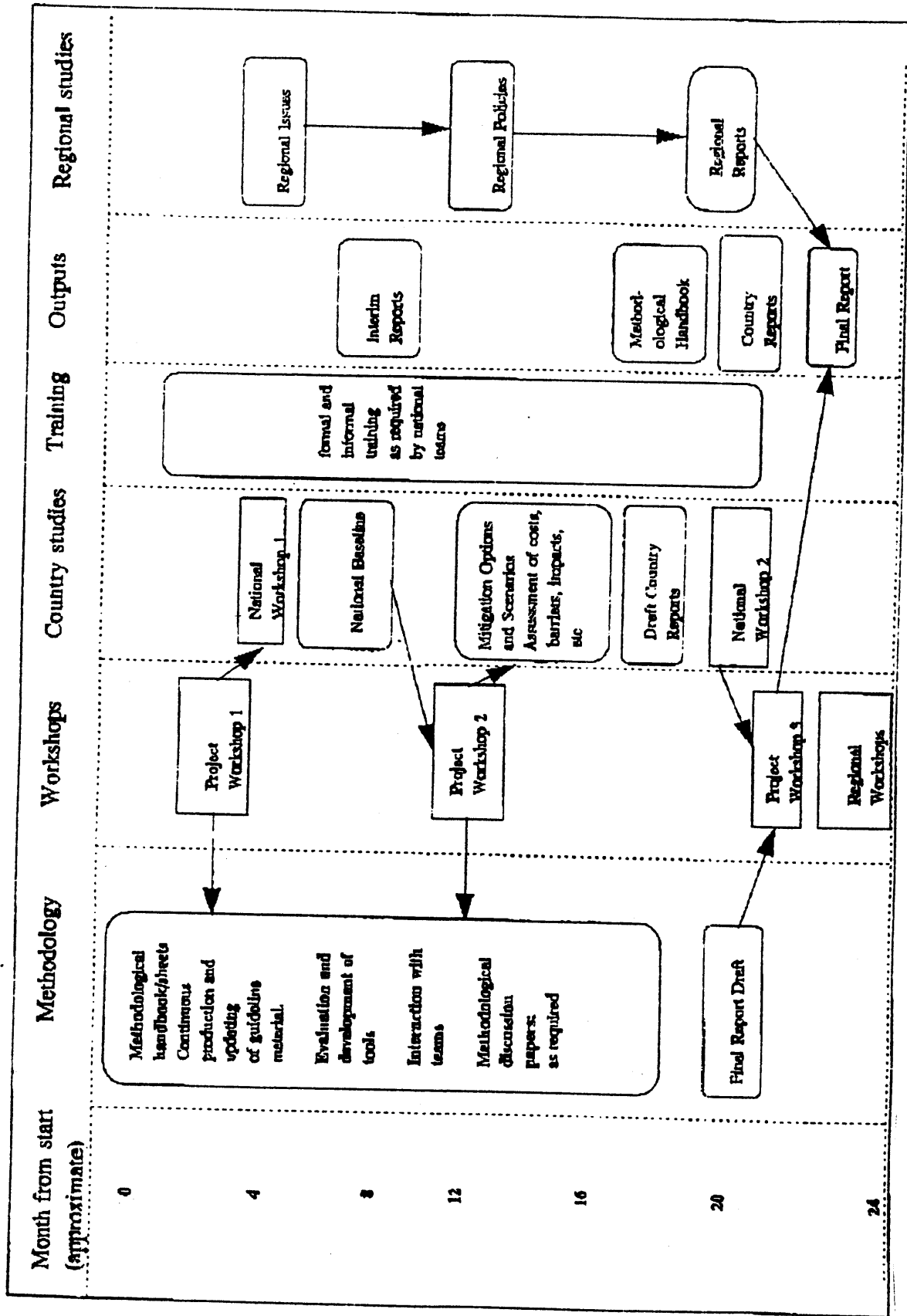


Figure 1. Project programme showing relationship between various components.

project budget for Counterpart Contributions does not constitute UNEP commitment for the years 1996 and 1997. Once funds have been received, UNEP shall issue a project revision to provide a commitment accordingly.

Environment Fund Budget

Through the authority of the Executive Director of UNEP to enter into limited forward commitments beyond the current biennium, the total UNEP Environment Fund budget for 1995 - 1997 will constitute a UNEP commitment after the signature of the document by all three parties.

However, should the decisions of the UNEP 18th Governing Council so necessitate, UNEP reserves the right to decrease or cancel the Environment Fund commitments for 1996 and 1997. Under such circumstances, the Ministry of Foreign Affairs of Denmark will have the right to revise or revoke its pledge for counterpart funding to the project.

converted to and expended in another currency will be reported in US Dollars using the actual rate of exchange prevalent at the time of converting the US Dollar cash advance received or part thereof into another currency.

RNL will be solely responsible for any loss in exchange and may not charge any such losses towards project costs. Should RNL wish to safeguard project funds provided by UNEP against losses in exchange, it may, *inter alia*, instruct UNEP in writing to transfer cash advances to an appropriate US Dollar account.

6.4.5 Claims by third parties against UNEP

RNL shall be responsible for dealing with any claims which may be brought by third parties against UNEP and its staff, and shall hold UNEP and its staff non-liaible in case of any claims or liabilities resulting from operations carried out by RNL under this project document, except where it is agreed by RNL and UNEP that such claims or liabilities arise from gross negligence or wilful misconduct of the staff of UNEP.

6.4.6 Rules governing management and administration of the project.

Unless otherwise implied in this project document or other agreements between RNL and UNEP, the administration and management of the project by RNL will be carried out in accordance with the relevant rules and regulations generally applicable in Denmark and for RNL. (eg, terms of employment of staff, rules and regulations governing travel and procurement).

6.4.7 Commitment of project funds and authority to incur expenditure

Authority to incur expenditure against the project budget does not exist until funds have been committed by UNEP after the signature of the project document by all parties.

Counterpart Contribution Budget

Although the Ministry of Foreign Affairs of Denmark have made a firm pledge (see Annex V) to support the project with a counterpart contribution in cash totalling \$ 2,220,000, UNEP may not commit these funds in excess of the amount actually received by UNEP in cash. By 31 March 1995, the Danish 1995 contribution of US\$ 740,000 has been received by UNEP. Consequently the

sent by fax: 45 46 321-999

Ministry for Environment and Regional Policy

Budapest, M6 utca 44 50.

telephone: +361 201-4091

Hungary, H-1011

fax: +361-201 4091

Budapest, 9 October 1995

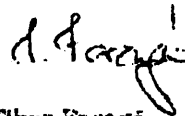
John M. Christensen
Head of Centre
UNEP Collaborating Centre
on Energy and Environment
Risø National Laboratory
P.O. Box 49
DK-4000 Roskilde

Dear Mr. Christensen,

According to our discussions on the Hungarian scoping mission with your colleague, Mr. Pramod Deo, enclosed you find the Hungarian Country Study sub-project proposal for the UNEP project entitled the Economics of GHG Limitations.

We appreciate all your comments if any modification is needed.

Yours sincerely,



Dr. Tibor Faragó

Hungary

The core institutional structure of the Hungarian project will be composed as follows:

Project Steering Committee

The project steering committee (PSC) will be charged with the overall policy coordination for all aspects of the project. The representative of the Ministry for Environmental and Regional Policy responsible for the coordination of FCCC-related national activities will carry out the supervisory functions.

Project coordinator

Project coordination will be the responsibility of the Head of Department of Environmental Economics at the Technical University of Budapest. The coordinator will be responsible for project execution at the designated institutions for the individual tasks.

Technical Working Group (TWG)

A technical working group will be established to implement the project activities. The TWG will include experts from relevant sectors, the TWG will ensure a maximum of coordination with other ongoing or planned activities.

Coordination with other country studies

Hungary is receiving support for three different climate studies at present:

- | | | |
|-------------|---|---|
| Netherlands | : | Cooperation agreement focusing on providing the basis for the National Hungarian communication to the FCCC |
| Norway | : | Support to analysis of long-term policy response options in the energy sector focusing on policy, financial and technological measures. |
| US | : | a) improvement and development of an inventory of sources and sinks with focus on sectoral assessments |
| | | b) development of scenarios and long term response options with focus on energy efficiency. |

These activities are coordinated by the Ministry of Environmental and Regional Policy, which will head the steering committee for the present project.

Focal areas of the project

To maximise the synergy with the mentioned studies the Hungarian project will focus on three key areas:

- Integration of existing energy sector studies in the common methodological assessment framework
- Analysis of mitigation strategies for non-energy sectors
- Cross-sectoral economic analysis incl. macroeconomic impacts.

The general approach for all countries will be to maximise the utilisation of existing studies, as far as they are compatible with the methodological framework, and focus project activities on the existing gaps. In addition the country teams will be engaged in the methodological development activities in their key interest areas.



KANTOR MENTERI NEGARA
LINGKUNGAN HIDUP

To : Mr. John M. Christensen
Fax : 45 - 46 - 32 19 99

From : Dr. R.T.M. Sutamihardja
Deputy Assistant Minister for Environment
Ministry of State for Environment

Fax : 62 - 21 - 374 307

Subject: Draft Proposal of Indonesia's Framework for Country Study Sub-projects to be Conducted as part of the UNEP Project "Economics of GHG Limitations - Phase I: Establishment of a Methodological Framework for Climate Change Mitigation Assessment"

Date : July 14, 1995

Dear Sir,

I herewith send you by fax a document of subject mentioned above (15 pages). Actually, I had sent you the document by email to Mr. Pramod Deo dated July 6, 1995. If you do not receive the document attached, please let me know.

I thank you very much for your kind collaboration, and I look forward to hearing the news of the implementation of the project soon.

draft as of July 14, 1995

1 of 16

13.

Indonesia

The institutional structure of the Indonesian project will be composed as follows:

National Climate Committee

The project will be executed under the coordination of the Indonesian National Technical Committee on Climate Change. The commission will oversee and advise on project execution and have decision making responsibility for all aspects of the project. The Committee is chaired by the State Ministry for Environment.

Project coordinator

Project coordination will be the responsibility of the State Ministry for Environment (SME). The appointed project coordinator will be responsible for project execution at the designated institutions for the individual tasks.

Technical Working Group

A Technical Working Group will be formed among the relevant institutions already participating in other country study activities in the area of CC mitigation, these will include government institutions, universities and NGOs. The group will be led by the project coordinator.

Coordination with other country studies

Indonesia is one of the countries that has been undertaking and receiving most support for climate change studies including 3 presently active projects in the area of mitigation analysis:

- GTZ : Mitigation analysis for the energy sector (BPPT)
- US-CSP: Country study on CC + support to national action plan (SME)
- ALGAS : Least Cost GHG Abatement Strategy (SME)

The GTZ project is close to finalisation and the draft report available while the US and ALGAS projects are under implementation, both projects are coordinated by the SME. It has been agreed that the same institutions will be involved in the detailed sectoral work in the present project, as is the case for US and ALGAS activities.

In addition to the above mentioned studies there has been and are a number of studies on impacts, adaptation, afforestation, etc. either on a national basis or with support from ADB, Japan and others.

In terms of the present project the large activity basis in Indonesia offers a unique opportunity to expand the testing beyond the basic methodological framework into the more advanced detailed analysis areas that can be recommended for countries that have the capability to go further than the "minimum requirements".


Focal areas of the project

The project will therefore in close coordination with the US and ALGAS projects focus on analysis in the areas of:

- mitigation analysis for non-energy sectors mainly agriculture and forestry
- implementation issues for selected options in the energy sector
- cross-sectoral economic analysis.
- macro economic analysis and integration in development plans

It can be added that the technical assistance for both the US and ALGAS mitigation work will be provided partly by LBL and coordination of the planned activities is therefore quite simple. Parts of the country team will be engaged in the methodological development activities especially on cross sectoral assessment and macro economic analysis.

**MAURITIUS METEOROLOGICAL SERVICE
ST. PAUL ROAD VACOAS-MAURITIUS
PHONE: (230)6861031/32
FAX: (230)6861033 TELEX 4722 METEO MW**

To: Dr. John Christensen Head of Centre Denmark	Telefax no. 004 546 321 999	File no. 9523.5/44
	Date: 11th September, 1995	Time Transmitted
	Authorised by: M. LEE MAN YAN Acting Director	Sent by:
From: Director Meteorological Services VACOAS Co-Chairmen NCC	Signature 	Position:
	Page 1 of 1	

Dear Dr. Christensen,

Thank you for your fax of 16 August 1995 and the draft framework proposal from Nairobi.

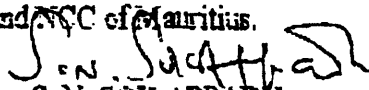
I am sure, you have been told, Mr. R. R. Vaghjee was away on mission to China and I was busy in Geneva with UNFCCC. I hope you had a fruitful stay in Mauritius. I regret you miss the fair on Sunday 13 August, Mr. Ragoonaden told me it was really outside their control as no means of transport was available and could not find a way to inform you as no telephone was available on the premises where the fair was held.

With regards to the draft proposal, please find below slight corrections/additions (underlined>) to the text.

- p.5, First line, add "Agalega" after St. Brandon
- p.5 last line, instead of Lands it should be Quality of Life
- *p.6, Under section "Mauritius and Global Environmental issues, 3rd para, The NCC is chaired by a representative from the Prime Minister's Office and it has remained
- p.7 Add Forest and institution is the Ministry of Agriculture and Natural Resources, Forest Department
- p.7 11th line (a) preliminary figures already available for 1990 which will be further be updated and with the
- p.7 Under section Institutional Arrangements
Chairman: Prime Minister's Office (a representative)
- p.7 Meteorological Services instead of Institute
- p.14 6th line add coastal resources after agriculture

Looking forward to a close collaboration between RISO and NCC of Mauritius.

Best regards,


S. N. SOK APPADU
for Co-Chairman

Mauritius

The core institutional structure of the Mauritian project will be composed as follows:

National Climate Committee:

The National Climate Committee (NCC) will be charged with overseeing and advising on the project execution and will have decision-making powers over all aspects of the project. As the Co-Chairman of the NCC, the Director of the Meteorological Services (MS), has been designated by the government as the project coordinator and the MS the executing agency for the implementation of the project.

Project Coordinator (PC):

The Director of the Meteorological Services (MS) will as Project Coordinator be responsible for project execution at the designated institutions for the individual tasks. His office will be formally responsible for carrying out all the activities listed in this project document through contracting activities to the identified institutions in government and at the University of Mauritius.

Technical Working Group (TWG):

A Technical Working Group (TWG) has been established to implement the project activities. The Technical Working Group includes technical experts from key relevant sectors including government agencies, academic institutions and representatives of the private sector. The membership of TWG is also established to ensure maximum coordination and synergy with other ongoing or planned activities.

Coordination with other country studies

Mauritius is receiving support from the US Country study programme for two studies:

- Inventory of GHG emissions
- Assessment of vulnerability to climate change and possible adaptation measures

Both activities are coordinated by the NCC and the Co-chairman, the Director of the Meteorological Services has responsibility for executing the two projects, as has been agreed for the present project.

Focal areas of the project

Focus of the Mauritian project will be on three key areas:

- Energy and transport
- Forestry and agriculture
- Economic analysis incl. macroeconomic impacts.

With the aim of fulfilling the requirements under the common methodological framework and jointly with the core project team go in more detail in the listed areas.

**MINISTRE DE L'ENVIRONNEMENT
ET DE LA PROTECTION DE LA NATURE**

Direction de l'Environnement

Dakar, le 08 AOUT 1995

**A Monsieur Peter Usher
Chief, Atmosphere Unit
UNEP/ NAIROBI**


**Objet: Projet PNUE/GEF sur les aspects économiques
liés à la réduction des Gaz à effet de serre.**

Monsieur,

Suite à la mission effectuée par Mr. Arturo Villavicienco au Sénégal sur le projet cité en objet, je vous confirme que la Direction de l'Environnement, Point Focal de la Convention cadre sur les changements climatiques, assurera la Coordination dudit projet.

L'ONG ENDA-TM devra en assurer l'assistance technique. Par ailleurs, les Directions de la Planification, de la Prévision et de la Statistique et de l'Energie seront étroitement associées à la réalisation du projet.

Veuillez agréer, Monsieur, l'assurance de mes sentiments respectueux.


Bakary Kante
BAKARY KANTE

cc. John Christensen (UCCEE)

Senegal

The core institutional structure of the project in Senegal will be composed as follows:

Ministry for Environment

The Ministry for Environment and Nature Protection will be charged with the overall policy coordination for all aspects of the project. The Ministry will provide the technical team with the general guidelines according to strategies and policies adopted by the Government.

Project coordination

As the National Focal Point for the Climate Change Convention the Directorate for Environment at the Ministry for Environment will be responsible for the project execution.

Executing organisations

ENDA's Energy Programme will be charged with the implementation of the project activities. Experts from the Directorates for Planning, Statistics and Forecasts, and Energy will provide substantive support to the technical working group.

Coordination with other country studies

Senegal has received support from the GEF and UNEP for conducting the National Inventory on GHG Sources and Sinks. The inventory was coordinated by the Ministry for Environment and Nature Protection and the relevant participating institutions included Environment and Energy Directorates as well as ENDA-Energy Programme.

Senegal is one of the country case study included in the Project 'UNEP Greenhouse Gas Abatement Costing Studies' carried out by the UNEP Collaborating Centre on Energy and Environment. ENDA-Energy Programme conducted the case study.

Focal areas of the project

The project will be based on the results of both the GHG national inventory and the UNEP Greenhouse Gas Abatement Costing Study. Since these studies have identified the key sectors and options for CC mitigation the present project will emphasise on widening the analysis towards a comprehensive evaluation and broader social and political aspects of implementing a mitigation strategy. Activities under the project will in particular focus on:

- detailed mitigation analysis for non-energy sectors mainly agriculture and forestry
- cross-sectoral assessment of mitigation strategies
- integration of mitigation analysis in broader national development planning.

Close coordination with existing studies will be facilitated by the involvement of the same national institutions which have participated in the above mentioned related studies.

HYDROMETEOROLOGICAL SERVICE OF THE SOCIALIST REPUBLIC OF VIETNAM
 INSTITUTE OF METEOROLOGY AND HYDROLOGY
 Telephone : 84 43 43590
 Fax : 84 42 60779
 Lang thuong - Dong Da
 Hanoi - Vietnam

TELEFAX TRANSMISSION

To : Dr. Pramod Deo
 Senior Energy Economist
 UNEP Collaborating Center
 RISO National Laboratory
 Fax : 45 46 32 1999

From : Dr. NGUYEN TRONG HIEU
 Director of IMH

Date: 5 September 1995
 Our ref N°: 9/01 UNEP

Nb of Pages:

Dear Dr. Pramod Deo,

We regret being unable to respond in time your requirement of communication on draft of Project document : "Economics of GHG Limitations - Phase 1 : Establishment of a Methodological Framework for Climate change Mitigation Assessment".

1. We would like to express a lot of thanks to you and UCCEE for selecting Vietnam - one of 8 countries to participate this project. This action indicates your kind support and assistance for our country .

2. The Project document has been studied by our experts and the opinion is as follows:

- The main items of document as Backgrounds, objectives, activities outputs and finance structure have been explained in detail. They are realizable and suitable for circumstances of participating countries.

- Vietnam as other developing countries is Party operating under the Article 4 has been required to report on GHG emissions and where relevant on mitigation plans including assessment of full and incremental costs and finance requirement. We highly appreciate the Project outputs and hope that the framework of Methodologies establishing by Project will enhance the institutional capacities of our relevant institutions in implementing UNFCCC.

- Vietnam now is participating the ALGAS Project. It will encourage us in cooperating with this Project and support each other. We hope that we will have a good chance to cooperate with implementing Agency (UCCEE) to carry out the tasks of Project successfully .

- The Project document has been translated in Vietnamese and distributed to different institutions.

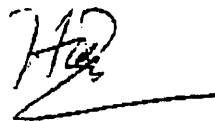
- By finalizing of Project documentation with considering the results of your missions to 8 countries. Please make more clear the specific situation selecting country.

Please submit finalized documentation directly to State planning Committee and a copy for us.

Thank you very much for your kind assistance and cooperation.

With best regards.

Yours Sincerely,



Dr. NGUYEN TRONG HIEU
Director IMH

cc : - Resident Representative
UNDP - HANOI
Fax: 259267

Vietnam

The core institutional structure of the Vietnamese project will be composed as follows:

Project Advisory Team

The project will be executed under the coordination of the Vietnam Climate Change Country Team. The commission will oversee and advise on project execution and have decision making responsibility for all aspects of the project. The Team will be chaired by the Director General of the Hydrometeorological Service.

Project coordinator

Project coordination will be the responsibility of the Hydrometeorological Service with the Institute of Meteorology and Hydrology (IMH) as the operational arm. The coordinator will be responsible for project execution at the designated institutions for the individual tasks.

Project Core Group

A core group of institutions has been selected to implement the project activities. The Group includes experts on relevant issues like energy, forestry, science and technology, agriculture and is lead by the IMH.

Coordination with other country studies

Vietnam is receiving support for climate change studies under the UNDP/GEF ALGAS project for activities on:

- * Establishment of an inventory of GHG emissions and sinks.
- * Initial studies of mitigation options and costs.

This activity is coordinated by the Hydrometeorological Service and the participating institutions are similar to the present project core group to ensure full coordination between the two activities.

Vietnam has also been part of the pilot phase of the CC:TRAIN programme and through this project a policy framework has been established for Vietnam's implementation of the FCCC. A draft implementation strategy framework has been established and this will provide the setting for the mitigation activities undertaken by this project. The awareness raising and policy dialogue under the TRAIN process will also be important for the implementation of the present project.

Finally Vietnam is analysing coastal vulnerability with Dutch support and previously worked on inventories with support from ADB.

Focal areas of the project

The project will be closely coordinated with the ALGAS project which started implementation mid-95. ALGAS generally focused on mitigation analysis, but especially in Vietnam and a few other countries with limited previous CC studies activities under ALGAS will be mainly on establishing the inventory plus limited mitigation work mainly in the energy sector. The present project will therefore focus on:

- mitigation analysis for non-energy sectors mainly agriculture and forestry
- complementing ALGAS mitigation work in the energy sector
- cross-sectoral economic analysis.

It can be added that the technical assistance for ALGAS mitigation work will be provided partly by LBL and direct integration of the planned activities is therefore possible. In addition the country team will be engaged in the methodological development activities especially on agricultural and forestry issues.

GLOBAL ENVIRONMENT FACILITY

UNITED NATIONS ENVIRONMENT PROGRAMME

Economics of GHG Limitations - Phase 1: Establishment of a Methodological Framework for Climate Change Mitigation Assessment.

Mauritius Country Study Sub-project

BACKGROUND AND CONTEXT

Introduction:

Under the United Nations Framework Convention on Climate Change (UNFCCC), which came into force on 21 March 1994, the Parties to the Convention are required among other commitments to report on GHG emissions and, where relevant, on mitigation plans, including assessment of full and incremental costs and financial requirements. The developing country Parties have 3 years to establish their first national reporting. In order to meet this commitment, capacity building and enabling activities will be a priority of the GEF, the interim financial mechanism of the UNFCCC.

The Convention states that Climate Change (CC) mitigation should be done in a cost effective way. This will require global coordination. It follows that there is a need for a consistent and widely recognized approach to assessing the economic costs of mitigation options. These costs represent important basic information input in relation to the technological and financial transfers which will have to take place, either bilaterally, multilaterally or both, when the Convention is fully implemented. Such an approach to CC mitigation assessment may be developed and refined by applying a consistent methodological framework in a coordinated manner to selected country case studies of mitigation strategies and options.

The limitation of greenhouse gas (GHG) emissions is a complex issue which is intimately connected with economic development at national and global levels. This complexity stems from the fact that key economic sectors such as energy, agriculture, industry and forestry all produce GHGs, and will be affected directly and indirectly by any mitigation policy.

As a first attempt at addressing these complex issues, UNEP initiated the project "National Greenhouse Gas Abatement Costing Studies" in 1991. The

project aimed at clarifying the many approaches to economic assessment and modelling GHG emission limitation, through practical application in specific countries. The UNEP project comprised a set of country studies based on comparable assumptions and a common analytical approach. The project was coordinated by the UNEP Collaborating Centre on Energy and Environment (UCCEE) at the Risø National Laboratory, Denmark.

The project under preparation builds on the experience of the initial UNEP project, but will also benefit substantially from the guidance on mitigation methods prepared for the US Country Study Programme by Lawrence Berkeley Laboratories (LBL is one of the cooperating organisations of this project) and the IPCC mitigation report, which is to a large extent based on the work of UCCEE and LBL.

Institutional capacity building at the national level will be given high priority in the project case studies and activities will be designed to interact with and contribute to other enabling activities in the participating countries.

The selection of countries for the case studies covers as wide a range of diversity as possible in order to ensure that the developed methodological framework will be generally applicable.

The list includes countries in Asia, Africa, Eastern Europe and Latin America, at different stages of economic development.

The selection of countries follows the guidance given by the GEF Council, and the national studies will be closely coordinated with the GEF financed regional programmes and other enabling activities, the PRINCE program and the relevant bilateral country study programmes.

Regional and sub-regional interaction between countries will be addressed as a separate activity in order to identify and assess cost-efficient regional options, such as interconnection of power systems which may not be fully captured in the national analysis.

Following the GEF mandate, the project is targeted towards developing countries and transitional economies. In order to broaden the methodological scope and to provide useful inspiration to national teams, it is the intention that comparable studies in a few industrialized countries be run in parallel. Funding for such activities would be provided directly by the countries themselves.

Mauritius Country Study - a Component of the UNEP Project:

The Framework Convention on Climate Change (FCCC) indicates the need to implement a range of activities in support of the Convention objectives. For instance, Articles 4 and 12 of the FCCC obligate countries to prepare and report the:

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

In addition to enabling the country to fulfil its reporting requirement, the process facilitates a better understanding of the future policy and operational options in light of the current and possible obligations under the Convention. For instance, the GHG inventories (particularly of sources of emissions) can be expected to serve as:

- the starting point for the ongoing international negotiations on the control of GHGs
- baseline data for comparing emissions and for negotiating targets for emission control
- the basis for national planning for sectors relevant in the context of GHG emissions
- baseline data for preparing and implementing least cost GHG reduction strategies.

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

Therefore, the national sub-projects are 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 UNEP project responds to such objectives by implementing country level activities needed to enable the participating nations fulfil their commitments to implement the Convention.

A total of 8 national studies distributed over the four "developing regions": Africa, Asia, Latin America and Eastern Europe employing a common methodological framework will be implemented. The criteria for selection of the participating countries have been:

- Coverage and importance of main emitting sectors and gases, regionally and globally.
- Availability of initial country level emission assessment.
- Relation to sub-regional cooperation in energy markets, trade, etc.
- Different economic development levels and industrial structures.

- UNEP GEF
- Relations to other country studies and avoidance of overlap and duplication of efforts.
 - Political and institutional ability to participate fully and contribute to the project process.

The following countries that generally meet the above criteria have confirmed their participation in the project through their governments:

Argentina, Ecuador, Estonia, Hungary, Indonesia, Mauritius, Senegal and Vietnam.

The Government of Mauritius has confirmed its participation (to be prepared) in the UNEP project following a scoping mission undertaken by the UNEP Collaborating Centre on Energy and Environment (UCCEE) from 9 to 13 August. During this mission a broad framework for the country study was discussed and agreed to by the participating institutions. The national mitigation study will be a collaborative venture between the central UNEP project team and the designated national institutions. Strong national involvement in the studies is required to ensure that the analysis is firmly rooted in official economic planning activities, as well as developing local expertise and reaching a consensus on the common methodology.

The country studies will be supplemented by two analyses at sub-regional level to be undertaken by designated regional "centres of excellence" in collaboration with the UCCEE project team. The regional analysis activities will include specific regional mitigation assessment for the SADC and Andean Pact, including studies of possible regional and sub-regional cooperation in energy markets, trade, transport, etc.

THE STRATEGY OF MAURITIUS IN THE CONTEXT OF CLIMATE CHANGE MITIGATION

National setting

The State of Mauritius comprises the islands of Mauritius, Rodrigues, St. Brandon, Agalega and in addition a number of smaller islands with limited or no population.

The main island Mauritius has a land area of 1860 km₂ and a population of just around 1.1 million inhabitants. The total coastline is approx. 200 km and most of it is surrounded by coral reef. Combined with the location in a cyclone belt with a number of cyclones each year this makes Mauritius very vulnerable to changes in global climate.

The Mauritian economy is dominated by three activity areas: Textile manufacturing, sugar production and tourism. Approximately half of the land area is cultivated and 90% of this area is used for production of sugar cane. The Mauritian economy has traditionally been very dependant on sugar production, but although it is still the dominant crop a deliberate diversification of the economy over the last decades has led to rapid expansion of especially the textile manufacturing and tourism industries making these the two largest foreign exchange earners. Priorities in the national planning process is generally on further diversification of the economy especially within the agricultural and manufacturing sectors.

Mauritius has one of the highest population densities in the world and concerted efforts have been made to limit population growth so the annual increase is now around 1% and expected to still drop slightly. At the same time Mauritius has been able to achieve one of the highest literacy rates among developing countries and has both a relatively stable economic growth and very limited formal unemployment.

National Environmental Policy

Environmental concerns have been given increased priority in the latest development plans and both in terms of institutional structures and legislative foundation major steps have been taken in the early nineties.

Mauritius has participated actively in international environmental cooperation since the UN conference on the environment in Stockholm in 1972, but it was only more than a decade later that environment was "promoted" to a ministerial responsibility under a Ministry of Housing, Quality of Life and Environment although with very limited staff and responsibilities.

It took another 6 years before a separate environment department was created in 1989, but since then the pace of change has been rapid. Following a World

Bank sponsored national seminar on Mauritius Environmental Protection Programme late 1988 it was decided to develop a national environment policy and already in 1990 a separate ministry for Environment and Lands was established.

This Environmental Protection Act was prepared and approved by parliament in 1991 and it sets out both the guiding principles for national sustainable development and establishes the institutional mechanisms for policy making and enforcement. These principles are further elaborated in an ambitious state of the environment report prepared by the government as input to the Earth summit in Rio de Janeiro in 1992.

Related sectoral policies like the Forest and Reserves Act and the Wildlife Act have been in place for a longer period, but the Environmental Protection Act was the first comprehensive set of legislation. Several areas of the framework provided by the Act still need to be elaborated, but it is evident that environmental concerns increasingly are integrated in decision making.

Mauritius and Global Environmental Issues

Mauritius is, as mentioned above, an active participant in international environmental agreements like Law of the Sea, East African Regional Seas Action Plan, CITES, the Ozone Convention and Montreal protocol.

In the area of Climate Change Mauritius participated in the negotiations of the FCCC and was the first country to ratify the convention after the initial signing had taken place at the Earth Summit.

In fact a ministerial decree had already in February 1991 established a National Climate Committee (NCC) with the mandate "to improve our knowledge on climate change and its social, economic and environmental impacts". The NCC is chaired by a representative from the Prime Minister's office and it has remained the main policy advisory body in the area of climate change. As noted in the institutional description the NCC will play a key role in the implementation of the present project as it will both be charged with overseeing and advising on the implementation of the project and the coordinating function will be performed by its co-chairman.

Prior and Ongoing Assistance for Climate Change Studies:

Mauritius is receiving support for the US Country study programme for two studies:

- Inventory of GHG emissions
- Assessment of vulnerability to climate change and possible adaptation measures

Both activities are coordinated by the NCC and the Co-chairman, the Director

of the Meteorological Services has responsibility for executing the two projects. The formal implementing organisation is therefore the Meteorological Services, which is institutionally placed under the Prime Minister's Office.

The tasks under the two projects have been divided in line with normal institutional responsibilities. The inventory project is jointly executed by the Ministry of Environment and Quality of Life and the Meteorological Services, and for the vulnerability and adaptation project the tasks are divided according to the key impact areas:

- Coastal Zones: Meteorological Services
- Crops: Mauritius Sugar Industry Research Institute
- Water resources: Ministry of Water Resources
- Forests: Ministry of Agriculture and Natural Resources, Forest Department

Activities started late 1994 as part of the second round of the US programme. The agreement with the US CSMT also includes provision for a mitigation study, but in view of capacity constraints and the coming UNEP project it was decided to postpone the decision on a possible mitigation activity. This means that there at present is no mitigation studies on-going or prepared for Mauritius.

The coordination aspects concerning the implementation of the project therefore mainly focuses on:

- a/ Preliminary inventory figures for 1990 already available will be further updated with the socio-economic development assumptions used for the adaptation analysis.
- b/ Utilization of related work done for example on sectoral level, socio-economic and macro-economic studies, etc. Several studies have been identified and the relevant material has been made available. In addition the established technical working group comprises participants from all the relevant institutions either as provider of data and information or as part of the analytical expertise.

Institutional Arrangements in the Context of Climate Change

The establishment and mandate of the National Climate Committee has been described above and the listing of member institutions below gives a clear impression of the both comprehensive coverage of relevant institutions and the relative importance attached to the committee.

National Climate Committee

Chairman : Prime Minister's Office (a representative)
Co-chairman : Meteorological Services (Director)

Member institutions:

Ministry of Finance	Ministry of External Affairs	Ministry of Agriculture and Natural Resources
Ministry of Health	Ministry of Industry	Ministry of Economic Planning and Development
Ministry of Tourism	Ministry of Energy	Ministry of Education and Science
University of Mauritius	Mauritius Sugar Authority	Ministry of Environment and Quality of Life
Central Electricity Board	Irrigation Authority	Ministry of Housing, Lands & Town Country Planning
Central Water Authority	Marine Authority	Mauritius Sugar Industry Research Institute
State Trading Corporation	Landslide Protection Unit (M.O.L.G.)	Mauritius Chamber of Agriculture
Ministry of Work	National Transport Authority	Central Statistical Office

PROJECT STRATEGY AND INSTITUTIONAL ARRANGEMENT

Overall Project Strategy:

The UNEP Collaborating Centre on Energy and Environment (UCCEE) will be responsible for the overall coordination of the project including methodological development activities and country studies.

UCCEE will work closely with Lawrence Berkeley Laboratories (LBL) on the implementation of the project. This collaboration will involve both country support and methodological development activities. UCCEE will furthermore contract the activities at the regional and national participating institutions and from individual experts.

Support to the national studies: Support for each of the national studies to assist in the implementation of the project will be the responsibility of UCCEE and LBL. Other institutions and individual experts will be contracted by UCCEE and LBL for specific support functions, as required.

National studies will be undertaken in 8 countries, spread over four regions, selected on the basis of criteria described above. Nodal institutions within each country will be selected by the government to undertake the studies with support and training, where necessary, provided by the supporting institutions.

Regional analysis will be a separate activity undertaken by identified regional "centres of excellence" and supported by the UCCEE and LBL.

Coordination of the methodological development will be a joint responsibility of UCCEE and LBL with additional input provided by all the participating institutions and experts. Specific in-depth methodological input development will be contracted to internationally renowned experts and institutions where appropriate.

An international steering committee will be established to secure coordination with other ongoing and planned activities and to provide advice on the overall implementation of the project. The committee will include representatives from the UNDP, UNEP, World Bank, the Climate Change and GEF Secretariats and three to four leading international experts in the area of mitigation analysis and economics.

Finally formalised links with UNDP and bilateral country study programmes will be enhanced both in the participating countries and at programme management level.

Institutional Mechanism for Country Studies:

The national sub-projects will generally be executed and implemented using the following key national institutional actors:

<i>Executing Agency:</i>	<i>Government Institution of the Country</i>
<i>Policy-Making:</i>	<i>National Climate Committee (NCC)</i>
<i>Project Operation:</i>	<i>Project Coordinator assisted by a National Technical Working Group (TWG)</i>

Because of the national commitments to be made, a Government nominated ministry or agency will be the executing body. This arrangement will also allow the project to access the governmental network.

The core institutional structure of the Mauritian project will be composed as follows:

National Climate Committee:

The National Climate Committee (NCC) will be charged with overseeing and advising on the project execution and will have decision-making powers over all aspects of the project. As the Co-Chairman of the NCC, the Director of the Meteorological Services (MS), has been designated by the government as the project coordinator and the MS the executing agency for the implementation of the project.

Project Coordinator (PC):

The Project Coordinator will be responsible for project execution at the designated institutions for the individual tasks. His office will be formally responsible for carrying out all the activities listed in this project document through contracting activities to the identified institutions in government and at the University of Mauritius.

Technical Working Group (TWG):

A Technical Working Group (TWG) has been established to implement the project activities. The Technical Working Group includes technical experts from key relevant sectors including government agencies, academic institutions and representatives of the private sector. The membership of TWG is also established to ensure maximum coordination and synergy with other ongoing or planned activities.

The detailed workplan, timeschedule, substantive responsibilities and budgeting will, as for the other countries, be established during the first project workshop where all national teams will be gathered.

Work Group Members:

S.N. Sok Appadu	Acting Assistant Director	Meteorological Services
P. Ramgolam	Ag. D.E.O	Ministry of Environment and Quality of Life
S. Mungloo	D.F.A	Forestry Service, Min. of Agriculture
R. Jhowry	H.E.O	Ministry of Trade & Shipping
A.R. Nabheebucus	Transport Planner	National Transport Authority
B. Asyrigadoo	Trade & Marketing	S.T.C
K. Upadhyaya	Economist	Ministry of Energy
V. Sannassee	Economist	Ministry of Economic Planning & Development
A.H. Nakhuda	Principal Economist	Ministry of Economic Planning & Development
R. Panray	Lecturer	University of Mauritius
I. Fagoonee	Professor	University of Mauritius
D. Manraj	Principal Statistician	Central Statistical Office
S. Appiah	Conservator of Forests	Ministry of Agriculture
S. Ragoonaden	Div. Meteorologist	Meteorological Services

During the preparatory discussions with the work group it was agreed that the general focus of the Mauritian project will be on three key areas:

- Energy and transport
- Forestry and agriculture
- Economic analysis incl. macroeconomic impacts.

IMMEDIATE OBJECTIVES, OUTPUTS AND ACTIVITIES

Short term Objectives:

The principal objective of the sub-project is to organize and conduct a national level study adopting a common methodological framework for calculating the cost of climate change mitigation activities at country level by testing and applying this framework to specific case studies.

In the process of completing the country study, the project will also lead to the development and/or enhancement of local capacity to undertake this task independently after the conclusion of the project.

Immediate Objectives:

The immediate objectives of the project are:

- construction of baseline and mitigation scenarios
- integration of mitigation options in economic development planning
- calculation of mitigation costs at sector level
- assessment of cost-effectiveness of key options
- assessment of macro level impacts
- assessment of joint products
- examination of implementation possibilities
- analysis of possible mitigation policy measures

Outputs and Activities:

Outputs of the UNEP Project:

The UNEP project will lead to four principal types of output:

- (a) Operational guidelines for integrated CC mitigation analysis implemented and tested in a broad variety of country settings.
- (b) Improved local capacity in government and other relevant organisations through training and actual participation both in the short and long term activities, including improved capacity at the regional level.
- (c) Input to the national UNFCCC reports including data basis and strategy analysis for the main GHG emitting sectors.
- (d) Establishment of key components of the first national mitigation strategy integrated with national development priorities including, as stated under (b), also the local capacity to continue the planning of additional activities. It must be emphasized that the strategy development and the implementation must be seen as a long term process where the Convention requirements are likely to be gradually strengthened.

The specific deliverables that the project will produce include the following:

A publication ("handbook") detailing the methodological framework for national assessment of the cost of climate change mitigation activities that provides an important input to a possible common structure for national reporting under the UNFCCC.

Country reports for 8 participating countries that assess mitigation costs for key sectors and analysis of key options including evaluation of cost-effectiveness, identifying specific policy measures, investment options and factors which may hinder their implementation. These reports would include an extensive description of the methods used and the assumptions and data employed in a uniform structure and reviewed by the project team and international experts.

Regional reports containing an assessment of specific regional mitigation options and costs, identifying specific policy measures that could be undertaken jointly, investment opportunities and financing, and factors which may hinder the implementation of regional collaboration.

Proceedings from project workshops.

An overall final report, summarizing the country studies in a comparative analysis framework and lessons learned from applying the methodological framework.

Trained personnel in the use of the methodological framework and enhanced institutional capacities in the participating countries.

Outputs and Activities of National Sub-project:

The principal output of the national sub-project will be a country report assessing mitigation strategies and will include:

- construction of reference and mitigation scenarios
- calculation of mitigation costs at sector level
- analysis of cost-effectiveness for key options
- assessment of macro level impacts
- analysis of possible policy tools and measures
- assessment of joint products
- implementation barriers and policy tools

The steps in the analysis leading to the main objective of the sub-project and activities involved in these steps will be described in an initial guideline document, which will be issued at the start of the project and provide basis for the discussions at the first project team workshop.

Training Programme:

As the project has a significant focus on capacity and institutions building, training activities are a significant component of the project at all levels, as described above. The training element of the project is made up of three kinds of inputs: technical experts and consultants, in-service training, and national, international and regional workshops. The personnel inputs for training will include technical experts in climate change, climate change mitigation, energy, forestry, agriculture, coastal resources, economics and broadly on the requirements under the UN Framework Convention on Climate Change.

Technical Assistance

Extensive support by technical experts will be provided during the project to support the national institutions in the studies and analyses, and to train national governmental and non-governmental organizations in relevant subjects related to the substance and process of climate change and mitigation analysis. The assistance needs and priorities will be assessed jointly by the national team and the key supporting organisation for Mauritius, which will be the UCCEE.

In-Service Training

In-service training will include participation of selected government and representatives and project researchers in national as well as international workshops with national and international expert support, as required. Although the mitigation assessment methodology will be based on the UCCEE and LBL mitigation guidance documents further development and refinements will take place in an iterative process throughout the project. Several areas of mitigation analysis will require further development, testing and application especially in a developing country context.

Among these areas, five require special mention:

- integration of mitigation analysis in the broader national economic development strategy including evaluation of secondary environmental and equity effects, etc.
- assessment of cost-effectiveness of key identified programmes and individual projects.
- construction of baselines and GHG mitigation cost curves with the inclusion of several GHGs, and treatment of dynamic relationships between reduction targets, different options, etc.
- assessment of implementation issues and transaction costs to overcome institutional barriers to the implementation of mitigation measures.

- methods for simplified assessment of macro level impacts of CC mitigation programmes in developing and transitional countries.

Topics for this training will be selected by the Central Project team in consultation with the national Project Coordinator. It is the ambition to involve experts from the national teams in development of specific parts of the methodological framework e.g. by writing joint research papers on topics of particular relevance for the specific national analysis.

Project Workshops

Following workshops are planned:

- (a) **National Workshops:** Awareness raising at policy level and capacity building in the involved institutions will be key elements of the national workshops along with consensus building around the scope and results of the project. The broader awareness building activities will draw on the experience of the Climate Change Interim Secretariat and UNITAR and utilize the information provided by the CC:TRAIN and CC:INFO programmes.
- (b) **Project Team Workshops:** Three project workshops bringing together all country teams and project participants will be used to enhance the methodological framework, present the national experiences and results, and serve as forum for exchange of application experience. These workshops will be convened, early, midway and late in the project.
- (c) **Regional workshops:** Workshops will be organised for countries in Africa, Asia, Latin America and for countries with Economies in Transition. These workshops will serve as a forum for presentation of the preliminary results and experiences of the national studies, their relevance and replicability in the region and the methodological framework. Participants from other countries will also be requested to contribute, and the two sub-regional activities will be presented at the relevant workshops.

INPUTS BY GOVERNMENT OF THE GOVERNMENT OF MAURITIUS

Mauritius has the general institutional capacity to establish and carry out the activities of this project. It will provide a significant level of counterpart support including personnel and support facilities like:

- * Participation of technical experts in the national technical working group from research institutions and government agencies.
- * Support services (secretarial, administrative, transport, etc.) to the NCC, the Technical working group and the project coordinator

Budget allocations

The detailed budget will be established together with the workplan and timeschedule for the national activities. This will take place at the first project workshop, which will be convened as soon as possible after the official start of the project.

The funding available for the national studies is composed of the following components:

In-country activities (staff/researchers/sundry/reporting, etc.)	50,000 US\$
Technical assistance	100,000 -
In-kind contribution	[magnitude as in-country activities]

In addition the national team will benefit from the resources available for general project activities through participation in:

- Project team workshops
- Formal training seminars
- Extended research periods at UCCEE
- Regional workshop

- * Basic communication and office facilities for the coordinator
- * Additional data, information and expertise as required
- * Library and information facilities
- * Office accommodation for members of the working group and contracted researchers

PROJECT REVIEWS, REPORTING AND EVALUATION

The Project Coordinator will prepare a Project Progress Report for the meetings of the National Climate Committee. These Project Progress Reports will be sent to NCC members and will be evaluated during the regular (minimum half yearly) meetings of the NCC.

The project will be subject to formal tripartite review (joint review by representatives of the government/NCC, the MS executing agency, and UCCEE) at least once every 6 months, the first meeting to be held within the first 6 months of the start of full project implementation. The project coordinator shall prepare and in advance submit to each tripartite review meeting a Project Performance Evaluation Report (PPER). Additional PPERs may be requested if necessary during the project.

A draft project terminal report will be prepared for consideration at the final tripartite review meeting. It shall be prepared sufficiently in advance to allow review and technical adherence by the executing agency and the central project team.

The final draft national report will be presented at the second national workshop and revised in accordance with the recommendations from the workshop before presentation at the third and final workshop of all the national project teams. The final report will be submitted to UCCEE in accordance with the timeschedule established as part of the contractual arrangement.

A post-project evaluation will be undertaken by UNEP in collaboration with the relevant parties not later than six months after the termination of the project, in order to evaluate the extent to which the outputs of the projects are being used as intended.